

**今を生きる
ともに未来へ**

**Living in the present
Advancing into the future together**

気仙沼市立病院

東日本大震災

活動記録集

**The Collected Records of the Activities of
Kesennuma City Hospital in the Great
East Japan Earthquake Disaster**

目次

卷頭言 Foreword

病院管理者 気仙沼市長 菅原 茂	
Shigeru Sugawara	The Mayor of Kesennuma City
	The Administrator of Kesennuma City Hospital
病院施設長 気仙沼市立病院 院長 遠藤 渉	
Dr. Wataru Endo	The Hospital Facility Director
	The Director of Kesennuma City Hospital
気仙沼市立病院脳神経外科科長	
宮城県災害医療コーディネーター 成田 徳雄	
Dr. Norio Narita	The Director of Neurosurgery Department
	Kesennuma City Hospital
	The Disaster Medical Coordinator of
	Miyagi Prefecture
市立病院における経過	The Course in Kesennuma City Hospital
災害医療活動報告	The Reports of Our Disaster Medical Service

診療部 The Medical Department

医局 The Medical Office

研修医 Resident Physicians

透析センター The Hemodialysis Center

薬剤科 The Pharmacy Department

看護部 The Nursing Department

看護部長室 The Nursing Director Room

病棟部門 The Hospital Ward Department

外来部門 The department of the outpatient clinics

透析部門 The Hemodialysis Department

中央手術室 The Central Operating Room

技術部 The Engineering Department

放射線室 The Radiation Room

検査室 The Clinical Laboratory

リハビリテーション室 The Rehabilitation Room

ME センター The ME Center

栄養管理室 The Nutrition Management Room

事務部 The Office Department

総務課 The General Affairs Division

医事課 The Medical Affairs Division

附属看護学校 The Kesennuma City Hospital Affiliated Nursing School

地域医療連携室 The Room of Community Medical Care Cooperation

おわりに Conclusion 気仙沼市立病院 副院長 安 海 清

Dr. Kiyoshi Azumi, The vice-director of Kesennuma City Hospital

題字 小野寺 初恵

The Flag written by Hatsue Onodera

巻頭言

海と生きる

病院管理者 気仙沼市長 菅 原 茂

Foreword

Life Together with the Sea

Shigeru Sugawara

The Mayor of Kesennuma City

The Administrator of Kesennuma City Hospital

千年に一度といわれる未曾有の大震災により、本市は甚大な被害を受けました。かけがえのない1,200名を超える尊い命が奪われるとともに、先人から大切に受け継いできた自慢の郷土、美しい気仙沼は一瞬にして姿を変えてしまいました。

In the wake of an unprecedented earthquake, said to occur once in a thousand years, our city has suffered extensive damage. More than 1,200 irreplaceable and precious lives had been lost or remain missing. The beautiful local area of Kesennuma, which we've proudly inherited from our ancestors, changed its appearance in a matter of seconds.

この震災により、お亡くなりになられました皆様のご冥福をお祈り申し上げますとともに、被災された皆様に心よりお見舞い申し上げます。

I would like to pray for all the people who passed away from this disaster, and I would also like to sincerely express my sympathy to everyone affected by the disaster.

災害発生以降、日本中はもちろん世界各地の皆様からの心温まるご支援をいただきながら、復旧・復興に全力で取り組んでおりますが、今なお震災の爪痕は深く残り、市民生活に大きな影響を及ぼしております。

Since the disaster occurred, while receiving heartwarming support from many around the world as well as those from all over of Japan, we have been committed to the recovery and reconstruction of the area. The damage of the disaster even to this day has a deep and significant impact on civil life.

気仙沼市立病院は古くから気仙沼医療圏の医療福祉に関して中心的な役割を担って参りました。この度の震災で、他の沿岸部地域のいくつかでは壊滅的な損害を被った医療機関もある中で、幸運なことに倒壊や津波災害を免れて、災害医療の拠点として十二分に役割を果たすことが出来ました。自ら被災した職員は家族の安否を振り返ることなく震災に立

ち向かい、懸命に献身的に被災地の医療を支え続けました。また、病院内が平常を取り戻した後も、復興を歩む気仙沼での医療福祉活動につきつけられた新旧の課題に対して、真摯に向き合い、問題意識を高く持ちながら様々な新しい取り組みが着手されています。

Kesennuma City Hospital has continued to play a central role in medical care and welfare in Kesennuma's medical scene for a long time. While there were medical institutions that had suffered catastrophic damage by the earthquake (and the tsunami), in regions along the coast, our hospital fortunately did not collapse and was unaffected by the tsunami. Our hospital has been able to play a central role in disaster medical care. Staff members, some of whom suffered greatly within their own lives, faced the disaster head on without knowing the situation of their own family's safety, and continued to medically assist in the affected areas as much as possible. After the hospital regained normality, various initiatives have been undertaken in order to confront new and old challenges with high awareness associated with medical care and welfare in rebuilding Kesennuma.

本市が目標とする「世界に羽ばたく産業の街」「日本で一番住みたい街」にかなう故郷気仙沼市をつくるためには、市民が安心して暮らせる環境整備が欠かせません。気仙沼市立病院に課せられた地域住民の健康と命を守るという大きな使命と活動は、その基礎を支える重要な役目であり、新病院建設が予定されるなか、益々の発展充実が期待されています。

To create an environment where citizens can live peacefully, it is essential to make our hometown Kesennuma, achieve its objectives: “a town of industry, succeeding in the world” and “the town that you want to live in most in Japan.” The significant missions and activities imposed on Kesennuma City Hospital, protecting the lives and health of residents, are important responsibilities in upholding the foundation of civil life. Amid the scheduled construction of the new hospital, we are expected to develop ourselves more.

最後になりましたが、震災にあたり当医療圏の活動にご支援いただきました全国の医療関係者の皆様に深く感謝申し上げ、気仙沼の新しい歴史を温かく見守り下さいますようお願いして、あいさつと致します。

Finally, I would like to express my deep appreciation to all the medical personnel across the whole country having supported the activities of our local medical area upon the earthquake disaster. I would like to finish my address by hoping that people will warmly watch the new history of Kesennuma unfold.

巻頭言

大震災

病院施設長

気仙沼市立病院 院長 遠 藤 渉

Foreword

The Great Earthquake Disaster

Dr. Wataru Endo

The Hospital Facility Director

The Director of Kesennuma City Hospital

2011 年 3 月 11 日、三陸沖に大地震が発生、それに引き続く 1000 年に一度ともいわれる大津波が東日本を襲い、多くの人命、家屋、生活基盤が失われました。数ヶ月という時は絶ちましたが、まだ夢のようであります。被災された方々には、心から哀悼の意を表し、お見舞いを申し上げます。

On March 11, 2011, great earthquakes occurred off the Sanriku-Coast, subsequently a great tsunami, which is said to occur once in a thousand years, hit Eastern Japan. Many lives, homes and foundations had been lost or damaged. Some months have passed, but it still feels like it was just a nightmare. To those who were affected by the disaster, I would like to express my sympathy and condolences.

災害拠点病院となっている気仙沼市立病院は、幸運にも築 46 年の古い病棟がなんとか持ちこたえ、また、小高い丘の上に立地していたため、かろうじて津波の直接的な被害は免れました。しかし、他の被災地域と同様にライフラインが途絶し、食糧不足、重油の枯渇、自家発電機故障、火災の延焼の危機など、当院も機能停止寸前まで追い込まれました。私どもの職員は、その三分の一が被災する中で、各部署で的確な状況把握に努め、現状に沿った速やかな対応を心がけ、それぞれが自分のやれる最大限の力を発揮してくれました。

Kesennuma City Hospital, which became a core hospital for the disaster, was a 46-year-old building at the time and fortunately survived, although just barely. As the hospital is located up on a small hill, the building was able to escape direct damage of the tsunami. However, the lifelines of this area were cut off like the other affected areas. Due to food shortages, depletion of heavy oil, failure of private power generators, and the risk of fire spreading, our hospital was pushed almost to the point of shutting down. Although a third of the staff members were affected by the disaster, each department made efforts to grasp the situation accurately, respond promptly in the given situation and exerted their upmost.

更には、震災直後から各地の D-MAT、大学、病院、施設、企業、個人にいたる様々な方々から多大なるご支援、励ましをいただき、甚大な被害を受けた災害地の拠点病院としての役割を果たすことができました。この誌面をお借りして厚く御礼申し上げます。

Furthermore, immediately after the disaster, generous support and encouragement of D-MAT (Disaster Medical Assistant Team), universities, hospitals, institutions, companies and individuals from various parts of the world allowed us to fulfill our role as a core hospital here in a heavily devastated area. I want to express from the bottom of my heart my appreciation to their contribution.

未曾有とも想定外ともいわれる大震災を簡単に総括できるものではありません。しかし、災害地の拠点病院として果たした役割と、改めて浮き彫りになった課題を明らかにして、これを社会に公表する責務があると考えております。平静を取り戻すには、まだまだ多くの時間と労力が必要です。院内業務も多忙を極める中で、各部署で発表、討議が重ねられてこの冊子にまとめられました。将来、東海、東南海、南海地震などの発生が危惧されておりますので、我々が経験した貴重な体験が、次の災害に備える一助になれば幸いです。

It is not easy to summarize the unprecedented and unexpected earthquake disaster. However, I believe that we have a responsibility to clarify the role that we played as the core hospital in the disaster area, the challenges that have once again been highlighted, and to publicize them. It will still take a lot of time and effort to regain composure. In-between busy hospital tasks, each department held several presentations and discussions, and those results are summarized in this booklet. There's a risk that the Tokai, Tonankai and Nankai earthquakes may occur in the future, so we hope that our valuable experiences will help with disaster preparation.

巻頭言

感謝、多謝

気仙沼市立病院脳神経外科科長
宮城県災害医療コーディネーター
成田徳雄

Foreword

Gratitude and Deep Appreciation

Dr. Norio Narita
The Director of Neurosurgery Department
Kesennuma City Hospital
The Disaster Medical Coordinator of
Miyagi Prefecture

発災後 1 年が経過しましたが、あの時、ご支援していただいた皆様方への感謝の思いに変わりはありません。東日本大震災気仙沼 DMAT・医療救護班解散式における、小生からあてた、“解散の辞”を再掲いたします。

One year has passed since the disaster, my feelings of gratitude toward the people who supported us remain unchanged. I would like to republish “The letter of Dissolution”, which I used to address the dispersal ceremony of the medical emergency groups of the Great East Japan Earthquake Disaster Kesennuma-DMAT (Disaster Medical Assistant Teams).

平成 23 年 6 月 30 日、東日本大震災気仙沼 DMAT・医療救護班本部の解散式にあたり、東京都、全日病、横浜市およびこの気仙沼に参集したすべての DMAT・医療救護班の皆様、また後方で支援していただいた東北大学を始め多数の関係各位に対し、先ずもって心より感謝申し上げます。

On June 30th 2011, at the dispersal ceremony of the head office of Kesennuma-DMAT medical emergency groups, I would, first of all, like to sincerely express my gratitude to every member of staff of the medical emergency groups of DMAT that gathered in Kesennuma from various places including Tokyo, Yokohama City, the All Japan Hospital Association and to the many people who supported us logistically such as the staff at Tohoku University Hospital.

3 月 11 日発災し、決して十分な災害医療の知識も持たない我々に、皆様方には様々な場面において、的確にご指導いただき、また迅速で機能的な行動を見せていただきました。さまざまな活動・任務を通し災害医療チーム“チーム気仙沼”として段階的に成長してきた

ように思います。3月15日早朝、病院に市街地の火災が近づき、さらに仮設電源が不具合を生じたための院内重症患者の東北大学への緊急搬送。3月22日・23日慢性透析患者78名を雪の松島空港からの自衛隊ジェット輸送機による広域搬送。3月21日インフルエンザ第一例発生後の避難所での隔離および濃厚接触者への予防的薬剤投与の判断。3月28日大量の急性肺炎発生にあたっての多方面からの調査・救護所でのガイドライン作成及びワクチン投与に対する依頼・調整・運用。災害急性期より生活支援体制が必要であるとの認識より、3月25日に巡回療養支援隊を立ち上げたこと。ライフラインが復活した4月頃より各避難所での生活不活発病対策が必要であるとの認識で日本リハビリ関連10団体からリハビリスタッフの支援をいただいたこと。などなど様々な局面でご支援していただきました。

When the disaster occurred on March 11, all involved accurately taught and showed us who didn't have enough knowledge of disaster medical care, practical actions in various situations. I think we've been improving our skills step by step as the disaster medical team, or "The Kesennuma Team", through a variety of activities and missions. Early in the morning of March 15th, a fire that broke out in the city, came close to our hospital. Moreover, a malfunction of our temporary power supply urgently forced us to transport critically ill patients to Tohoku University Hospital. On March 22nd and 23rd, we received assistance in the transportation of 78 patients with chronic renal failure on hemodialysis to several areas by Japanese Self-Defense Force jet planes from the Matsushima Airbase, in snow. On March 21st, after the occurrence of the first case of influenza in a shelter, you helped us isolate the patient and decide to administer preventive measures to some close contacts of the patient. On March 28th, when an occurrence of acute pneumonia broke out, you examined many aspects of the situation, made guidelines in first-aid stations as well as requesting, coordinating and administering vaccinations. Recognizing the need for life support systems during the acute stage of the disaster, you established medical support patrol groups on March 25th. From around April, when the lifelines were restored, we received support from staff of 10 Japanese rehabilitation-related organizations, recognizing the need for measures against inactive illness at each evacuation center. We've been given support in various situations.

表に見える事例だけではなく、避難所での環境整備のために、雑巾がけをしたり、トイレ掃除をしている姿も見せていただきました。来た道は違えど、職種は違えど、被災地の気仙沼に来て、気仙沼の被災者のために真摯に活動していただいた皆様方には全く持って、頭の下がる思いであります。

In addition to what is shown in the table, you wiped the floors with rags and cleaned toilets to improve the environment at the evacuation centers. Those who came down to Kesennuma in the stricken area worked their hardest for the victims of Kesennuma.

初めから勝利のない戦いでしたが、皆様とともに負けない医療・あきらめない医療ができたと思いますし、今後も同様に継続して復興のための任務にあたっていきたいと考えております。皆様方の生活の場に戻られても、これから続く気仙沼復興のニュースに接した時には、自分のこととして喜んでください。皆様方との絆はこれからも永遠に続くものと信じております。

At the beginning, I thought that it was a battle that couldn't be won, but I think together with our unbeatable, undefeatable attitudes we were able to provide medical care. I also would like to maintain this attitude from now on in order to revitalize the city. After you return home, when you see the news of Kesennuma's restoration, I would like you to feel joy. I believe that the ties that we have will continue on forever.

21世紀の人間は3つに分類されます。災害を経験せずに亡くなられた方、災害を経験し生きた方、災害後に生まれる子供たち。我々は災害を経験し今後も生きていく人間です。20世紀のあの戦後の復興と同様に我々の責任は重大であると認識しております。気仙沼への思いをどうぞ今後も持ち続けてください。我々はそれに答えられるよう共に頑張るつもりです。今後ともよろしくご支援の程お願いいたします。

People of the 21st century can be classified into three. The first are those who had passed away without experiencing the disaster, the second are those who have experienced and survived the disaster, and the third are children born after the disaster. We are people who have experienced and survived the disaster, and continue to live. We recognize our responsibility to be as serious as that of the post-war reconstruction in the 20th century. Please keep Kesennuma in your thoughts. We're going to work hard to live up to your expectations. Thank you for your continued support.



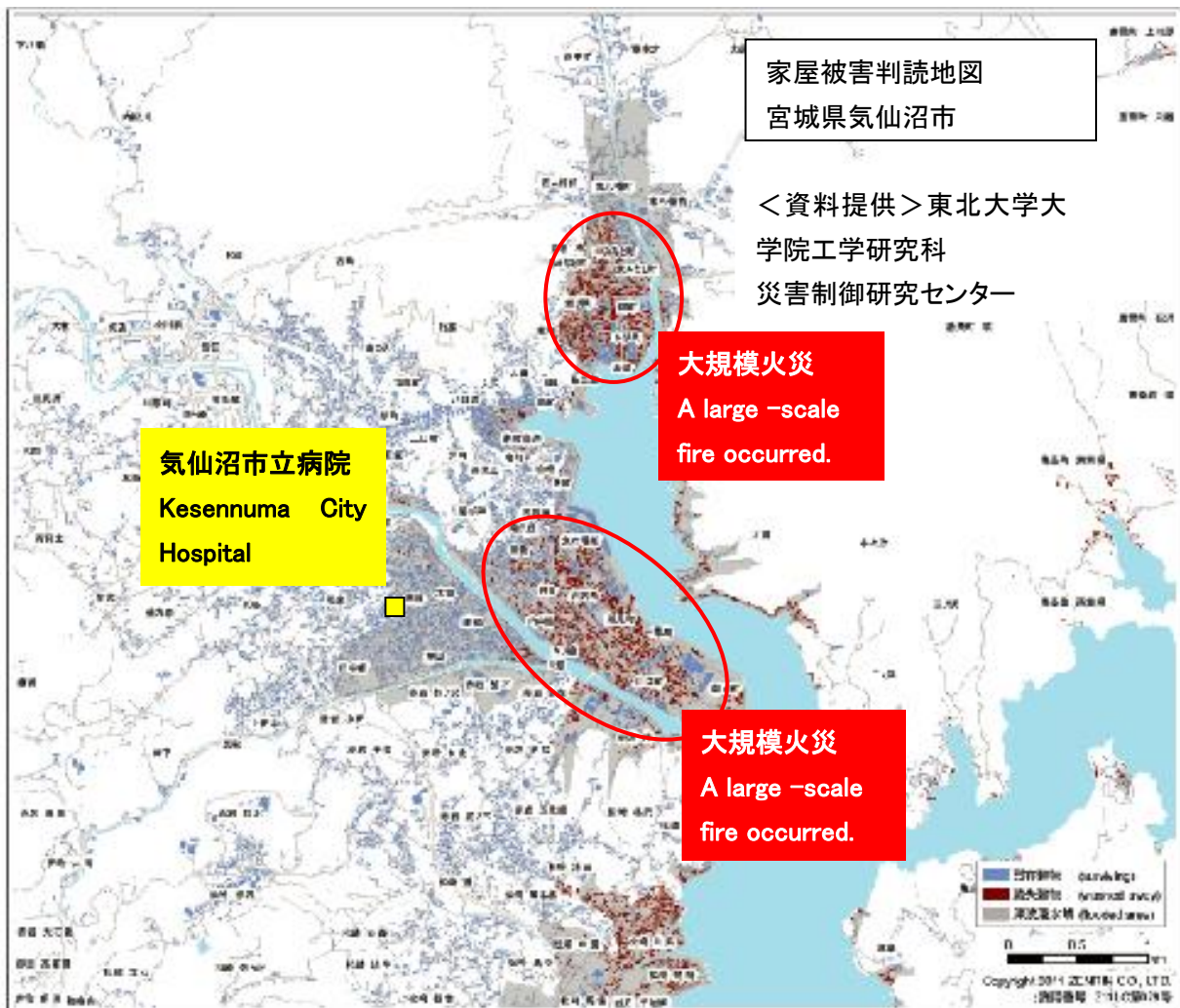
大川を逆流してきた津波
The tsunami flowing back
through the Ohkawa River





震災夜市街地炎上

The city was going up in flames.





DMAT
ミーティング
The Meeting of DMAT





救急外来前掲示板

A board in front of the
Emergency Outpatient Clinic



医局ミーティング

The meeting of the Medical
Office



市災害対策本部
The Disaster Countermeasures
Office of the City

広域ヘリ搬送
The Wide-Range Transport by
Helicopter





五右衛門ヶ原





救急搬送
Emergency Transport



トリアージテント
Triage Tent



緑エリア
The Green Area



赤エリア
The Red Area



黄エリア
The Yellow Area



避難所での診療
Medical Practice at a Shelter





薬剤支援物資
The Relief Supply of
Medications



平成23年3月11日

東日本大震災

(M9.0 震度 6 弱)

市立病院における経過

対策本部 5 階事務部総務課

(別添資料参照) March 11, 2011

The Great East Japan Earthquake Disaster

(M9.0 seismic intensity of lower 6 on the Japanese seven-stage seismic scale)

The Course in Kesennuma City Hospital

The Disaster Countermeasures Office

The General Affairs Division of the Office on the 5th Floor

(Please see the attached reference material.)

災 害 医 療

活動報告

The Reports of Our Disaster Medical Service

診療部
医局

東日本大震災に際しての 気仙沼市立病院診療部の対応

気仙沼市立病院 消化器科
内科医長 相澤宏樹

The Medical Department
The Medical Office

The response of the Medical Section of Kesennuma City Hospital on the occurrence of the Great East Japan Earthquake

Dr. Hiroki Aizawa
The Department of Gastroenterology,
Internal Medicine Medical Director,
Kesennuma City Hospital

はじめにー「気仙沼と私」

私は宮城県気仙沼市に 2009 年 3 月 31 日に来ました。それまでは大学院生として仙台にいたわけですが、上司から気仙沼で働くよう命を受け、人生で初めて海のそばで暮らすこととなったのでした。生まれも育ちも内陸の人間だったので、沿岸部の人々の気性(というより恐らくコミュニティのネットワークの密度の高さ)にびっくりすることもしばしばでした。

Introduction - “Kesennuma and I”

I came to Kesennuma, Miyagi Prefecture on March 31, 2009. Until then, I had been in Sendai as a graduate student. My boss ordered me to work in Kesennuma, and I became a resident near the sea for the first time in my life. As I was born and raised inland of Miyagi Prefecture, the spirit of the people of the coastal area, (rather perhaps the close network of the community) often surprised me.

気仙沼は「陸の孤島」と呼ばれることがあります。個人的には反発したくなる呼称ですが、ある意味一面の真理をついているかなと感じる時もあります。それは地理的条件(仙台からはどうしても2時間近くかかります)にのみ依存しているのではなく、地元住民の細やかなネットワークによって成立している部分が多いのではないかと思います。ネットワークは外から来た人には疎外感を与えることもありますが、内部の団結するパワーの強さは目をみはるものがありました。今回の震災においてはこのネットワークが互助的に機能したのは幸いだったと思います。

Kesennuma is sometimes referred to as “an inaccessible corner of land”. Personally, I’d like to deny that saying, but sometimes I think it has a certain aspect of truth. I believe that it’s not only because of its geographical condition; it takes at least 2 hours to get to Kesennuma from Sendai, but also largely due to the fact that Kesennuma has a delicate network of local residents. Although it might give off a sense of alienation to people coming from the outside, the strength of its internal power to unite with one another was remarkable. I think it was fortunate that the network mutually functioned in the disaster.

今回、震災時に院内で起きた事を「医局の医師として」の枠で書くよう依頼されたのですが、本来であれば、震災当時当院に在籍していた50人弱の医師それぞれの体験を全て網羅して書ければよいのでしょうか、それは到底不可能なことです。あくまで「私が見たこと、聞いたこと、感じたこと」を中心に以下に記す事をお許し下さい。

On this occasion, I was asked to write about what had taken place in the hospital at the time of the disaster from the view point of a doctor of the medical office. Formally speaking, it would be ideal to write up all the experiences of each of the ~50 doctors who were enrolled in our hospital at the time of the earthquake, but that would be absolutely impossible. Please keep in mind that what I have written below is an account of what I have seen, heard and felt.

そのときなにが起きたのか

2011年3月11日、その日は金曜日でした。病院では金曜日には大きな手術や検査・処置を予定しない傾向にあります。何故なら、人員が手薄になる週末に容態が急変すると対応が後手に回りかねないからです。私も当日は内視鏡検査を数件行って、夕回診までの時間に後輩とカンファレンスを行っていました。まさか、その日、あのようなことが起きるとは夢にも思わずに。

そして、それは起こりました。以下 Wikipedia より引用です。

What happened at that time...

March 11, 2011, was a Friday. At the hospital on Fridays, we don’t usually plan major inspections, difficult treatments or major surgeries. That’s because there may be an insufficient labor force on weekends, which could mean delays in responding to

the sudden changes of patients. I performed several endoscopy examinations, and then I had a conference with my junior in the mean time until our evening round. Never in my wildest dreams did I think that a thing like that would happen unexpectedly that day.

But, it happened. The following passage is from Wikipedia.

2011 年 3 月 11 日 14 時 46 分 18 秒(日本時間)、宮城県牡鹿半島沖を震源として発生した東北地方太平洋沖地震は、日本の観測史上最大のマグニチュード(Mw) 9.0 を記録し、震源域は岩手県沖から茨城県沖までの南北約 500km、東西約 200km の広範囲に及んだ。この地震により、場所によっては波高 10m 以上、最大遡上高 40.0m にも上る大津波が発生し、東北地方と関東地方の太平洋沿岸部に壊滅的な被害をもたらした。

The Earthquake in the Pacific Ocean off the coast of Tohoku, which occurred around its epicenter off the coast of the Oshika Peninsula in Miyagi Prefecture at 14° 46' 18" on March 11, 2011 (Japan time), recorded magnitude (Mw) 9.0, the largest ever recorded in Japan. Its focal region ranged about 500 km north-south and about 200 km east-west from off Iwate Prefecture to off Ibaraki Prefecture. The earthquake caused great tsunami waves of 10 meters or more in height, climbing up to 40.0 meters high on the highest intrusion. The areas in the Pacific Ocean Coast of the Tohoku and the Kanto Region resulted in catastrophic damage.

震度 5 強の揺れが街を襲いました。耐震基準を満たした建物が少ないという噂の気仙沼市立病院ですが、私がいた増築棟は比較的新しいこともあり、耐震基準を満たしているはずでした。それでも揺れで直立していることもままなりません。近くで悲鳴が上がったのを覚えています。あれは看護師さんだったのか、患者さんだったのか。そちらに目を向けることすらできず、「だいじょうぶ、だいじょうぶだから！この建物は崩れないから！」と叫ぶことしかできませんでした。

The tremors of the seismic intensity of upper 5 hit our city. There had been a rumor that most of Kesennuma City Hospital buildings had not met the Japanese earthquake-resistance standards, and I was in a building extension, which is relatively new and was supposed to have met the earthquake-resistance standards. Albeit it was, I could not stand upright in the shaking of the earthquake. I remember that I heard a scream. I did not know whether the person who screamed was a nurse or a patient. Even though I couldn't look around, I managed to shout, "It's alright, it's alright! This building won't collapse".

長かったような短かったような揺れがおさまりかけた時、私は走りました。商業電源はその時点で落ちており、自家発電に切り替わるまでのタイムラグは時として人工呼吸器を装着している患者さんや手術／内視鏡検査中の患者さんに致命傷を負わせる可能性があるからです。内視鏡室の検査が全て終了していたことはもうわかっていたので気管支内視鏡検査をやっているはずの X 線室に走りました。真っ暗なX線室に声をかけたところ、「こっちはだいじょうぶです！」という呼吸器科医の声が返ってきました。ぎりぎりのタイミングで検査を終了したのだと知ったのは後のことです。

When the shaking, which I cannot remember was long or short, was subsiding, I started to run because the commercial electricity had fallen and it could lead to fatal injuries to patients on an artificial respirator and patients during the surgery or endoscopic examination in the lag time before switching to self-power generation. As I knew that all of the endoscopic examinations had already finished, I ran to an X-ray room where a bronchial endoscopy examination was supposed to be done. When I checked in on someone in the dark X-ray room, a pulmonologist's said, "We have no problem here!" It was later that I learned an inspection been completed at the last minute.

呼吸器科医師の声を背に今度は救急室に走りました。救急室の熟練した看護師さん達もさすがに青ざめた表情でしたが、幸い地震が起こった時刻には重傷者が救急室にいなかったとのことで、大きな問題は起きなかったようでした。その後、別の医師が救急室に駆けつけてきてくれたのでそこを任せて今度は病棟に走りました。途中で後輩内科医と出くわし、二人で内科病棟へ走りました。防火扉はあちこちで閉まっており、サイレンが鳴り響くなか、しゃにむに病棟へ向かいしました。しかし、内科病棟の 1 階下で壁が崩落しており水道管が破裂しているため先に進めない状態でした。

Next, I ran into the emergency room following the voice the pulmonologist. Unsurprisingly, even the experienced nurses in the emergency room looked pale. Fortunately the emergency room did not have any severely injured patients at the time when the earthquake occurred, so it seemed that there were no major problems. Then, another doctor rushed into the emergency room, I left the room to him and then went toward the hospital ward. Along the way, I ran into a junior physician, we ran for the hospital ward. Fire doors had closed here and there, and we went to the ward desperately amid the sirens blazing. However, the wall of the medical ward downstairs had collapsed and a water pipe had burst, which kept us from proceeding.

仕方が無いので後輩と二手に別れて回り道をして内科病棟に向かいしました。病棟は人工呼吸器を装着した患者さんも適切に対応され問題なく、ただただ皆(スタッフも患者さんも家族も)不安そうな顔をしていたのを覚えています。病棟を一巡りして各部屋に「だいじょうぶですかー。病院はだいじょうぶですからねー。」と根拠の無い(後に全く根拠が無かった事が判明するわけですが)励ましをして回りました。一段落して救急室に戻った時には、場の空気は少し緩んでいました。

With no choice, we separated into two and headed for the medical ward taking detours. In the ward, some patients equipped with ventilators had responded properly with no problem. I can remember the obvious anxiety on everyone's face in the ward, not only staff members but also patients and their families. Making my way around the ward, I went to each room and gave some unfounded encouragement saying, "Are you alright? The hospital is alright," which I later found to have no basis at all. When things had been temporarily resolved and I returned to the emergency room, I felt all the tension inside release a little.

「こんな古い建物が崩れなかったなんて奇跡だ」「しかしひどい揺れだったなー」

その時、テレビから聞いたことのない警報が流れたのです。

「東北地方の太平洋側沿岸に大津波警報が発令されました」？おおつなみ？私も2年間気仙沼にいたので地震の度に津波注意報が発令されないかどうか気にしていましたし、注意報がでているときには海岸や川には絶対に近付きませんでした。しかし、大津波警報というのは初耳でした。これはなんだろうか？何か大変なことが起きるのではないだろうかという胸騒ぎがしました。この頃になって病院近くで怪我をした患者さんが何人か救急室を受診し始め、このような時には内科医は無力なのでその場に詰めていた外科医に任せて一旦内視鏡室に引き上げました。内視鏡室には上司、後輩、看護師さんたちスタッフが集まっていました。その時、海の方角に煙があがったのです。

"It is a miracle that such an old building like this had not collapsed." "That was some terrible shaking, though."

At that time, a warning that I'd never heard before was coming from the TV.

"A Great Tsunami Warning was issued along the coast of the Pacific Ocean side of the Tohoku region." Great Tsunami? As I had been in Kesennuma for two years, I was wary about whether a tsunami-alarm was issued or not whenever an earthquake occurred, and I never got close to rivers and the coast when such warnings were issued. However, the Great Tsunami Warning was new to me. I wondered what this was. I felt a flutter in my chest; something very serious was about to happen. Around this time, some patients who were injured near the hospital began to visit the emergency room. A physician like me was helpless in this kind of situation, so I withdrew myself and went to the endoscopy room after leaving those tasks to surgeons. In the endoscopy room, my boss, my juniors, staff nurses were gathering. At that time, some smoke arose in the direction of the sea.

「あれ？火事かな？」「まああれだけの揺れだったから火事もあるかも...」。しかしその煙はふしぎなことに港全体を覆うように幅が広く、しかも急速にこちらに向かってくるように見えたのです。火事じゃないのか？そのとき後輩が叫びました。私は生涯あの叫び声を忘れる事はないでしょう。「あ!!水がきた!!!」

”Look! Is that fire?”, “even fire would break out with such big shaking like that.” The smoke strangely enough, seemed so extensive that it could cover the entire port and appeared to be rapidly coming towards us. “That might be fire?” At that time, my junior exclaimed and I will never forget his scream, “Ah! The water is coming!”

彼が指差す方をみると、たしかにキラキラ光る何かがこちら側に向かってきているのが見えました。(水...がくるというのはおかしい話だ...火事ならわかるけど。だってここは海から 2 km 近くある高台の地区だから。水はおかしい。津波...? いやいやそんなはずは。)「津波だ」と誰かが断言しました。それはまさにその後の地獄を宣言する一言だったのです。

Looking at the direction that he pointed to, I saw something sparkling certainly heading towards this side. My thoughts are as follows. “It’s strange that the water is coming. I could understand if it were a fire. It can’t be water because this area is on elevated ground nearly 2kms away from the sea. Tsunami? No, that can’t be right.” Someone affirmed that it was in fact a tsunami. It was the very word that declared the hell that pursued.

津波がきて

2011 年 3 月 11 日 15 時過ぎ(正確な時刻は不明)。港と市内を流れる川から同様に水が溢れ出し病院の近くまで津波が押し寄せてきていました。幸い病院は高台にあり(先人の先見の明に感謝)、病棟の患者さんたちが必死に声をからして病院の下の方を歩いている人たちに「つなみだよー！はやくにげてー！はやくはやくー！」と叫んでいました。

The tsunami came

After 15:00 March 11, 2011 (the exact time is unknown). The tsunami surged on close to the hospital after the water had overflowed simultaneously from the port and the rivers in the city. Fortunately, our hospital is located on a hill (thanks to the foresight of our predecessors), and the patients of our hospital wards were shouting desperately in hoarse voices to those who were walking down the streets below the hospital: “A tsunami is coming!”, “Run away quickly!” and “Quickly, quickly.”

しかしその声はあまりにも小さく、道を歩いている人たちはまさかこんな海から 2km もあるところに津波がくるなど考えてもいないようでのんびりと歩いていました。後ろに迫る水に気付いた瞬間にはもう濁流に飲み込まれていました…。何人かはかろうじて犬かきで泳ぐように病院へ登る坂道にたどり着きましたが、流されていく人を助けることは誰にもできませんでした。

However, their voices did not reach. The people on the streets were walking leisurely, it seemed as though they thought a tsunami would reach them, no less than 2 km out from the sea. The muddy stream was swallowing them up at the moment when

they noticed the water was right behind them. Some were able to reach the slope up toward the hospital after doing something like a doggy paddle, but nobody could help those being carried away by the water.

いてもたってもいられなくなった私は病院の坂道のところまで降りて、とにかく少しでも高いところに生き残った人を誘導することになりました。しかし、いくら声を張り上げても自分の家のほうを振り返りながら、流された人を気にしながら、避難する人たちの足取りは一向にスピードアップしませんでした。

I couldn't stand still. I went down the slope of the hospital and decided to guide the survivors to places a little higher ground. However loudly we shouted, the evacuees did not pick up their pace, looking back towards their homes and worrying about those washed away.

失われる命

避難者たちをなんとか高台の方まで上げた後に私たちが始めたのは救急患者の受け入れ態勢を整えることでした。救急室前に仮設のテントを張り、メインのトリアージ(後述)ポストとしました。また、病院の他の入り口(裏口など)2箇所にも人員を割いてトリアージポストをおきました。

Lives being lost

After we managed to get the evacuees to higher ground, we started getting ready for emergency patients. We set up some temporary tents in front of the emergency room of our hospital and made it a main triage post (mentioned later). We posted some staff members there and placed triage posts at two other entrances (the back door, etc.) of the hospital.

トリアージというのは災害医療の現場など、医療資源(人的資源も含め)が需要(患者さんの数と重症度)に比して欠乏している際に、必要な患者さんに医療資源を集中させるためのシステムです。災害医療では普段使っているカルテを出して使っている暇はないので(そしてカルテ棚は地震で倒れてカルテは散乱していましたので)、トリアージタグをカルテ代わりにして診療をします。赤いタグは集中治療をしないと救命できないレベルの患者さんにつけて用い、緑のタグは傷の処置などで済むような軽症の患者さんに、そしてその中間のレベルの患者さんは黄色のタグをつけて使います。

A *triage* is a system focusing medical resources on critical patients when medical resources, including human resources, are scarce compared to demand (number of patients and severity), such as in disaster medical care. In such a setting, there's no time to find medical records that are usually referred to, and in this circumstance, the shelves of medical records had fallen and scattered due to the earthquake, so we

provided medical care using triage tags as substitutes for medical records. A red-tag is attached to a patient with a serious condition who cannot be saved without intensive care, a green-tag is attached to a patient with mild conditions who can be saved with the treatment of injury etc., and a yellow-tag is attached to patients with an intermediate condition, between the two above-mentioned.

このトリアージを行う場所がトリアージポストで、肉体的にも精神的にも辛いトリアージの任には脳外科科長の先生と外科の中堅医長の先生が 2 人であたって下さいました。ちょうど信号のように 3 つの色に、ある意味において命の選別に近い行為をするわけですからその負担は大変なものです。

A place where a triage is taking place is called a ‘triage-post’. Two medical directors of surgery and brain surgery respectively, took charge of the triage; the duty was strenuous both physically and mentally. The burden of accomplishing a triage is tremendous because patients need to be sorted into three colors, like traffic lights; in a sense, it’s a deed similar to selecting lives.

そして、このトリアージタグにはもう 1 色、黒い色のタブがあるのです。これは医療行為を行っても救命の見込みがないと判断された方(ご遺体)につけるものです。当初、裏口のトリアージポストにいた私は表口のトリアージにあたっていた先生に呼ばれて「黒タグの患者さんとその家族の対応を任せていい？ 大変だと思うけど…」と言われました。

一瞬躊躇しましたが、引き受けました。

What’s more, one more color exists, the black-tag of this triage system. It is attached to a patient who is determined to have no hope of recovery even after medical practice (the corpse of a patient). At first, I was at the triage post of the back entrance, after that, a medical doctor in charge of the triage of the front entrance called me, and he called out to me, “Can I leave the black-tag patients and their families in your hands? I know it’s a very tough task.”

I hesitated for a moment, but I undertook it.

黒タグの患者さん(というかご遺体)に休んでいただく場所は普段使われていない感染症病棟を用いることとなりました。透析部の看護師さんたちに手伝ってもらって何十人運ばれてくるかわからない黒タグの患者さんのベッドを確保するため必死にベッド移動を行いました。押し寄せてくると予想されたご遺体とその家族が最期の時を少しでも静かに迎えらるようなるべく 1 室に 1 台のベッドとしたかったので、この際もったいないなどという考えは頭から捨て去り不要のベッドは屋外に放り出して捨て置きました。いつのまにか降り出したみぞれが戸外に放置されたベッドマットに薄白く積もっていきました。

We decided to use the infection ward, which was usually not in use, to place the patients with black-tags (or rather, the corpses). With help from the nurses of the

dialysis department, we desperately worked to secure beds for patients with a black-tag without knowing how many dozens of patients would be transported. We wanted to place only one bed in each room so that when the surge of the deceased and their families would come into our hospital, they'd be able to spend their last moment together as quietly as possible. We ignored the thought that this was a waste of time in the current circumstance and pursued to move the unnecessary beds outdoors and left them there. Before I knew it, sleet that was falling was piling up lightly covering bed mats left outside.

最初に運ばれてきた黒タグの方は警察官の方でした。

片手を挙げた状態で硬直して、最期の最期まで避難者を誘導していたのでしょうか…。この方はご家族と連絡がつかず、しばらくベッドでお休みいただくこととしました。

次に運ばれてきたのは消防団の制服をきた中年の男性でした。

泥と木の枝にまみれて、それでも制服が残っていたので身元がわかり、奥様に連絡がつきました。奥様は、泥まみれの夫をみて、呆然とした後に、泣き崩れました。

「これから私一人ですればいいのかよ……お父さん！」

私にはかけてあげられる言葉はありませんでした。そっと肩に手を添えてあげることは、ただそれだけしかできませんでした。

The first victim with a black-tag that was brought here was a police officer.

He was rigid with his one hand raised. I wondered if he had guided evacuees until his very end. We could not contact his family and decided to have him there on the bed for the time being.

The next victim was a middle-aged man in his fire brigade uniform.

Albeit smeared with tree branches and some mud, his uniform was intact, so we were able to identify him and contact his wife. After she looked at her muddied husband, she was dumbstruck for a while, and collapsed in tears.

“My darling, what am I to do alone from now on?”

I had no words to console her. The only thing I could manage, was to place my hand quietly on her shoulder.

大津波警報が出ているその時に、自分の使命を果たすために最期までがんばった人たちが真っ先にお亡くなりになって運ばれてくる。その運命の残酷さ。その魂の崇高さ。

涙が止まりませんでした。

「すなわち、最もよき人々は帰ってこなかった」昔読んだフランクフルという人の小説の一節が頭をよぎりました。そう、彼らはもう戻ってこないのです。

そっと外にでて放り出したベッドに座って上を見上げるとみぞれはいつの間にか本格的な雪に変わっていて、それはやけにぼやけてみえたのでした。

At the time when the Great Tsunami Warning was issued, people who had worked

hard to fulfill their role until their last moment, first and foremost, passed away and were brought here. How cruel the fate was! How noble the soul!

I could not help but tear up.

A line from a novel written by Frankl [Victor Emil Frankl, the author of “*Man’s Search for Meaning*”], which I had read before, “*That is, most virtuous people had not come back*”, came to mind. Indeed, they won’t come back.

As I sat out on the bed that I gently shifted outside, I looked up, the sleet suddenly turned into full-scale snow, things were blurry.

院内の状況把握と組織化

夜の8時ごろだったでしょうか。外科の上の先生に呼び止められました。「ローテーションにしないともたないんじゃないか」

確かに、その時間帯までは赤・黄・緑・黒とそれぞれのブースに医師が自発的に集まって各自の判断で治療していたのですが、夜になって病院にたどりつける人も減り、明らかに医師の偏在(赤には医師が溢れているが黄色には不足している、など)がみられはじめていました。

Grasping the situation in the hospital and organizing the hospital staff

It was around 8:00 in the evening. A superior surgeon called me and said, “I think our health won’t last if we don’t work in rotation.”

Indeed, up to that point, medical doctors had been gathering spontaneously in each booth of red, yellow, green and black, and treating patients by their own accord. However, fewer patients came to the hospital after dark, and we began to clearly notice the uneven distribution of medical doctors; for example, the red space was full of doctors, but the yellow space was short of them.

そして、決定的に痛恨であったことは、院内連絡用の PHS も固定電話もまったく使えなくなったことでした。例えば赤ブースに開放骨折の患者さんがきても、整形外科の先生を探しに病院中を看護師さんが走り回るという非効率な状況になっていました。

Moreover, it was with great regret that we were forced into a situation where we could not use both the PHS (Personal Handyphone System) for communication inside the hospital or fixed phones at all. For example, in the case of a patient with an open fracture coming to the red booth, the nurse was running around the hospital in search of an orthopedic teacher, which was inefficient.

そこで、外科の先生と二人で僭越ながら「ある程度の」公正さを担保しながら院内の医師(トリアージポストにいる先生と管理職クラスを除く)を 6 チームに編成し、24 時間のローテーション表を作成しました。どの程度の災害かはわからないながらも恐らく甚大な被害がでており、今後どこからどれ

だけの応援がやってくるかわからない現状では、なるべく現有戦力を損耗させないように 2 時間赤ポストで勤務したら 2 時間休憩、のように体力気力の消耗を抑えることが必要でした。なるべく早い段階から施行した方が消耗を避けられるので 10 分程度で作成したリストを大量コピーしてもらい各部署に配布しました。各医師には事後承諾という体になってしまいましたが、休みながらやらないと身がもたないという印象は皆さん持っていたようで、受け入れて顶けました。

Therefore, a surgeon and I organized the doctors in the hospital into teams of 6 (excluding the doctors in the Triage Post and the management class) while ensuring a certain degree of fairness, prepared a 24-hour shift rotation table. Even though we had no idea of the extent of the disaster, we expected that the city must have suffered extensive damage. In the current situation where we didn't know how much support would come from where, it was necessary for us to keep up our strength and spirit as much as possible by working in shifts such as 2-hour breaks after a 2-hours of work at the red post. Since there was a chance to avoid exhaustion if it is carried out as early as possible, we asked each department to make a large copy of the list created in about 10 minutes. Each doctor made post-approval consent, everyone seemed to have the impression that they would not be able last without taking breaks, so the system was thankfully approved.

あのまま一晩、各医師がばらばらに診療したり休んだり各自の行動をとっていたら、翌日からの患者殺到に対処する余力はなかったと思います。万全とはいえないまでも「ある程度の」体制作りがその日のうちに、top-down のかたちではなく現場で自発的にまとまったというのが非常に大きいことで、これは一種の「集合知」として今回の震災対応のキーポイントとなる部分であったと考えられます。

If each doctor had worked in their own accordance, taken rests and acted without coordination the whole night, they might have not had the energy to respond to the rush of patients the following day. It was very important that an acceptable shift pattern, even though it might not be perfect, was promptly agreed upon that very day rather than in a top-down form. I think that it was one of the key points of our disaster response as a sort of collective intelligence.

3 月 11 日の夜

他の部署のレポートに詳細なデータがあると思われますが、震災当日の夜は怖いぐらいに患者さんが少なかったことを覚えています。それは今回の災害がとてつもなく大きかったことを示しているわけで、恐怖感を押し殺すことができませんでした。救急車は全て流されていたでしょうし、自家用車も街中の水がひかない以上走れず、助けを待つ人は雪の降りしきるなか水につかり凍える寒さに体力を奪われ…。水没して故障した車のクラクションが合奏のように、鎮魂歌のように、街に響いていたことを恐怖とともに思い出します。

Night of March 11

There may be some detailed data in the reports of other departments, but I can remember that patients were few in number the night of the earthquake. It lead me to believe that the disaster must have been incredibly devastating, and I could not suppress my awful feelings. Ambulances would have all been swept away, and as the water of the city did not go recede, private cars could not run either. People waiting for help were soaking in water, deprived of their strength in the freezing cold amid the downpour of snow. I remember with fear, the horns of the cars that had sunk in water were sounding off in the city as if it had been something like that of an ensemble or a requiem.

非常電源につないだテレビからは今回の震災が非常に広範囲にわたっていることが繰り返し報じられていました。広範囲にわたっているということは救援がすぐにはこないことを示しており、当院は単なる一地方自治体の病院であるがゆえに、岩手県立病院群のようなネットワークや赤十字病院のような強固な連携を持っていないわけで、心細い思いでいっぱいでした。

It was constantly reported on the TV's connected to emergency power supply that the disaster had inflicted widespread damage. The fact that the disaster had devastated a wide area indicated that relief parties would not come immediately. Our hospital is merely a hospital of one local government; therefore, we had no such a network like that of the Iwate Prefectural Hospital Group and no strong cooperation like that of the Red Cross Hospitals. My head was full of desperate thoughts.

私の記憶がややおぼろげなのですが、この日の夜に一回目の会議が持たれたように思われます。薬剤が決して十分な備蓄があるわけではないこと、食料が患者さんの給食として出せる分はほぼひと口分にしか満たない事、自家発電の重油が 20-30 時間程度しかもたないことなどいずれも危機的状況にあることを示すショッキングな報告が続きました。それにも増して私が驚いたのは、病院からも気仙沼市からも宮城県庁、もしくは仙台、東京に全く何ら連絡がついていないという衝撃的な事態でした。確かに固定電話も携帯電話も無線もいずれも使えず、緊急用の無線も先方の電源が入っていないためか通じないということだったのですが、国道 284 号線は通じていることはわかっていただけなので誰かが病院の窮状を中央に伝えに行かなければいけないのではないかと痛切に感じました。やや語気荒く会議の席でメッセージャーを送るべきと主張しましたが、受け入れられる事はありませんでした。

I remember, although my memory is vague, that the first meeting might have been held in the evening of that day. Every shocking report indicated that we were in a continued crisis situation; we never had enough stockpiles of medications; hospital meals for our patients were limited to a serving less than a mouthful of food; we were low on oil, we were only able to run our private power generators for about 20-30

hours. I was surprised moreover at the shocking situation that our hospital as well as Kesennuma City Hall had not been in contact with the Miyagi Prefectural Office, Sendai or Tokyo at all. Indeed, we could not use a fixed phone, a mobile phone or a radiotelephone, and I also heard that the wireless emergency telephone system was not yet available, presumably because the receiver at the other side might not be plugged in. However, as we already knew that we could drive on the National Route 284, I intensely felt that someone had to go and inform the central authorities concerned, the plight of our hospital. I exclaimed at a meeting, a little abruptly, that we should send a messenger, but it was not acknowledged.

打つべき手はスタッフ各々が考えてきちんと打っている。それが集合知であり、有効に機能している。それなのに責任者が多数集まると会議が全く進まず各論にばかり終始し総論の議論は深まる事がない…。何が悪かったのか、これは検証すべき課題だと思います。もしかしたら民主主義的プロセスで緊急事態に対処しようとする事自体が間違いだったのかもしれない。

Each staff member was thinking and acting accordingly to measures. The collective knowledge was functioning effectively. Nevertheless, when a conference was held, where a lot of responsible members gathered, we had a hard time making progress with nothing being achieved. The details preoccupied the conference, and the general discussions never deepened. What went wrong? This is a problem to be verified. In fact, it might have been a mistake that we had been trying to deal with the emergency situation in a *democratic* process.

翌日から

震災当日に気仙沼入りしてくれた自衛隊が夜明けを待って 12 日から活動してくれたおかげで負傷者・救助された人が病院に大量に搬送されてくるようになりました。さすがに自衛隊の装備はすさまじく、これまでとは桁違いの発見力・輸送力で彼らの奮闘のおかげで助かった人も多かったのではないかと思います。感謝すべきと感じました。

From the next day

Thanks to the actions of the Self-Defense Force (who arrived in Kesennuma the very day of the disaster, awaiting daybreak of March 12), the injured and the rescued could be transported to our hospital. As one would expect, the Self-Defense Forces were heavily equipped and had great search and transport capabilities. Many were saved thanks to their struggle. We felt very grateful.

運ばれてくる患者さんは外傷よりもむしろ低体温症の方が多かったことが印象的でした。これは受傷してしまった方は救助の手が届く前に消耗が早まって低体温症で生命を失ったか、もしくは津

波で流されての受傷となるともはや高エネルギー外傷に近い致命傷になってしまい、数時間の経過で命を落としてしまった可能性などが考えられるところかと思われます。沿岸部の老人保健施設などは軒並み壊滅的ダメージを受けており、かろうじて職員さんの努力などで生き延びたご高齢の患者さんたちが低体温症となりながらも病院にたどりついたケースが多かった印象でした。

It was surprising that the patients brought here were suffering from hypothermia more so than with physical trauma. I think these would be some probable cases; the injured had lost their lives with accelerated exhaustion due to hypothermia before the rescue had reached them, or the injury of being swept away by the tsunami might have caused a fatal injury or high-energy trauma resulting in their deaths in the course of a few hours.

Facilities such as elderly healthcare facilities along the coastal areas suffered catastrophic damage. It seemed that there were a lot of cases in which elderly patients survived due to the efforts of their facility staff, some reaching our hospital despite hypothermia.

低体温症の方々は肅々と毛布や温風マットで加温され病棟へと入院していきます。しかしエレベーターが止まったままだったので担架を4人がかりで担いで上層階まで上げなければならず、これはひとかたならぬ苦勞でした。また、入院には至らないが経過観察を必要とする方々が黄色ブースに集中してしまい、黄色ブースの負担(特に看護師さん)が極めて大きくなってしまったのは問題点だったように思われます。実際、黄色ブースの患者さんは入院するほどの状態ではないけれども、家に帰る手立てがないご老人であったり、精神疾患があるため家にも避難所にも帰りづらい方だったり、医師としても難しい対応を迫られるケースが多かった記憶があります。また、入院ベッドの不足が予想され黄色ブースにも限界があったのでリハビリ室にも患者さんをお願いした経緯がありましたが、これはリハビリ室のスタッフさんたちにも多大なる負担を強いてしまったと思います。

Those patients with hypothermia, heated with blankets or warm-air-mats, were quietly being admitted to our ward. However, because the elevators were still not working, they had to be raised up to the upper floors with a stretcher by four members, and that was an extraordinary task. In addition, patients who did not need hospitalization but needed follow-ups ended up concentrating at the yellow booth, and the burden of the yellow booth, especially on the nurses', became very heavy. I remember that the yellow booth had a lot of cases where doctors were forced to make difficult decisions: patients whose conditions weren't bad enough to be hospitalized but having no way to return home, and for others whose condition made it difficult to go back home or to go to their shelter because of mental illness. In addition, the shortage of our hospital beds was worrying, and the yellow booth was at its limits, therefore we had to ask our rehabilitation room to accept those patients. I think this must have imposed a heavy burden on the staff of our Rehabilitation Room.

夜中、ひっそりと廊下の片隅で泣いている看護婦さんがいましたが、私にはかける言葉がありませんでした。皆、限界を超えて職業倫理だけでがんばっていたのです。

The middle of the night, there was a nurse quietly crying in a corner of the hallway, but I had no words to console her. Everybody was pushing hard beyond their limits and was working only due to professional ethics.

鎮火しない火災。3 月 14 日未明。

地震の夜から港は火の海になっていました。気仙沼湾内を炎上しながら回遊しあちこちに火付けをして回った石油タンクやガスボンベは、ついに病院方面へ火の手を回してきました。忘れもしない 3 月 14 日午前 2 時のことです。5 階から大川の対岸を見るとガスタンクの数百メートル近くまで火の手が南風にあおられて近付いていくのがわかりました。ガスタンクに火がつけば爆発してどこまで火が飛んでくるかわからないけれど、病院まで火が届くのは間違いないでしょう。自分の生命にも危機が迫っている事を理解しました。

Fire not extinguished - the early morning of March 14

The harbor had become a sea of fire since the night of the earthquake. The oil tanks and the gas cylinders that were drifting around were going up flames and setting fire all over Kesennuma Bay, and now the fires were heading toward the hospital. It was at 2 am on March 14. I will never forget looking toward the opposite side of the Okawa River (the biggest river in the city) from the 5th floor of the hospital. I could see the fire, fueled by a south wind, approaching several hundred meters of the gas tank. I did not know how far fire would spread if the gas tanks caught fire and exploded, but it would reach the hospital without a doubt. I realized that a crisis was approaching me.

病棟に降りると、悲壮な決意を瞳に宿して懐中電灯を頭にくくりつけて大きなリュックを背負って患者誘導の準備を行う夜勤看護師がいました。搬送の段取りと順番を検討していましたが、全員連れて避難できる時間的余裕があるのかどうか。それすらわかりませんが今できることをやるしかないのです。

When I got downstairs to the ward, there was a night shift nurse with desperate determination in her eyes, with a flashlight on her head, carrying a large backpack, preparing to guide the patients. I was considering setting up and ordering transportation, but I wondered if there was enough time to evacuate everyone. I had no idea, but had no choice but to do what I could in that moment.

ローテーションで回っていたので仮眠をとっていた医師もいましたが皆起こされ院内にいた医師が全て救急室に集められました。

しかし、何の連絡もこない。状況は楽観視できる状況ではありません。やきもきしながら待つ医師、病棟の搬送準備の手伝いに上がる医師、誰もがどうなることか気をもみながら時間が過ぎていきました。

As we were working shifts, some doctors were taking naps. However, they were all woken up and all the doctors in the hospital gathered to the emergency room.

Without contact or information, the situation was not looking optimistic. Some doctors were waiting in panic, other doctors were going up to the wards to help prepare the evacuation of patients, as time went by everybody was worrying about what were to happen.

そして、ようやく明け方5時半になって会議が始まりました。どの病棟の患者からどういった人数をかけてどこへ避難させるのか。誰もが固唾を飲んで会議に臨みました。

しかし、東京消防庁が病院方面への延焼は何としても食い止めてくれるという決意で消火活動にあたってくれるということで、「火はこちら岸にこない」前提で議論を進めることとなりました。

A meeting finally began at 5:30 at dawn - Which ward's patients should we take first? How many staff members should we assign to take care of them? Where should we evacuate them? Everybody attending the meeting, held their breath.

However, information had come in that the Tokyo Fire Department would take charge and fight the fires with unwavering resolve and would keep in check the spread of the flames toward the hospital at all cost. We decided to go forward with our discussion on the premise that the fire would not come near the bank of the river.

朝になって、消防隊の奮闘に加え北風が吹いたことによって、「火はこちら岸にはこない」ですみました。こればかりは天佑としか思われず、あの時病院に火が追ったらと考えると今でも全身が凍るような恐怖を覚えます。

In the morning, the north wind blew and the struggles of the fire brigades paid off as the fire did not come to the near bank of the river. I can't help but think that this was nothing short of a miracle and feel scared even now as if my whole body freezes when I think about what would have happened if the fire had approached the hospital.

救援に感謝

地震から数日が過ぎていました。最大の懸案だった食料は、3月14日のNHKの報道による訴えが奏効し無償の大量の寄付が急場を救ってくれたと聞いています。また、重油も業者さんと事務スタッフさんとの機転で何とか綱渡りで停電は回避できていました。13日から東北大学病院と仙台厚生病院からの応援医師がこちらからの要請なしで自発的に来てくれた時は涙が出るほどうれしく、また大変心強く感じられました。個人的には大学病院から応援に来てくれた第一陣の医師たちが、大学時代の、そして研修時代の後輩たちであったことが非常にうれしかったのを記憶しています。

Thanks to the relief operation

Several days had passed since the earthquake. The largest outstanding problem, food, was on its way. I heard that food donations, successfully gathered by an appeal made by the NHK on March 14, saved the emergency. In regard to heavy oil, we somehow managed to avoid power outages, walking a tightrope, thanks to the quick work of the traders concerned and our administrative staff. From the 13th, when the doctors from Tohoku University Hospital and Sendai Welfare Hospital came to us voluntarily without our request, I was so glad that I couldn't contain my tears. Personally, I was overjoyed that some doctors of the first team who came to cheer us on from the university hospital, were my juniors during my college years and my training period.

応援の先生方の助けがなければあの状況は絶対に乗り切れなかったことでしょう。応援の先生方は車やバスではるばる仙台から来るにもかかわらず疲れた顔ひとつ見せずに救急対応に尽力して下さいました。また、これは時系列的に後の話になりますが、震災からしばらく途切れることなく応援して頂いたことも、常勤医が病棟業務に時間を割く余裕を与えてくれました。心から感謝したいと思います。

We would have never been able to survive the situation without the help of the supporting doctors. The supporting doctors, in spite of having come all the way from Sendai by car or bus, had made efforts in responding to the emergency without showing any fatigue on their faces. This chronologically happened later on, but they had supported us endlessly for a while after the earthquake, which gave our full-time doctors some leeway to spend time on their ward duties. We would like to sincerely thank them.

疲弊するスタッフ — 3月15日

震災から5日目ともなると、24時間ローテーションで疲弊する医師、それ以上に疲弊した看護師、家族を思い泣きながら仕事をするスタッフ、いずれももう限界でした。

とにかく負担を軽減しなければならない。病棟も満床にじわじわと近付き、早めに患者を内陸に逃がさないとパニックになると若手及び中堅医師は会議で提案しました。幸い、この頃には DMAT などのヘリもありましたし、国道284号が生きている以上救急車でもいくらかでも理論上は内陸の病院に搬送できるはずでした。

The exhausted staff - March 15

When it came to the 5th day of the earthquake, everyone could not bear it any more: the doctors were exhausted being on a 24-hour rotation, the more exhausted nurses and other staff members were working while crying, thinking of their families.

We had to reduce their burden in any way possible. The wards in the hospital were also approaching their total capacity. The junior doctors and the middle-standing doctors proposed at the meeting that things would come to a panic unless we transferred the patients to inland hospitals as soon as possible. Fortunately, by this time, there were some helicopters from DMAT among others, and as long as the National Route 284 was open, theoretically patients could be transferred to inland hospitals by ambulance.

しかし、なかなか状況は進捗しませんでした。我々にはわからないところで苦悩があったのかもしれませんが、院長先生も負傷なさって会議は更に混迷の度合いを深めていきました。

However, the situation did not progress smoothly. There might have been some troubles behind the scenes. The director of the hospital got injured, and the meeting was getting more and more chaotic.

そのような中で提案が生かされた例もありました。院内 PHS や固定電話がないために医師同士(もしくはブース同士)で連絡が取れないのは非常に不便だったのですが、au だけは移動中継車を派遣してくれていたのも携帯がつながることはわかっていました。一関まで行って病院名義でありつたけの au 携帯をかき集めてきて配れば、太平洋戦争時のように伝令(この場合看護師さん)が走り回って医者探しをする必要がなくなるわけです。

In such a situation, some proposals that were made were put to use. It was of great inconvenience that the doctors (or booths) could not communicate with each other without in-hospital PHS's (Personal Handy-Phone System) nor fixed phones, but we knew we were able to get by with AU's cellular phones [AU: a mobile phone communication company] as AU alone had sent a mobile relay-car here to Kesennuma. If we could go to Ichinoseki (the neighboring town), scrape together some AU cellular phones in the hospital's name and distribute them within our hospital, the messenger (nurse in this case) would not have to run around and search for a doctor like that of the Pacific War.

このことをぜひやってくれとお願いしたら病院印の院外への待ち出し等の問題で駄目だと言われましたが、どうしても必要だと訴えたところ、病院印を事務の方が持って私の車の助手席に乗って一関まで半日かけて行ってくるということになりました。

When I asked our administrative division to have it done by all means, I was told "no", as it would be troublesome to take the hospital's seal (ID stamp) out of the hospital. When I urged that it was absolutely essential, one of our office workers got into the passenger seat of my car with the seal of the hospital in his hands and we drove to Ichinoseki and were back in half a day.

さいわい、一関の au の方が当院の窮状を察してくれて数時間かけて周辺の店舗から端末を 20 台かき集めて下さいました。それで au の携帯を持っていない医師と、院内の各部署に配布することができました。看護師さんの伝令の苦労もなくなり、医師も各部署に詰めていなくとも必要時呼び出しを受けるまで休息をとれるようになったことから、労力の軽減に資することができたのではないかと思います。

Fortunately, the AU shop of Ichinoseki recognized the plight of our hospital, and they scraped together 20 cellular phones from its neighboring stores in several hours. That was sufficient enough to cover doctors and each section without an AU cellular phone. This in turn made the difficulties of our nurses' messenger-task easier and allowed the doctors to take some rest outside of their sections until they were called when necessary. It probably made some contribution in relieving the workload.

診療部の奮闘

もともと病床数と診療圏のわりに常勤医師数が少なかった当院にとって、今回の震災のような非常時の診療はまさに骨身を削るようなものでした。周囲の医療機関は、北の陸前高田病院、南の志津川病院が壊滅しており、市内の開業医の先生方も軒並み被災されており、診療圏のほぼ全ての患者さんが当院に殺到しました。低体温症や肺炎などの重症の患者さんだけでなく、高血圧の人々糖尿病のような患者さんたちにとっても内服薬やインスリンを処方する医療機関は必須のものなのです。

The struggle of the clinical department

For our hospital, which originally had a small number of full-time doctors in lieu of the number of beds and the number of clinics, the medical treatment in an emergency such as the earthquake disaster was terribly hard work. Neighboring hospitals, Rikuzentakata Hospital in the north and Shizugawa Hospital in the south had been destroyed, and the practitioners in the city had also suffered. Therefore, almost all patients in the medical care zone were being rushed to our hospital. Medical institutions are indispensable not only for severely ill patients such as those with hypothermia and pneumonia but also for other patients with such as hypertension and diabetes, who are prescribed oral medication and insulin.

そのような方々への薬処方を初めて行った日、病院窓口から玄関を通して駐車場を抜けて病院前の坂の下まで患者さんの行列ができました。殺到する患者さんをまさに体を張って整理(そして説明及び説得)する病院上層部の奮闘は獅子奮迅というべきものでした。このような当院の状況を、医局での会議の了解を得て私が m3 という医療系サイトにインターネットで発信したところ、早速 m3 から電話インタビューを受け、m3 のサイトのニュースに「通常の 2 倍以上の患者が殺到した」と報道されました。医師の中には m3 のサイトで気仙沼市立病院の状況を知った人も多かったと後日聞き、

メディアの影響力の強さを実感しました。呼吸器科の医師も SNS(ソーシャルネットワーキングサービス)で情報発信をしており、当院の現状を広く伝えて協力を呼びかける成果を挙げたと聞きました。インターネットが繋がるという前提は必要ですが、緊急時の情報発信(及び情報収集)にこういったメディア(従来の新聞・テレビなどではなく、インターネットや SNS など)の重要性を感じました。

On the day we started writing out prescriptions for those patients for the first time, we could see a long line of patients, extending from the hospital reception, through the entrance, going through the parking lot and extending to the foot of the slope in front of the hospital. The senior-level members of our hospital made strenuous efforts at the genuine risk of their own health, managing the patients rushing to the hospital (they also gave those patients some explanations and advice), something worth noting as an incredible force. As soon as I transmitted the information of the situation of our hospital to a medical Internet site called m3 after getting the consent of the medical office, I received a telephone interview from m3, and they reported it in the news of the m3 site that saying “Patients, more than twice as normal rushed to the hospital.” I found out later that quite a few doctors knew of the situation in Kesennuma City Hospital through the m3 Internet site, and I realized the strength and influence of media. I heard that one of the doctors of our respiratory department had also sent out information through SNS (Social Networking Service) and it had resulted in wide coverage of the then situation of our hospital and worked as a plea for cooperation. Although it is necessary as a prerequisite to be connected to the Internet, I felt that media (not including traditional newspapers and TV) such as the Internet, SNS and the likes were important for information transmission (and information-gathering) in emergencies.

この時期、体感的にはこれ以上業務を続けられないと感じていましたが、上層部から若手まで一丸となってスタッフの方々と協力してなんとかこなしたのは奇跡的に思えました。

At this time, I physically felt that I could no longer continue to work anymore. Nevertheless, it seemed miraculous that all our staff members, young and old, worked in cooperation and managed to overcome the situation.

数週間が経過して

インフラや物資、人手は徐々に充足してきましたが、震災当初は一丸となって診療にあたっていた医師たちにも、時間の経過とともに少しずつ温度差が生じてくるのはいたしかたないところだったのでしょうか。各科毎の対応(外来の再開時期など)にもばらつきができました。それでも押し寄せる患者さんの波は途絶える事はありませんでした。

Several weeks have passed

Although infrastructure, goods, and manpower were gradually improving, it was likely inevitable that the doctors who were united in medical care at the beginning of the disaster would gradually exert different degrees of commitment over time. Even among the departments of the hospital, a variation in responses was arising (such as the restarting time of outpatient care). However, the wave of patients was surging continually without a break.

また、3月30日におきた停電は数時間で復旧したものの外来は休止とせざるをえませんでした。3週間が経過してもインフラが安定していないという厳然たる事実を痛感させられ、依然として綱渡り状態に自分たちがいることに気付かされました。

疲弊しきった医師たちの士気が最悪の状態まで下がったのもこの頃だと記憶しています。交代で数日程度の休みをとるなどの措置が必要だったのかもしれないと今になってみるとと思いますが、当時はそのような事には思いが及びませんでした。

In addition, recovery from a power outage that occurred on March 30, happened within in a few hours but the practice of outpatient clinics had to be halted. I fully realized the grim reality that the infrastructure was not stable even three weeks after the earthquake and was reminded that we were still walking a tightrope.

I remember it was around this time that the morale of the doctors, who had already fully exhausted themselves, had dropped to its worst. As an afterthought, it might have been necessary to implement measures such as taking several day breaks in shifts at this stage, but I didn't think about it at the time.

数ヶ月が経過して

インフラの復旧と物流の再開、医師応援の継続などによって、外来診療及び検査、そして手術などが徐々にできるようになって、通常診療ができる有難さというものを痛感することとなりました。しかし、街中を見渡せば一面が荒涼たる水溜りで、どのような復興ビジョンを描けるのか全く私にはわかりません。しかし気仙沼には、私には弱点にもみえた細やかなネットワークがあるので、人々との支えあいで切り抜けていけるのではないかとも思っています。

Several months have passed

The restoration of infrastructure, the resumption of logistics and the continuous support of assisting doctors were gradually allowing us to practice outpatient care and examinations, and to perform surgical operations. After that, I fully appreciated being able to practice normal medical care. However, looking out over the city, we saw the desolate scene of pools of water all around, which made me doubt the revitalization-vision of the city at all. However, Kesennuma and its delicate network of residents, which seemed to me as a weakness; would manage to find their way out

of the situation by assisting each other.

今回の震災を振り返ってみると、震災対応について幾つか重要だったと思うことがあります。

- 迅速な意思決定（ベストではなくともベターな手をいかに早く打てるか）
- 集合知の活用（個々人がよいと思ったことをどんどん実行し広めていく）
- 民主主義的プロセスに固執しない（緊急時に正規のプロセスは邪魔になることが多い）
- 人が大事（人を助けるのが病院の使命。その為には助ける人を疲弊させないこと）

Looking back at the earthquake, I think that there were some important things that were present in our response to the earthquake disaster.

- Rapid decision-making (how quickly can we take better measures, even if they may not be the best)
- Utilization of collective intelligence (practicing and promoting what each individual thinks is appropriate)
- Don't stick to the democratic process (the normal process could often be an obstacle in an emergency)
- Medical staff members are important (the mission of a hospital is to help people; do not exhaust the people who save others)

各論はさておき、結論的には上記4点が重要なのではないかと個人的には思われました。もちろん私が見聞きし体験したことは震災下の病院のごく一部の事象でしかありません。しかし、今後の何らかの参考になればと思い筆をおきます。

Putting aside the details, I think personally that, in conclusion, the four points mentioned above would be the most important. Of course, what I have seen, heard and experienced was a small part of the events that happened in the hospital during the earthquake disaster. However, I hope that what I wrote might become a future reference, and I conclude my account here.

研修医

東日本大震災体験記

気仙沼市立病院
石田裕嵩

Resident Physicians

The Experiences of the Great East Japan Earthquake

Dr. Hirotaka Ishida
Kesenuma City Hospital

平成 23 年 3 月 11 日、この日は我々にとって忘れられない、忘れてはならないに日なった。東日本大震災...いつかは来るであろう宮城県沖地震に対してはいくつか準備や対応をしていたが、まさかあれほどの揺れと津波が来ることを果たして誰が予想していたらうか。

March 11, 2011 is a day that we will never be able to forget and must not forget. We were to some extent, preparing a response to the Miyagi Offshore Earthquake which was predicted to come someday, but who could have predicted such extraordinary tremors and tsunamis as those of that day.

14 時 46 分、そのとき私は 2 階西病棟で外科カンファレンスの準備をしていた。最初は小刻みな揺れで、2 日前の 3 月 9 日に起こった地震の余震程度に思っていたが、揺れは大きくなるばかりか棚からからファイルなどが落ちた光景は覚えているが、その後地震がどの程度続いたか、どのような揺れだったのか、あまり記憶がはっきりしない。

At 14:46, I was preparing for a surgery conference on the 2nd Floor West Ward. At first, there was a fast shaking. I thought it seemed like an aftershock of an earthquake, which had occurred 2 days before, on March 9, but the shaking was getting larger and larger. I can recall files falling down from shelves, but my memory is not very clear about how long the earthquake lasted thereafter and what kind of shaking it was.

ようやく地震が落ち着いた後、これはただ事ではないということは誰の目にも明らかであった。病室をひとつひとつ廻り、まずは患者さんの無事と安全を確認する。病棟の壁は脆くも崩れ、廊下にはひびが入っている。いつ崩れるかもしれない建物の中にいる恐怖心を覚えた。

After the earthquake finally calmed down, it was obvious to everybody that something extraordinary happened. Going around every hospital room, I first made sure of our patients' security and safety. The walls of the hospital wards had collapsed effortlessly, and the hallways had cracked. I felt the fear of being in a building that might collapse at any time.

そして、医師人生で初めての災害医療が始まった。指導医の先生方に先導していただきながら、とにかく今必要なことは何か、自分で考えて行動するしかなかった。遠くで鳴り響くサイレン。どれだけの患者さんが、どのような状況で来院するのか、まったく想像がつかず救急室入り口前で待機していると、病院上階の窓から叫び声が聞こえた。その声の指す方向をみると、津波と思われる波が病院のすぐ下まで到達しているではないか。河口から病院まで距離にして 2km はあるはずなのに、どうして波がここまでくるのか、目の前の状況が現実なのか夢なのか、まったく理解ができなかった。遠くにくすぶる黒煙が異常に不気味であった。

Then, my first experience of disaster medical care as a doctor began. I had no choice but to think about what I needed to do in that moment and take action while being guided by the teachers. Sirens were blaring in the distance. While I was waiting in front of the entrance of our emergency room, I could not picture how many patients with what kind of condition were to come. I could hear screams from the upper window of the hospital. Looking at the direction of the screams, I saw with fear, waves that seemed to be that of a tsunami having reached just below the hospital. As the distance from the bay to the hospital must be some 2 km, I could not understand at all why the waves were coming up here and whether the situation at hand was reality or not. The black smoke smoldering in the distance was extraordinarily eerie.

福島原発事故、自家発電問題、ガスタンク爆発説、重症患者の大量搬送、透析患者の移送など、病院機能の停止寸前まで追い込まれたなか、首の皮一枚でつながったところが多く見受けられ、病院職員はもちろん、全国から支援に集まっていた方々のご尽力の賜物である。各々の詳細は他著に譲るが、医療圏内の患者さんの診察を可能な限り継続できたことは、まさに医療関係者やそれに携わった方々、ボランティアの皆様の臨機応変な対応、疲労を押し通した滅私奉公の精神あってこそ成り立つものであり、そこに日本人の強さすら感じた。また、在宅医療や地域医療情報ネットワーク化の取り組みなど、震災を機に以前より強化された部分もいくつも挙げられ、驚愕である。今回の件は後世に残すべきであり、次にいつくともわからない災害にむけて対応していかなければならない。

Due the Fukushima nuclear accident, the problem of our private power generation, the assumption that the city-gas tank exploded, the mass transport of critically ill patients, the transport of hemodialysis patients and the rest, the hospital's function was forced on the verge of stopping, but thanks to the efforts of not only the hospital staff but also the people who had gathered from all over the country to support us,

some functions survived by the skin of their teeth. While I'll spare the details to the other reports, the medical care for patients in our medical area was made possible by the flexible response and the spirit of selfless devotion amid the exhaustion of medical personnel, supporters and volunteers. Here, I felt the strength of the Japanese people. In addition, I marveled at the fact that there were a number of areas that were strengthened after the earthquake, such as home medical care and regional medical information network efforts. These functions should be left for future generations, and we must work towards the countermeasures of unpredictable disasters.

そして、今回の震災においてたくさんの尊い命が失われた。これはどの大規模な災害が起こることなどももちろん誰も予想はしていなかっただろうし、平常時に災害で自分が死んでしまうと考える人も皆無であろう。日常が日常でなくなったときに、人は当たり前であったことへのありがたみを感じるものである。特に今回の震災ではそれが顕著であったであろう。お亡くなりになられた方々のご冥福をお祈りするとともに、残された我々は、救われた命に感謝をしつつ、それでも常に前に向かって進んでいかなければならないと思う。医療者としてというよりは個人的な主観で書かせていただきました。

Consequently, many precious lives were lost in the earthquake. Nobody could have predicted, of course, that such a large-scale disaster like that would occur, and normally, nobody would think that he or she would die in a disaster. When our daily life is uprooted, we feel grateful for the usual. That thought was particularly noticeable in the recent disaster. I would like to pray for the souls of those who have passed away. We must remain grateful for the lives saved and continue to move forward. I wrote this as a personal account rather than as a medical practitioner.

震 災

気仙沼市立病院
石橋信之

Resident Physicians

The Earthquake Disaster

Dr. Nobuyuki Ishibashi
Kesenuma City Hospital

3 月 11 日、突然のたっていられないほどの地震がきた。その日から毎日のルーチンな仕事の日常が非日常へと変わった。最初内視鏡室にいた僕は大きな地震がきたなあとごく普通の地震より少し上をいくぐらいかと楽観していた。しかし、時間がたつにつれ周囲の状況は刻々と様変わりしていった。病院は待合室の椅子は片付けられ、簡易ベッドで埋め尽くされた。海水が駐車場まであふれるようになり、事態の深刻さがじわじわと伝わり始めていた。

On March 11, a sudden earthquake with a ferocity that left people unable to stand occurred. Since that day, our day-to-day work had upturned. At first, I was optimistic in the endoscopy room, just thinking that a big earthquake occurred and that it might be a little bigger than ordinary ones. However, the situation was changing by the hour. In the hospital, the chairs of the waiting rooms were put away, and the rooms were filled with simple beds. Seawater overflowed in the parking lot below, and the seriousness of the situation gradually began to spread.

日がくるとともに病院は煙と炎に周囲をつつまれていることが判明してきた。病院へ避難してきた住民が最初は多かったが、次第に低体温、四肢外傷、骨折、溺水と次第に重篤な患者へと様変わりしてきた。次から次へと途切れることがない患者、こちらは triage, triage, triage…。夜になっていくと暖房がなく、寒さが一段と増すとともに携帯が繋がらず、そして外にも出られず、まさに隔離された状態、気仙沼の今この状況を知りたい衝動にかられていた。唯一 BS の NHK がつき、航空自衛隊の気仙沼の画像をみてあたりが火の海であることを知った。まるで昔の終戦をみているかの感覚に襲われた。現実観がないのだ。院内も患者であふれていたが、医局も暗闇の中、みな医師が待機して寝る場所がないほど混沌としていた。

As it got dark, we realized that smoke and flames had surrounded the hospital. A lot

of residents evacuated to the hospital at first, but gradually, the people who started arriving completely changed to patients with serious conditions such as hypothermia, limb-trauma, fractures and those who had drowned. Patients were arriving here one after another. We were doing triage, triage and more triage. As it got darker, without any heating, it was getting colder. Our mobile phones were not able to connect with each other, nor could we go outside. This isolating situation was giving me an urge to know the present situation of Kesennuma. We could only watch NHK BS Channel (the Japan Broadcasting Association, Broadcasting Satellite), by which we could see images of Kesennuma filmed by the Air Self-Defense Forces and I understood that the area was a sea of flames. I felt as if I had been watching the end of a previous war. There was no sense of reality. The hospital was flooded with patients, the medical office dark and chaotic, there was no room for doctors to sleep.

日があけるとあたりはヘドロで地面が歩けないほどになっていた。ぼつぼつと点在するまぐろやサシマが散乱していた。少し笑いがこみあげてきたが、朝の寒さが身にしみてすぐに消えてしまった。病院では食料があまりないことが発覚した。そしてガソリンスタンドの営業停止。食料は救援を待つしかない状況に陥った。翌日の患者は様変わり。今度は毎日薬を服用していた人達が薬をなくし処方してもらいに来院。この数が多いこと、多いこと。病院は人であふれはじめた。今思い返すと震災と病院の様子はこんな感じだったかな。詳細は他の人の体験記を参考に。

At the break of day, the ground was so muddy that we could not walk. Tuna and Pacific saury were scattered everywhere (from fish markets and refrigerating warehouses in Kesennuma). A laugh welled up inside, but it immediately disappeared as I felt the cold of the morning. The hospital found itself not having enough food. Gas stations suspended their business. We fell into a situation under which we had no choice but to wait for relief food. The next day, the situation of patients coming to the hospital dramatically changed. This time, it was patients who had been taking daily prescribed medications who had lost them and came for new prescriptions. There were just so many people. The hospital began to overflow with patients. Looking back, I think the situation of the hospital around the time of the earthquake was something like this account. For more information, please refer to the memoirs of the other staff members.

自分の話に変えると3日ぶりに家に帰れた。官舎は築40年ですきま風が入るおんぼろ、さぞ悲惨な状況が予想されたが、不幸中の幸い。家は倒壊していなかった。これはいいすぎかな。少し傾いたくらい。床には水道が破裂して、あたり一面水浸し...なんてのはなく、天井にたまっていたほこりが床に落ち、家の中はほこりで埋め尽くされていた。ふすまは隙間を残す程度でしめられるし、食器はすべて大丈夫だった。電気ポットが床に落ちてふたが壊れただけ。家はあまり普段と変わらない状態だった。強固な地盤という自然な耐震のおかげだと思った。しかし電気がつながらない

め、冷蔵庫・冷凍庫の中身が全滅した。特に後で食べるために残しといたアイスクリームが朽ち果てた姿を見たときはガックリきた。悲しい。おいしいものは早めに食べる、これからはそうすべきだと思った。また牛乳等の生鮮食品は入手も困難。人は手に入らなくなると欲しがらるものだと感じた。うちはプロパンガスだったため、ガスによる調理は可能で、また水道もでていた。幸いお湯をつくれるし、ガスによる米も炊くことができた。レトルトカレーの日々の始まりだ。レトルトカレーは結構な種類を食べたなあ。あきるくらい。それに看護師をはじめ、みなおにぎりを作ってきてくれるので1人暮らしの身にはむしろ食料事情はよくなったのかもしれない。私事ですが実は震災で3 kg 太りました。よく「働いてなかったのでは?」と指導医からはなじられましたが。

To my own situation now, I was able to go home after three days. My official residence was built 40 years ago and was so tattered that drafts would come in. I was expecting the place to be in a miserable condition but to my consolation, it had not collapsed. Well actually, it was slightly leaning. Bursting water pipes and soggy flooring; those things did not happen. The dust having accumulated in the ceiling fell to the floor and all the inside of the house was filled with dust. The fusumas (framed and papered sliding doors used as room partition), were able to be closed leaving only a little gap, and all of the tableware was unbroken. An electric kettle had fallen down on the floor only with its lid broken. The house was almost the same as it was. I thought that it due to the natural earthquake-resistance of the solid ground of the area. However, since electricity had not been connected, the contents in my refrigerator and freezer had spoiled. I was extremely disappointed when I saw that I couldn't eat the ice-cream that I had saved to eat later. I decided from then on that I should eat delicious things as soon as possible. It was difficult to get fresh food such as milk. I thought, people crave what they can't have. The house was equipped with a propane gas cylinder, which enabled me to cook with gas, and tap water became available. Fortunately, I could boil water and also cook rice with gas. It was the beginning of the daily routine of retort curry and rice. I have eaten so many kinds of retort curries that I am sick of them. As nurses and others made rice balls; the food situation for me, for people living alone, improved. This is something personal, but I gained 3 kg of weight during the disaster. My medical instructor used to reproach me, saying "You must not be working enough."

一番早く宅配便を開始したのは日本郵政。といってもスタートしたのは震災後3週間後くらいかなあ。これにより家族からの差し入れがきて感謝した。携帯電話は au が一番つながっていた。企業努力がこんなところで差がでるなと思った。パチンコ屋は景品のお菓子を支給したり、あるスーパーや自販機の販売元は缶ジュース等を配布したりして支えあうことはいいことだなと思った。周囲の被害は深刻でやはり家を失い、帰れずにいる人達がい、声をかけるのはつらかった。そんな中、室根から食料を作ってもってきて下さったりと支援は心温まるものだった。しかし震災の事は心痛み、前を歩きたいからあまり思い出したくないと思う人がいるのではと感じる。

The Japan Post was the first courier service that restarted. Although, I suppose it probably restarted about three weeks after the earthquake. I was grateful to receive gifts from my family. AU Mobile phones had the most connection. It never occurred to me that the efforts of companies could make a difference in situation like this. Pachinko parlors (Japanese upright pinball game shops) were supplying premium sweets, and some supermarkets and vending machine companies were delivering cans of juice and the likes to show support, which I thought was a good thing. The damage of the neighborhood was still severe, and people lost their houses and could not go home. It was hard to talk to them. In the meantime, some residents of Murone (a neighboring town of Kesennuma) brought a lot of cooked food, and gave us heart-warming support. However, I feel that some people do not want to remember too much of the disaster because it would bring up painful memories, and they want to move forward.

さて、病院の仕事に話を戻すと避難所暮らしのストレスで胃・十二指腸潰瘍が多発、ヘドロが乾燥して粉塵となり、それを吸い込んで気管支喘息や肺炎にかかる人、被災家屋に戻り、針刺しや湯をつけてくる人、転倒して骨[折]・脱臼する人など多く訪れ、そして入院患者は他県へどんどんと搬送へとめまぐるしく院内は回転していった。今にして思うと気仙沼市立病院はうまく機能していたのではと思う。みなが幾分かの不満はあったのかもしれないけれど協力していたと思う。個人的には被災していた人は仕事ではなく、自分・家族のことを優先してもいいのではと思うこともあった。なぜなら、大勢は救えない、限られた人だけ、自分ができる範囲だけしか救えないからだ。まあ、ここを突き詰めると議論になりそうだから個人的な意見までにとどめますが。

Now, back to the story of the hospital, the stress of living in an evacuation shelter caused frequent gastric and duodenal ulcers. The dried sludge had become dust, and some people inhaled it resulting in bronchial asthma and pneumonia; others returned to their affected house and had accidents with needles or got burnt with hot water; others fell down and dislocated their joints or had bone fractures. The inpatients of our hospital began to swiftly be transported to other hospitals in other prefectures; the inside of the hospital was changing rapidly. Looking back now, I think Kesennuma City Hospital was functioning well. Although every staff member might have felt some dissatisfaction, I think we were cooperating with one another. I personally thought that many staff members whose families and houses had suffered should have prioritized themselves and their families. That's because a lot of people could not be saved, we could only save a limited amount of people, and could only do as much as we could. I'm going to stop with my personal opinion here since it might lead to an argument.

最後に今回の震災では過酷な環境にいてもそれぞれ知恵を出し合って対処して皆、よくやった

と思う。「また??」来たとしても大丈夫、うまくやっていけると信じていることができますと思います。

In conclusion, I think that everyone in this earthquake did well by sharing their wisdom even in harsh circumstances. I believe that we would be able to manage if the next disaster were to come *again*.

P. S.

今回のテーマとは相反しますが、震災の記憶は忘れてもいいし、残してもいいし。読みたい気持ちになったときにこの文章を読めばいいと思って書きました。ラフに書きましたのでご丁承ください。

P. S.

Although it's contrary to the theme, I think that we are free to forget or remember the memories of the earthquake disaster. I wrote this report as I thought we can read it when we feel like it in the future. Please note that this is a rough recount.

研修医

東日本大震災レポート

研修 2 年目 (当時 1 年目) 國吉真平

Resident Physicians

The report of the East Japan Great Earthquake Disaster

Dr. Shinpei Kuniyoshi
The second year of resident
(The first year at that time)
Kesennuma City Hospital

気管支内視鏡検査中に地震が起こった。強い地震に慣れていない自分にとっては、これが宮城県の地震か、すごいなあと思ったが、どうやら上級医の先生達も経験しないような強さだったようだ。停電のなか、すぐに病棟へ戻り人工呼吸器管理を行っている患者を確認する。ある程度揺れがおさまったところで院内を見て回ったが、どこの病棟も被害状況の確認と患者・付添い人の誘導で忙しいようだ。津波、火事と大変なことが起こっているはずなのだが、なんだか現実感がなく、ボーッと視野の広範囲を占める、大空へ向かう煙を眺めていた気がする。

The earthquake occurred when I was doing a bronchoscopy examination. For me, having not been accustomed to strong earthquakes, I thought “this is what earthquakes in Miyagi Prefecture are like, that’s some major shaking.” However, it seemed that my seniors had never experienced one as intense as this. During the power outage, I immediately went back to the hospital ward and confirmed the lives of our inpatients on ventilator management. As tremors had subsided to a certain extent, I went around the hospital. It seemed that every ward was busy confirming the situation of damage and guiding patients and attendants. Tsunami, fires, and serious things must have been happening, but I somehow lost my sense of reality; I vaguely remember that I might have seen smoke, which was occupying a wide scope of my vision as it rose toward the sky.

すぐに非常時のチームが編成され、時間帯を区切って当番を行う方針になった。ケータイも PHS もつながらず、電気は復活しない。予想に反して、あまり患者は来なかった。夕方、自分が一番初

めに診た救急患者は若い警察官だった。既に死後硬直がはじまり、衣服は泥で汚れていた。医局の壊れたテレビで震災のニュースをみた。津波が町を飲みこんでいく映像はやはり作り物のようでとても現実とは思えない。

Immediately, an emergency team was formed, and the policy was to divide shift times to perform duties. Not only were cordless telephones unable to connect, but PHS's, and the power supply had not been restored. Contrary to expectations, few patients came. The first patient I examined that evening was a young police officer. Rigor mortis had already been setting in, and his clothes were dirty with mud. I saw the news of the earthquake on a broken TV in our medical office. The image of the tsunami swallowing the town seemed fake, it didn't feel real.

1週間ほど病院での生活が続いた。その間、避難所に行って薬の処方のお手伝いをしたり、救急患者の初期対応をしたり、といった業務を行った。自宅は運よく被災を逃れたが、停電が続き、夜は非常に寒い。ガスはあるが、ガスを使用する製品がお風呂を含めすべて電気制御のため、まったく使い物にならなかった。しかし、自分には病院がある。被災者がすべてを失い、避難所で寒いなか生活することのストレスは想像に難くなかった。

看護師をはじめとする院内関係者は地元の人間が多い。家族や友人は無事だったのか？避難所から病院へ通う者もいた。看護師の震災時における、家にも帰れない、家族や友人の安否もわからない状況での献身的な働きぶりは、心の弱い自分にはとても真似できないものだった。

I lived in the hospital for a week or so. Meanwhile, I was engaged in tasks such as helping prescribe medications at shelters and to take the initial response to emergency patients. My house luckily escaped damage, power outages continued, and, moreover, it was very cold at night. Although I could use the gas, all of the household fixtures that use gas, including the bath were controlled electrically. So they were of no use at all. However, thankfully I had the hospital. It was easy to imagine the stress of the victims, who had lost everything and had to live amid the cold in shelters.

Many hospital personnel including nurses were local residents. I wondered if their families and friends were safe or not. Some personnel were coming to the hospital from their shelters. The devoted work of nurses who could not go home and confirm the safety of their family and friends at the time of the earthquake was beyond imitation for my weak-minded self.

また、病院に大量の支援物資が届くわけだが、初期には被災地であるはずの地元の飲食店からの差し入れが多かったのは(営業できないからという理由を差し引いても)感慨深く感じた。先人たちが築き上げた地域と病院の信頼関係。地域住民から愛される病院でなければ、このようなことはなかっただろう。

今回の震災は多くのものを奪った。どんなに震災時の“いい話”が報道されようとも、大切なものを失った人間からすれば、どうしてもよい事なのかもしれない。かける言葉が見つからない。寄り添って、

話を聞くことぐらいしかできないように思う。時間が被災者の心を癒してくれることを切に願う。

When a large amount of relief supplies reached the hospital, I was deeply moved as the prompt food gifts from the local restaurants (even if the reason was that they could not open their stores) must have been located in the affected areas. Our predecessors must have built a mutual trust between local residents and the hospital. If the local residents had not valued the hospital, things like that would not have happened.

The earthquake took many things. No matter how many “good stories” of the earthquake disaster have been reported, people who have lost important things might think it’s irrelevant. I can’t find the words to console them. I feel that all I can do is be there for them and listen. I sincerely hope that time will heal victims’ hearts.

研修医

大震災を振り返って

気仙沼市立病院 乗田一明

Resident Physicians

Looking back on the East Japan Great Earthquake Disaster

Dr. Kazuaki Norita
Kesenuma City Hospital

私が大震災を経験したのは 1 年目の研修が間もなく終わろうとしていた頃、脳外科をローテート中の出来事であった。その日は特に急患も入らなかったのも、脳外科病棟の詰所でパソコンに向かって書類作成をしていたところ、突然の揺れが起こった。幸い部屋の中が滅茶苦茶に散らかっただけで建物の倒壊等は起こらなかったが、以前から地震の際の倒壊の危険性が指摘されていたため、揺れの最中は死を覚悟するほど恐怖したのを憶えている。病棟の入院患者の安否や人工呼吸器の接続等を確認し、院内を見て回ったがどこも騒然としていた。正面玄関から外に出ると大津波警報のアナウンスが聞こえ、港の近辺では砂煙が上がっているのが見えた。それから押し寄せてくる急患のトリアージに追われたが、すぐに来院できるのは病院の近くや津波が浸水していないエリアに住む方々だけだったため、当日はほとんど患者が来なかった。翌日以降も病院に来ることができるのは自力でヘドロの中を歩ける人々だけであり、すぐに救助・搬送されれば助かったであろう重症患者のほとんどが寒さのため凍死したと考えられた。本格的な救助・搬送が開始されたのは 3 日程経ってからであり、重症例で救命可能だったケースの大部分が病院に来ることが出来なかったことに歯がゆさをおぼえた。

My first year training was coming to an end and I was rounding up at the neurosurgical ward when I experienced that very earthquake. As we had no emergency patients that day, I was doing paperwork on the computer in the ward-station of the neurosurgical ward, when the sudden tremors occurred. Fortunately, the building did not collapse, just the rooms were a cluttered mess. I can remember fearing for my life during the tremors because the risk of collapse of the hospital buildings in case of an earthquake had been pointed out in the past. After making sure that our inpatients were safe and the connections of respirators were okay, I looked around inside of the hospital. Everywhere was in a state of disorder. When I stepped outside from the front entrance, I could hear the announcement of a tsunami

warning and saw the clouds of dust going up around the harbor of Kesennuma Bay. Then, we were pressed with a triage of emergency cases rushing up to the hospital. Only people who were living nearby and in the areas where tsunami had not yet flooded were able to come to the hospital immediately. So we had only a few patients on that day. From the following day, patients who were able to come to the hospital were those who were able to walk through the sludge by themselves. It was thought that most of the critically ill patients, who would have survived by immediate rescue and transfer, froze to death because of cold. Full-scale rescue and transfer started from about three days after the disaster. I felt impatient knowing most of the severe cases, which we might have been able to save, were unable to get to the hospital.

震災後の対応で最も印象に残ったことは、個人的には人材配置のミスマッチであった様に思う。医師に関しては東北大学からの応援や DMAT などの他県、他大学からの応援により、震災後 10 日目頃には人手が足りていたのではないだろうか。三次救急のスペシャリストや各科の専門医が大勢気仙沼にやって来たために、一流の指揮官だけが飽和するという幸運(無駄?)な現象が起きていたように思う。それに対して看護師などの他のスタッフの状況は悲惨だったのではないだろうか。肉親の安否が不明で、家が流された方が非常に多い中で、偶然被災時に院内で勤務していた方々が中心となって病院に泊まりこみで勤務をこなしていた。連絡がつかなかったり、物理的に病院に来れないスタッフも大勢いたため、限られたスタッフの数で、過酷なローテーションを敷いていたのは本当に気の毒だった。詰所の奥やカーテンの向こうで泣いている看護師がとても印象的だったのを今でも憶えている。震災初期の段階で、なぜこういったスタッフを休ませて、全国から看護師を呼んで置き換えることに気づかなかったのだろうか。これは医師以外の職種のほとんどに当てはまる疑問である。

Personally, I think the thing that left the biggest impression on me after the earthquake was the allocation mismatch of personnel. In regards to doctors, there seemed to be enough manpower from about 10 days after the earthquake with the support of Tohoku University, DMATs and the likes from other prefectures and other universities. As specialists of tertiary emergency and medical specialists of each medical department had arrived in Kesennuma, I believe that a lucky phenomenon may have occurred when first-rate commanders were being overstaffed. It could be said that it was overkill even. In contrast, the situation of other staff members such as nurses seemed much more severe. While the safety of their relatives was unknown and there were a large number of people who had lost their homes, those staff members who had happened to be working in the hospital at the time of the disaster played a central role, continuously staying at the hospital and working hard. As there were many staff members that couldn't be contacted, and others that physically could not make it to the hospital, it created an unfortunate situation where a harsh shift rotation was implemented with a limited number of staff. I still remember a nurse

crying behind a curtain and one back at the nurse-station; it left a lasting impression on me. I wonder why we were unable to realize in the initial stage of the earthquake disaster that those staff needed to rest, and that we needed to call on nurses from all over the country to help take over. This problem could be applied to most of other medical occupations except doctors.

震災時において初期研修医にできることはあまりなかった様に思える。軽症例の初期対応や患者の転院準備を除いては活躍の機会はそれほど多くなく、戦力としては役に立てなかったのではないかと。しかし自分自身にとっては今回の件から学ぶことは多く、一定の成長には繋がったと考えている。この原稿を書いているのは 12 月中旬であるが、気仙沼の復興は着実に進んでおり、現在は愛着ある気仙沼でもうしばらく働きたいと考えている。

It seemed that there was not much that early stage medical interns could do in the wake of the earthquake disaster. There were not many active opportunities except the initial responses of mild cases and the preparation for the transfer of patients to other hospitals. So, I suppose we were unable to serve as a work force. However, I personally had a lot to learn from this situation, and that it lead to a certain level of growth as a medical doctor. I am only now writing this report mid-December. The restoration of Kesennuma is progressing steadily and I want to work for a while in Kesennuma, which I have grown attached to.

研修医

震災を経て

気仙沼市立病院研修医 小坂真吉

Resident Physicians

After the Disaster

Dr. Shinkichi Kosaka
Kesennuma City Hospital

災害と言えば、思い立つのは阪神淡路大震災と秋田沖地震だ。しかし、どちらも自分にとってはそれ程馴染み深いものではない印象がある。

Speaking of disasters, what I can recall are the Great Hanshin-Awaji Earthquake and the Akita-Oki Earthquake. However, I'm not overly familiar with both of them.

自分は秋田県出身で1985年生まれなので、関西であったものとは地理的な面で距離はかなり離れているし、1983年にあったものはその時まだこの世に生れてもいない。阪神淡路大震災のときは小学生であり朝のテレビでどこかで大きい地震があったらしいとは報道されていたが、その一日は何事もなく過ごしていた。テレビのニュースで見ているだけでは全く実感がわかず、当時の自分が事の重大さに気がついたのは被害者数が発表された後のことだったのを覚えている。秋田沖地震のことはよく家族に話を聞かされていた。身近なところでは、自宅にある横3メートル縦2メートル程もある購入したばかりの大きなタンスを倒れないように祖母が支えきったらしい。地震で津波が発生したが、警報の遅れからたくさんの人が津波にさらわれてしまい、その中には釣り人だけでなく遠足でたまたま海岸沿いに来ていた小学生もいた、とか遠くロシアまで津波が到達した、とか。地震が起こったら高い所に避難しろと言われていた。

I am from Akita Prefecture and was born in 1985. The earthquake in the Kansai Region (1983) was geographically so far away and I wasn't born yet. At the time of the Great Hanshin-Awaji Earthquake, I was a primary school student. It was reported on TV in the morning that there had been a large earthquake somewhere but I spent my day without any problems. I could not get a sense of the seriousness or the significance by watching the news until after the number of victims were announced. My family often talked about the Akita-Oki earthquake. My grandmother had secured a large chest of drawers which was about 3m wide and 2m high that I had at home so it wouldn't fall over. A tsunami occurred due to the earthquake, many people were

swept away by the tsunami because warnings were delayed. I heard that there were, within those victims, not only those who had been fishing but also elementary school students who happened to come to the coast on an excursion, and that the tsunami had far reached the coast of Russia. We were recommended to evacuate to higher ground in the event of an earthquake.

災害というものが一気に身近なものになった。たまたま日中の出来事で、運よく勤務先の病院が高台にあり、なぜか火の手もあがらず、奇跡的に倒壊もしなかったという偶然もあった。大学病院から実習に来ている学生たちが最終日であったため正午過ぎに車で帰ったのだが、三陸道でなく一ノ関経由のほうがいいと教えてよかった。家族の言葉を裏切り興味本位で坂を下って様子を見に行ってしまう、絶対に止めたほうがいいと思った。途中何度も嫌になって投げ出してしまおうと思うこともあった。しばらくしてようやく家族に連絡がとれたときは本当に嬉しかった。

The word ‘disaster’ turned into something familiar to me at once. The event occurred during the daytime. Our hospital fortunately stood on a hill; fires did not break out for some reason or another; the building miraculously did not collapse; there were a lot of chance factors. Medical students who had come to practice at our hospital from Sendai went back by car in the afternoon of the day (March 11) as it was their last day of their training; I’m glad I had told them that they should not go to Sendai via the Sanriku-Road (a coastal road) but via Ichinoseki (an inland city). Disobeying my family’s words, I went down the slope to see things for myself, curious to see what was going on; I definitely should not have done such a thing. I was tired and sometimes wanted to give up on my work halfway. I was really happy when I was finally able to contact my family after a while.

今回は医療者としては何もできなかった。もし今後経験を活かせるような機会があるならば、その時まで一人前になれるようにしたい。たくさんの方々に支援して頂いて本当に感謝の一言に尽きます。ありがとうございます。

In this circumstance, I was unable to do anything as a health professional. If I had an opportunity to make use of my experience in the future, I would like to become a full-fledged doctor. I would really like to thank the many people who helped us. Thank you very much.



透析センター

気仙沼市立病院透析患者の広域搬送

気仙沼市立病院 透析センター

大友浩志

上野誠司

The Hemodialysis Center

The Wide Range Transport of hemodialysis patients of Kesennuma City Hospital

Dr. Hiroshi Otomo

Dr. Ueno Seiji

The Dialysis Center of Kesennuma City Hospital

当センターはベッド数 64 床、患者数 168 名、気仙沼唯一の血液透析施設で、災害拠点病院としては県内最大規模を誇ります。災害を想定し準備を進めていたため、透析機器、監視装置には損傷がなく、地震発生直後血液透析は全中止としましたが、同日から夜間透析を開始することができました。MCA 無線は基地局が近くにないこと、災害拠点病院で衛星通信があったため、配備されておりました。しかし頼みの衛星携帯電話は不具合のため 3 日間使用できず、災害直後の外部の状況を把握できませんでした。また翌日以降は水道、電気などのインフラが今後どのような状況になるか予想できず、特に自家発電の電池不足が懸念され、また余震が頻繁に続いており、この状況ではいつ血液透析を中断しなければならないか分かりませんでした。すべての患者に対していつ来院しても生命維持に最低限必要と考えられた 2 時間透析を行えるように 24 時間体制をスタッフの協力のもと敷きました。これが 1 週間続きました(技術部 ME センターの記録参照)。震災での透析患者の死亡者は 2 名、他施設からの透析避難患者は震災翌日から 3 日間で 12 名でした。

Our center, which is the only blood dialysis facility here in Kesennuma, has 64 beds, with a capacity to care for 168 patients, and takes pride as the largest blood dialysis facility among disaster base hospitals in this prefecture. As we had been preparing for disaster, assuming that it would happen, there was no damage of our dialysis equipment and monitoring devices; we discontinued all hemodialysis immediately

after the earthquake, but we were able to restart dialysis of our nighttime dialysis group on the very same day. As there was no base station of MCA radio (Multi-Channel Access radio system) nearby but we had a satellite communication system at the disaster base hospital, therefore, no MCA radio apparatus was deployed. But the satellite phone we'd hoped to use was in bad condition and we could not make use of it for 3 days, so we were unable to grasp the external situation immediately after the disaster. In addition, we could not predict how the future situation of infrastructure such as water supply and electricity from the following day would play out; the lack of batteries of self-generation was of particular concern; the aftershocks were continuing frequently. It was impossible in such a situation to know when we should interrupt hemodialysis. We had a 24-hour system with the cooperation of our staff to allow every patient two hour-dialysis whenever they were able to visit, which was considered to be the minimum length of dialysis necessary to sustain their life. This system continued for one week (refer to the records of the technical department, the ME Center). We had two deaths of dialysis patients around the earthquake disaster, and the number of evacuee-patients for hemodialysis from other facilities was 12 in the following three days of the earthquake.

震災後2週間の物品状況は本誌技術部MEセンターの記録に示しました。納入業者は翌日から連日来院してはくれましたが、納入業者自身も被災しており、道路状況の悪化やガソリン不足のため確実に物資を搬入できるか保証できないという状況でした。

The status of goods two weeks from the earthquake disaster is shown in the records of our technical department, ME Center, within this booklet. Suppliers were coming every day from the following day but they too were affected. We were in a situation where they could not guarantee a sure supply of goods due to the deterioration of road conditions and gasoline shortages.

この中、14日市街地で発生した火災が病院近くに達し天然ガスタンクに類焼すれば病院も火災に巻き込まれる可能性が生じました。また自家発電の2機の内1機がオーバーヒートの為運転と停止を繰り返していることも判明しました。県の災害対策本部とは重油の補充の確約を取り付けてありましたが、実際にはなかなか届かない状況で、市内のガソリン販売会社からの補充も次第に目途が立なくなりつつありました。15日未明院内緊急災害会議が開かれ、人工呼吸器管理患者など電力を使用する患者の数の確認や他院への緊急避難的な患者搬送が議論されました。その中で血液透析患者に関しては、電源の安定供給が確実ではないこと、インフラの停止による物流の停滞が生じていること、ガソリン不足により患者が通院困難な状況になっていること、近隣地域からの透析難民の流入が予想されること、原発事故の影響により東北地方の特に太平洋側での透析治療が困難になる可能性があること、スタッフおよびその家族も被災しており体力的にも精神的にも疲弊し限界に近付いていたこと、阪神大震災の際透析を被災地で続けた場合通常の年より透析患

者の死亡が 30%増加したこと、以上のことを踏まえ、患者の健康と生命維持を目的に、当院での透析規模の一時的な縮小、被災地外への移送を考え始めました。

During this time, fires that occurred in the city on March 14 were approaching close to our hospital, and our hospital might have been in range of the fire if those fires had spread to the natural gas tanks, (which were located on the other side of the Ookawa-River). We also found one of our two power generators were repeatedly stopping due to overheating. Although we had the assurance of the disaster countermeasures office of the prefecture supply us with heavy oil, we were in a situation where we could not easily get it and gradually saw no outlook for replenishment from the gasoline sales companies in the city. The urgent disaster meeting of the hospital was held before the dawn on March 15. Here, the identification of the number of patients who were utilizing the power for things such as ventilator management, and the emergent evacuating transport of patients to other hospitals were discussed. In the meeting, we reported that hemodialysis patients had an unreliable power supply, that the stagnation of logistics was occurring due to the stop of infrastructure, that patients found it difficult to come to the hospital because of the gasoline shortage, that the influx of hemodialysis refugees from neighboring areas was anticipated, that there was a possibility that the dialysis treatment in the Tohoku Region, particularly on the Pacific Ocean side, would become difficult due to the influence of the nuclear accident, that the staff members and their families were also affected and were physically and mentally exhausted drawing close to their limit and that, during the Great Hanshin Earthquake, the annual mortality of hemodialysis patients who had kept on hemodialysis at devastated areas increased by 30 % compared with the usual. With these points in mind, we began to consider temporary reduction of the scale of hemodialysis at our hospital and the transfer of hemodialysis patients to places outside of the affected areas for the patients' health and life support.

15 日に復旧した衛星電話で上記の気仙沼の状況を県災害対策本部に発信し、県医師会を通し全国に SOS を出してもらいました。もうすでに 11 日の震災直後から災害対策ネットワークを通し受け入れ可能な機関の情報収集が始まっており、東北大学の俊敏な対応により 16 日には内閣府まで気仙沼の情報が伝わっていました。16 日、我々が発信してから 36 時間後には遠隔地避難透析が可能であるという情報



が東北大学血液浄化部宮崎真理子先生から気仙沼にはいりました。特に北海道透析医会からの大量受け入れの申し出がありました。条件としては歩ける人、本人のみ(付き添い無し)、原則入院で、石巻と合わせて 100 人程度、出発日は 19 日でした。このため患者のリストアップ、ADL 調査、

本人家族への被災地外での透析の利点等の説明を直ちに行い、承諾書を取り、搬送患者 78 名の紹介状を即座に完成させました。携帯電話が通じないため、患者、家族と連絡がとれず、来院した患者一人ずつに説明しましたが、前例がないため交通費、入院費、入院期間等には完璧に答えることはできませんでした。このことが帰郷の際の交通手段確保に難渋した一因でした。また入院費などは北海道透析医会から各施設に自己負担の免除願いが出されましたが、各施設との意思の疎通がうまくいかず 10 ヶ月たった現在でも入院費の支払いの問題が生じています。

We sent the aforementioned situation of Kesennuma to the prefecture's disaster countermeasures office by satellite phone that had been recovered on March 15, and we asked the Prefectural Medical Association to send out an SOS across the country. The collection of information on accessible facilities for those patients had already begun through the disaster response network immediately after the earthquake of March 11, and the information of Kesennuma had been transmitted to the Cabinet Office by March 16 by the rapid response of Tohoku University. On March 16, 36 hours after we sent out our information, Dr. Mariko Miyazaki of the Blood Purification Department of the Tohoku University sent us information that hemodialysis at remote areas would be possible. Particularly, the Hokkaido Association of Hemodialysis Physicians was offering a large amount of acceptances. The requirements for acceptance were: patients who are able to walk and patients only (without attendants). About 100 people including Ishinomaki were allowed to be admitted, and the departure date was on the 19th. In order to carry this out, we immediately made lists of patients, did their ADL [Activities of Daily Living] survey and explained the advantage of hemodialysis outside the affected areas to patients and their families. We had them write the letters of acceptance and immediately completed the letters of introduction of 78 patients who were going to be transported. Without being able to communicate by mobile phone, we could not get in touch with patients



and their families, so we explained the situation to each patient that came to the hospital. However, having no prior example, we could not completely answer the questions of transport expenses, hospital charges, and the length of hospital stay etcetera. That was one of the causes of our difficulties in securing traffic means at the time of their subsequent homecoming. In addition, the

Hokkaido Association of Dialysis Physicians requested that each facility be exempt from self-payment regarding hospital charges, but we were barely in communication with those facilities. Even now, after 10 months, there is still a problem with payment

of hospital charges.

同時進行で 16 日には、東北大学を通して、内閣府に自衛隊松島基地から自衛隊ジェット機で千歳空港までの搬送を要請していただきました。出発までの STAGING BASE として東北大学病院を利用させていただくことになりました。19 日東北大学医師同乗の下、大型バスで気仙沼市立病院から東北大学病院に 78 名が搬送され、一時入院、事務手続き等を行い、疲れを取った後に、22 日、23 日 2 陣に分かれ自衛隊松島基地から千歳空港へ出発しました。北海道透析医会の協力で千歳空港から札幌、恵庭、千歳の 24 か所の病院に貸切バスで搬送し入院させていただきました。日本災害医療初めての自衛隊輸送機による広域搬送となりました。組織を超えてネットワークを形成し、すべての機関で情報を共有し柔軟に運用、調整する NETWORK CENTRIC OPERATION によるものでした。

On March 16, on behalf of our hospital, Tohoku University concurrently requested the Cabinet Office to transfer our patients by Self-Defense Force (SDF) jet planes from the SDF Matsushima Air Base to Chitose Airport. We were allowed to use Tohoku University Hospital as a *Staging Base* up until departure. On March 19, accompanied by the doctors of Tohoku University Hospital, 78 patients were transported by large buses from Kesennuma City Hospital to Tohoku University Hospital, where they were hospitalized temporally. We completed administrative procedures and after replenishing our energy, divided into two teams of March 22's and the 23's. We left the SDF Matsushima Air Base to Chitose Airport. In cooperation with the Hokkaido Association of Dialysis Physicians, we transferred our patients by chartered buses from Chitose Airport to 24 hospitals located in Sapporo, Eniwa and Chitose. And they were able to be hospitalized. It was the first time in the disaster medical care in Japan that wide-area transport was carried out by the air-carriers of the Self-Defense Forces. It was *the Network Centric Operation* that made it possible to form a network beyond those organizations, to share information with all agencies, to make it work flexibly and to coordinate with each other.

さらに ADL 不良者、避難所から通院している患者、他施設からの患者を対象に避難透析希望者を調査し、23 日東京 DMAT 同乗の下、千葉県松戸市へ 8 名をバスで搬送しました。搬送途中で残念なことに 1 名心不全で亡くしています。4 月 13 日には秋田市の介護老人保健施設併設の透析施設に救急車で 3 名搬送。4 月 15 日は山形市へ介護タクシーで 3 名移送。総計 93 名が遠隔避難透析となりました。

Furthermore, we investigated applicants who wanted to evacuate to a remote area and undergo hemodialysis, targeting patients including those with poor ADL and those coming from shelters and other facilities. On March 23, accompanied by the members of the Tokyo DMAT, eight patients were transported by bus to Matsudo City, Chiba Prefecture. Unfortunately, one patient died of heart failure during transportation.

On April 13, we transported three patients in an ambulance to a hemodialysis facility attached to a geriatric health service facility in Akita City. On April 15, we transported three patients by an elderly-care taxi to Yamagata City. 93 patients in total went to remote areas for hemodialysis in the end.

3月21日からは患者数が80名前後となり1日1クルルの4時間透析が可能となりました。

After March 21, the number of our patients was about 80, and 4-hour dialysis once a day became available.

4月になり遠隔避難透析患者から帰郷の時期についての問い合わせが殺到しました。余震も続き、自家発電を要する停電も数回発生、肺炎の増加、ハエの大量発生など環境の悪化もあり、当初は仮設住宅の目途がたつ8月以降の帰郷を考えていましたが、患者の気持ちを尊重することにし、4月26日に患者の希望、現在の状況を確認するために、全員に調査票を送りました。ほとんどの患者が帰郷を希望しましたが、受け入れ家族の反対、家族が避難所生活で受け入れが難しいなど様々な問題が出てきました。5月12、13日当院スタッフ7名、東北大学宮崎真理子先生合わせて計8名が札幌、恵庭、千歳の24病院を訪問し全患者と面談し、現在の気仙沼の状況を説明、その後今後について相談し帰郷後の住居や通院方法の確認を行いました。住居のない患者には近隣の透析施設を紹介したり、当院入院などの段取りを決めました。可能な限り問題点は北海道での面談時で解決を試み、最終的には全員同時帰郷となりました。北海道透析医会の先生方と打ち合わせを行い、帰郷日を5月26日としました。当日は北海道透析医会のスタッフが専用バスで各病院から患者をピックアップし民間機で千歳空港を出発し仙台空港で気仙沼市立病院スタッフと引き継ぎ、専用バス2台で帰郷となりました。民間機の費用は北海道庁、千歳までのバスの費用は日本透析医学会、仙台空港からは気仙沼市が負担して下さいました。また札幌市からはご好意で入院中の日用品代などのため、一人につき5万円が支給されました。

In April, we had a high volume of inquiry calls from patients undergoing hemodialysis in remote evacuating areas about when they could return home. A series of aftershocks, blackouts requiring private power generation, the increase of pneumonia and the deterioration of the environment in the city such as the outbreaks of flies were occurring. Therefore, we were at first considering the time of their return after August, when the provision of temporal houses would be in sight, but we decided to respect the patients' thoughts and sent questionnaires to all patients on April 26 in order to understand their requests and current situations. Most patients had wished to return but various problems such as the opposition of their families and the difficulties of acceptance because of their families' living situations (living in shelters) were coming to the fore. On May 12 and 13, Dr. Mariko Miyazaki of the Tohoku University and seven of our staff members, eight members in total, visited 24 hospitals in Sapporo, Eniwa and Chitose, interviewed every patient, explained the current situation of Kesennuma, then talked with them about their future, verified

their homes and their way of attending our hospital after returning. We referred neighboring hemodialysis facilities to patients who had lost their houses, or decided on plans such as hospitalization at our hospital. We attempted to resolve as many problems as possible in our meetings when in Hokkaido and finally ended up with the simultaneous return of all patients. We had a meeting with the doctors of the Hokkaido Association of Dialysis Physicians and made May 26 the homecoming day. On that day, the staff members of the Hokkaido Association of Dialysis Physicians picked up the patients from each hospital by dedicated buses, made a departure from Chitose Airport by a civil aircraft, handed over the patients to the staff members of Kesennuma City Hospital at Sendai Airport. After that, we could come back by two dedicated buses. The cost of the private aircraft was paid by the Hokkaido Government, the cost of the bus to Chitose by the Japan Dialysis Medical Association, and from Sendai Airport by Kesennuma City. In addition, the city of Sapporo covered 50,000 yen per person to pay for daily necessities while being hospitalized.

北海道の避難透析患者は残念なことに当地で2名亡くなっています。患者帰郷後の調査で遠隔避難透析での患者の健康に関しては、悪化を見ることはなく、栄養状態はむしろ改善していることが判りました。

Two of the patients who were evacuated to Hokkaido for hemodialysis unfortunately passed away there. In regard to the health of patients in remote evacuation hemodialysis, we did not observe any deterioration but rather found improved nutritional status in their survey after their return.

今回のこの状況のなかで被災地での透析をどこまでどのように継続すべきなのか、遠隔地避難透析にいつ踏み切るべきか、難しい問題が山積していると感じました。今回我々がとった行動は今後に検証されるものだと思いますが、被災地気仙沼の透析のために多方面の方々の協力があり震災を乗り越えられたのは事実であり、感謝し今後の透析治療に役立てていきたいと考えています。

In this situation, I feel that there were a number of difficult issues, such as how and how much dialysis should be continued in the disaster-stricken area, and when to take up remote-site evacuation dialysis. We believe that the actions we have taken this time will be verified in the future. What is true is that we were able to overcome the earthquake with the cooperation of many people for dialysis in the affected area, Kesennuma. We would like express our gratitude for the support and would like to make good use of our experience for hemodialysis treatment in the future.

薬剤科

震災における薬剤科の記録

気仙沼市立病院 薬剤科
千葉義広

The Pharmacy Department

The record of the Department of Pharmacy around the earthquake disaster

Kesennuma City Hospital
The Division of Pharmacy
Yoshihiro Chiba

3月11日、午後2時46分地震発生直後の薬剤科の対応

① 地震後すぐに行った行動 1

薬局スタッフの安全の確認

② 地震後すぐに行った行動 2

家族の安否確認の為、帰れる人から、交代で自宅へ戻り安否確認を行う
(2人まで帰宅したが、病院の下まで津波が来たのでその後中止)

③ 地震後すぐに行った行動 3

いつでも調剤に応じられるように、散乱した医薬品等の後片付け

④ 地震後すぐに行った行動 4

地震後自家発電源に切り替わった為、薬袋作成機の電源取り直し(自家発回路へ)。
いつでも調剤に応じられる準備(調剤機器は全て使用可能でした)

⑤ 地震後すぐに行った行動 5

津波が病院下まで到達したことを確認した後に、全ての電源がなくなりオーダーリングシステムと、薬剤科の薬歴が参照できなくなることを想定し、当院にかかった患者(院内と院外)の全処方データ(過去5年分)を薬袋作製機から csv 形式で抜き取り、データベース Access に変換し他のノートパソコンでも処方内容を参照できるようにデータ加工する。また全データを USB メモリーで持ち出

せるように準備。

The response of the Department of Pharmacy immediately after the earthquake at 2:46 P. M. on March 11

1. Actions taken immediately after the earthquake 1

We checked the safety of our pharmaceutical staff.

2. Actions taken immediately after the earthquake 2

Confirmed the safety of each family, starting from staff members who were able to go home, in shifts.

(Two staff members were able to go home and come back, but as the tsunami came to the foot of the small hill on which our hospital is located, we had to stop)

3. Actions taken immediately after the earthquake 3

In order to respond to fill prescriptions at any given time, we tidied up the scattered pharmaceuticals and put them back in order.

4. Actions taken immediately after the earthquake 4

Because normal power supply was switched to in-house power generation, we restored the power of our machines designed for making bags of medications. (We connected them to the circuit of in-house power generation.)

We made preparations to respond to filling prescriptions at any time. (All dispensing equipment was available.)

5. Actions taken immediately after the earthquake 5

After we confirmed that the tsunami had already reached the foot of the small hill of our hospital, on the assumption that all power might be lost and that we might not be able to refer to the ordering system of the hospital or the medication-history in the data server of the Department of Pharmacy, I extracted the data of all prescriptions (both internal and external prescriptions) of our patients who had come to the hospital (past 5 years of data) from the data server of machines for making the bags of medication in a csv (comma-separated values) format, converted them into the Database Access format and then processed them so that we were able to refer to the prescription data on other laptop computers. Also I transferred the information to a portable USB.

また 2010 年 9 月 1 日～2011 年 3 月 11 日までの全データ(約半年分)の全薬歴データをプリントアウトする。(14,500 人分の全薬歴)

(電源が無くなり、パソコンが使えないことを想定)

プリントアウトしたデータは A4 コピー用紙約 2,000 枚×2 部×3 通りの検索方法=計 6 部。

(パソコンが使えないことと患者 ID カードの紛失で患者 ID 番号が特定できないことを想定し、検索方法は ID 番号昇順、アイウエオ順と生年月月日順で各 2 部ずつ印刷)

なお、プリントアウトだけで約 4 時間位かかりました。

当院の薬袋作製機 TOSHO Ver. 3.5C
オーダーリングシステム 富士通 EGMAIN-FX

I also printed out all the medication history data (those for about half a year) from September 1, 2010 up to March 11, 2011. (All medication histories of 14,500 patients, assuming we would not be able to use personal computers because of probable power loss)

The data printed out came to around 2 copies of 2,000 A4 sheets, in 3 types of search methods, 6 sets in total.

(It was assumed that we would not be able to use personal computers, and the ID numbers of patients might not be identified in the loss of patient ID cards, so I printed out two copies each of that data in the ascending order of ID numbers, in the order of the Japanese (kana) syllabary and in the order of date of birth)

It should be noted that it took about four hours just to print them out.

The machine set for making bags of medications of our hospital: TOSHO Ver. 3.5C

Ordering System: Fujitsu EGMAIN-FX

震災当日の薬剤科の医薬品在庫状況と薬の確保方法について

通常、当院の在庫は、外来患者約 100 名と透析患者が 4～5 日分調剤できるだけの内服薬と外用薬の在庫を持っていますが、年度末ということもあり、1～2 日でなくなる程度しか在庫を持っていませんでした。なおどれだけの患者が来院するか不明で、在庫分の薬は直ぐになくなる恐れがあるので、薬が確保できるまで 3 日分ずつ調剤しました。

The state of medicine inventory of the Department of Pharmacy and how we secured medication on the day of the earthquake

Usually, we had enough medicine stocked at our hospital to dispense oral and topical drugs for up to 4 to 5 days for about 100 outpatients and hemodialysis patients, but it was around the end of the fiscal year, so we had stocked medications only for one or two days. Still, we did not expect how many patients would come to our hospital and were concerned about the immediate exhaustion of the stock, therefore, we dispensed medications only for three days to each patient until we were able to secure more medication.



震災後どのように薬の確保に努めたか

① 当初使用した薬品が、無くなったらバイタルネット及び東邦薬品に発注していました。電話も通じないので、朝と晩に問屋の担当者に薬局に声を掛けてもらい、納品リストを渡して納品してもらいました。

なお納品まではリストを渡してから、2～3日かかりました。(効率がとても悪かった)

② 流通網がいつ回復するかわからないので、3日経過したあたりから半年間の院内と院外の合計平均使用量(月別)を作成し全薬品を一度に問屋へ発注をしました。(包装単位は何でも可)

③ 4日目より薬剤師が朝晩問屋へ自転車で行き、使えそうな薬品を直接選び納品してもらいました。このとき初めて、市内にどれだけの薬品の備蓄があるのか認識できました。なお問屋の在庫を見て5日分から14日処方可能と薬剤部は判断しました。

④ 3月13日より、門前調剤薬局の薬剤師が応援に来てくれ、調剤薬局もいつ再開できるかわからないので、水に浸かっていない薬品を当院へ貸してもらいました。当初、口頭でどの薬が欲しいと言って調剤薬局の方に探してもらいましたが、効率が悪かった為に直接当院の薬剤師が調剤薬局へ行き、使える薬を全て借用してきました。



Our efforts to ensure the medications after the earthquake

1: At first, we were placing our orders for medications used for dispensing through TOHO Pharmaceutical Co., Ltd and VITAL-NET, Inc. (which are the wholesale companies of medication in Kesennuma) when medication in the hospital was running out. As the telephone was also out of order, we asked the workers of the wholesalers in charge of our hospital to come to our pharmacy every morning and evening. We gave them order lists and had them deliver those medications.

It took 2 to 3 days for the medicine to be delivered after placing the orders. (We were in a terribly inefficient situation.)

2: Since we did not know when the distribution network would recover, from around the 3rd day after the disaster, we made a monthly average of medications that had been prescribed both inside and outside the hospital from the past 6 months and

ordered medications from the wholesalers all at once. (We accepted any packing units of those medications.)

3: From the 4th day, a few of our pharmacists went to the wholesalers by bicycle every morning and evening to directly pick out medications that we could use, and had them delivered. For the first time, we were able to recognize how much medications were stockpiled in the city. By looking at the wholesaler's inventory, we judged that it would be possible to prescribe medications for 5 to 14 days.

4: From March 13, some pharmacists working at nearby pharmacies were coming to support us. As they did not know when they would be able to restart their work, we had them lend their medications that had not been flooded to our hospital. Initially, we dictated the medications needed verbally and had them look for and bring them, but it was very inefficient, so some pharmacists of our hospital went to the nearby pharmacies directly and borrowed all the medications that we could use.

3 月 11 日

3 月 12 日 3 日 処方

3 月 13 日 3 日 処方

3 月 14 日 5 日 処方

3 月 15 日 5 日 処方

(外来処方中止 午後 1 時通電) 急患のみ対応

3 月 16 日 14 日 処方

3 月 17 日 14 日 処方

3 月 18 日 14 日 処方

3 月 19～20 日 救急処方のみ対応

3 月 21 日 30 日 処方開始

March 11

March 12 Issuing prescriptions for 3 days

March 13 Issuing prescriptions for 3 days

March 14 Issuing prescriptions for 5 days

March 15 Issuing prescriptions for 5 days

Only responding to emergency patients

(Issuing prescriptions for outpatients was stopped. Power supply was restarted at 1:00 P.M.)

March 16 Issuing prescriptions for 14 days

March 17 Issuing prescriptions for 14 days

March 18 Issuing prescriptions for 14 days

March 19/20 Responding only to emergency prescriptions

March 21 Commencement of issuing prescriptions for 30 days



震災発生後の調剤の流れについて

① 3月11・12・13日:当初、患者に薬局窓口へ来てもらい、患者の氏名、生年月日、どの診療科の薬が欲しいのかを紙に記載してもらい、薬局の判断で最近出た内服薬3日分と外用薬必要最小限本数全て調剤していましたが効率が悪く、パンク寸前でした。特に患者のID番号の特定に時間がかかり大変でした。

② 3月14日:患者に薬局窓口へ来てもらい、患者の氏名、生年月日、どの診療科の薬が欲しいのかを紙に記載してもらう。過去の処方箋を印刷し患者に持たせる→医師が特に必要な薬のみを選択し、処方する→薬局へ持参してもらい、薬を作る。

③ 3月15日:未明の火災→広がって病院患者退避か・騒然→薬剤科のサーバを避難(外来処方中止)

午後1時通電

④ 3月16日:オーダー再開

内科外来 : 当院に通院履歴のある患者の処方発行を担当

循環器外来: 当院以外の病院の処方担当

The flow of drug compounding after the earthquake

1: March 11, 12 and 13

Initially, we had patients come to the pharmacy counter, write down on a sheet of paper his/her name, date of birth and what hospital departments' medications he/she needed. From there, we were dispensing, with our judgments, all internal medications for three days and the minimal required external medications; those tasks were inefficient leading us to the verge of the pharmacy department crashing. It was especially time-consuming to identify their ID numbers.

2: March 14

We asked patients to come to the pharmacy counter and to write on paper which hospital departments' medications they needed. We printed past prescriptions and got the patients to hold onto them. Our doctors picked out as much medication as they thought the patients needed, and prescribed them. Patients brought their prescriptions to our pharmacy department and we made their medications.

3: March 15

Fire occurred early in the morning. It was spreading in the direction of our hospital, we were thrown into an uproar, in which the inpatients' evacuation was of concern. We evacuated the computer data server of our pharmacy department; prescribing for outpatients stopped. A power failure was restored at 1:00 P.M.

4: March 16

The ordering system was resumed.

At the outpatient clinic of internal medicine; some of our pharmacists were in charge of aiding doctors in prescribing patients who had a history of attending our hospital.

At the outpatient clinic of cardiology; some of our pharmacists were in charge of aiding doctors in prescribing other hospitals' medications.

当初、他院の薬を先生方が「今日の治療薬」で調べて、処方していましたが、とても効率が悪かった為、薬剤師が外来に張り付いて、診察の前に何の薬なのか、どの薬と同じなのかを調べました。その後、他院の薬窓口を開設し医師 1 名と薬剤師 1 名が常駐し事前に薬を調べる作業をしました。なお、「今日の治療薬」で薬を調べるのに時間がかかるので、薬剤科で簡易薬剤検索システムを作り、薬を検索できるようにしました。



Initially, the doctors checked up on other hospitals' prescription drugs in a drug dictionary, 'The Treatment of Today' and prescribed them. However, it was very inefficient, so some pharmacists went to the outpatient clinics and investigated their medications before their medical examination. After that, we opened a counter for 'other hospitals' medication', and had a doctor and a pharmacist stationed there who'd examine the medications in advance. Nevertheless, it took so much time to examine the medications in 'The Treatment of Today' that I made a simple drug search system within our pharmacy, making it easier to search for medications.

時間別弘万葉発行枚数

	0-1 時	1-2 時	2-3 時	3-4 時	4-5 時	5-6 時	6-7 時	7-8 時	8-9 時	9-10 時	10-11 時	11-12 時	12-13 時	13-14 時	14-15 時	15-16 時	16-17 時	17-18 時	18-19 時	19-20 時	20-21 時	21-22 時	22-23 時	23-24 時	計
11日															■弘万葉集■	0	1	1	2	1	0	0	0	0	5
12日	1	0	0	1	0	0	7	0	15	37	44	30	19	26	32	42	34	16	7	3	2	1	3	0	323
13日	0	1	0	0	3	0	6	33	32	61	59	70	50	47	38	45	64	90	14	8	6	0	1	0	602
14日	0	0	4	1	0	2	27	48	78	66	34	87	69	80	33	74	56	48	32	31	32	58	22	0	834
15日	0	2	3	0	0	0	0	0	0	0	16	0	0	22	23	8	14	8	2	2	2	2	1	0	106
16日	0	0	0	0	0	0	2	2	55	148	148	118	78	38	17	20	12	5	4	8	1	3	1	0	664
17日	0	0	1	0	1	0	0	2	75	216	199	177	83	19	27	52	8	6	2	17	0	1	2	0	838
18日	1	0	0	0	0	0	0	1	80	218	205	184	133	84	28	63	31	8	8	8	1	0	0	0	1034
19日	0	0	0	0	0	0	1	1	8	5	30	24	7	8	12	5	17	7	2	9	2	0	0	0	136
20日	0	0	1	0	0	0	0	0	3	12	19	34	13	12	47	30	4	7	2	3	2	4	1	0	189
21日	0	0	1	0	0	0	1	2	12	31	27	32	5	6	30	26	17	6	2	1	1	1	1	0	202
22日	2	1	0	0	1	1	2	1	108	206	270	155	236	93	23	67	22	12	2	67	2	2	3	0	1281
23日	0	0	0	0	0	0	0	1	80	187	164	163	63	55	27	36	37	4	12	0	1	0	0	0	646
24日	0	0	0	0	0	0	1	0	34	136	133	181	181	58	105	66	80	17	3	2	2	1	0	0	1002
25日	0	0	0	0	0	0	0	1	80	141	173	183	180	23	63	16	111	14	2	1	5	1	0	0	314
26日	0	0	0	0	0	0	0	0	2	4	12	18	9	4	2	6	2	5	0	7	4	2	0	0	78
27日	0	0	0	0	0	0	0	0	1	7	20	12	16	9	12	10	3	1	1	5	5	18	4	0	124
28日	0	0	0	0	0	0	0	2	22	146	139	164	216	130	21	50	28	15	27	1	3	0	0	0	367
29日	0	0	0	0	0	0	0	0	15	180	181	212	181	111	41	21	36	5	6	1	2	2	0	0	664
30日	0	0	0	0	0	0	0	0	36	177	107	169	162	152	31	28	47	20	1	3	2	0	0	0	335
31日	0	0	0	0	0	0	0	0	1	161	211	226	188	28	15	75	25	12	5	2	0	1	0	0	664
	4	4	10	2	5	3	47	55	718	2172	2121	2178	1867	1008	622	749	662	277	132	178	75	55	28	0	13067

時間別調制件数

	0-1 時	1-2 時	2-3 時	3-4 時	4-5 時	5-6 時	6-7 時	7-8 時	8-9 時	9-10 時	10-11 時	11-12 時	12-13 時	13-14 時	14-15 時	15-16 時	16-17 時	17-18 時	18-19 時	19-20 時	20-21 時	21-22 時	22-23 時	23-24 時	計
11日															■弘万葉集■	0	2	1	2	4	0	0	0	0	9
12日	1	0	0	1	0	0	14	0	53	66	119	64	61	63	60	95	53	36	24	6	3	2	4	0	765
13日	0	5	0	0	4	0	12	77	80	146	157	185	118	124	56	120	137	151	31	22	16	0	3	0	1487
14日	0	0	4	1	0	5	87	113	184	254	106	135	217	168	78	181	127	135	61	67	76	104	40	0	2193
15日	0	5	5	0	0	0	0	0	0	0	32	0	0	48	37	18	44	24	4	2	4	2	1	0	226
16日	0	0	0	0	0	0	4	5	123	388	381	304	166	58	33	48	30	8	6	12	1	5	2	0	1583
17日	0	0	3	0	5	0	0	6	148	503	361	439	183	35	58	113	19	17	3	26	0	1	4	0	1360
18日	1	0	0	0	0	0	0	1	233	614	460	442	336	215	67	121	78	22	22	24	3	0	0	0	2874
19日	0	0	0	0	0	0	1	1	13	9	53	55	10	10	23	5	35	18	3	17	5	0	0	0	256
20日	0	0	0	1	0	0	0	0	8	22	56	57	28	37	123	64	5	10	2	9	7	6	1	0	440
21日	0	0	1	0	0	0	3	7	24	57	46	85	8	16	75	32	44	14	2	1	1	1	1	0	423
22日	2	1	0	0	1	2	2	2	322	591	717	425	580	221	50	128	106	39	5	161	3	5	18	0	3382
23日	0	0	0	0	0	0	0	5	257	504	438	433	168	88	57	57	61	19	51	0	1	0	0	0	2143
24日	0	0	0	0	0	0	6	0	126	387	321	474	470	143	145	118	122	25	4	2	3	2	0	0	2351
25日	0	0	0	0	0	0	4	139	351	437	381	368	58	171	30	219	37	4	1	6	1	0	0	0	2162
26日	0	0	0	0	0	0	0	0	7	5	16	28	11	7	3	22	3	13	0	13	10	10	0	0	148
27日	0	0	0	0	0	0	0	0	6	15	38	20	40	12	23	20	7	3	2	10	8	22	11	0	236
28日	0	0	0	0	0	0	0	10	38	413	380	408	508	267	76	99	47	21	28	2	4	0	0	0	2330
29日	0	0	0	0	0	0	0	0	38	492	403	571	428	254	62	38	55	9	17	2	3	2	0	0	2376
30日	0	0	0	0	0	0	0	0	83	447	394	447	442	373	75	48	85	34	1	6	4	0	0	0	2388
31日	0	0	0	0	0	0	0	0	8	426	574	644	474	62	33	111	48	30	14	3	0	1	0	0	2446
	4	11	18	2	10	7	109	221	1806	5696	5454	5611	4687	2348	1321	1478	1338	666	327	381	188	167	85	0	31875

市民の為に提供できるデータは無いのか

震災直後から家族の安否が確認できず、途方にくれる方々を目の当たりにして薬剤科で協力できることは無いかと考え、せめて病院で薬をもらった方々の氏名と住所を公開できないかと思い、調剤が一段落した夜中12時過ぎからデータ作りに励みました。個人情報との関係もあり最低限の情報だけを公開しようと思いました。(番地は非表示)

なお、データを事務局へ提出し公開しても良いかと伺いましたが、結局市民へ公開されることなく終了しました。

Can we provide any data for our citizens?

Immediately after the earthquake, people could not confirm the safety of their families and we saw with our own eyes, that they were at a loss. It made me think of what I could do for them. Then, I thought of releasing of the names and addresses of the patients who had received medications at least at our hospital and kept doing my best to compile that data passed midnight, when we had finished dispensing medications. I tried to disclose the minimum amount of information because it related to personal information - (such as by taking out parts of the address).

In addition, I submitted the data to the executive office and asked if we could make the data open to the public, but after all that, it ended undisclosed to the public.

患者ID	カタ氏名	氏名	性別	生年月日	住 所
--*	A	Aさん	男	昭和34/09/20	宮城県気仙沼市本吉町上川内
--*	B	Bさん	男	大正06/03/03	宮城県本吉郡本吉町石川原
--*	C	Cさん	男	昭和42/01/17	宮城県気仙沼市潮見町
--*	D	Dさん	男	大正14/08/12	宮城県気仙沼市松崎大萱
--*	E	Eさん	男	昭和22/03/15	宮城県本吉郡南三陸町飯津字港
--*	F	Fさん	男	昭和40/08/09	宮城県本吉郡志津川町竹川原
--*	G	Gさん	女	昭和13/12/28	宮城県気仙沼市唐桑町小幡
--*	H	Hさん	女	昭和03/05/31	宮城県気仙沼市鶴山1丁目
--*	I	Iさん	男	平成04/12/18	宮城県気仙沼市唐桑町中
--*	J	Jさん	女	昭和46/08/15	宮城県気仙沼市南が丘1丁目
--*	K	Kさん	男	昭和35/02/23	岩手県一関市室根町折壁
--*	L	Lさん	男	平成04/02/09	宮城県気仙沼市南郷
--*	M	Mさん	男	明治42/10/26	宮城県気仙沼市松崎藤沢
--*	N	Nさん	女	昭和53/10/06	宮城県気仙沼市魚市場前
--*	O	Oさん	女	昭和34/07/08	宮城県栗川郡富谷町ひより台2丁目
--*	P Q	Pさん	男	昭和57/07/23	宮城県気仙沼市笹が陣
--*	P Q	Qさん	男	昭和57/07/23	宮城県気仙沼市浪板
--*	R	Rさん	男	昭和24/03/08	宮城県本吉郡唐桑町竹の袖
--*	S	Sさん	女	昭和11/05/20	宮城県気仙沼市長磯島子沢
--*	T	Tさん	男	大正12/11/30	宮城県本吉郡唐桑町大庭
--*	U	Uさん	女	昭和08/02/22	宮城県気仙沼市菱宮
--*	V	Vさん	男	昭和57/12/31	宮城県本吉郡志津川町林
--*	Y	Yさん	女	昭和04/10/01	岩手県東磐井郡千厩町千厩町通
--*	Z	Zさん	男	昭和06/11/27	宮城県気仙沼市九条

看護部
看護部長室

3.11東日本大震災その時、看護は？

気仙沼市立病院
看護部長 熊谷律子

The Nursing Department
The Nursing Director Room

Around the time, 3.11 Great East Japan

Earthquake Disaster, How was our nursing?

Kesennuma City Hospital
The Director of Nursing
Ritsuko Kumagai

只事ではない揺れ

3月11日午後2時46分、私は部長室で、新年度へ向けて最終の準備をしていました。数日前から、小さな地震が続いていた事もあり、「またか」と思い仕事を続けていたのですが、次第に揺れが強くなり、「これは、只事ではない」と、次々に床に落ちる書類を横目に、目の前のパソコンを必死で押さえながら窓から外を見ると、市内の建物は波打つように大きく揺れていました。

とても長い時間を感じられました。当院は建て増しを繰り返して、築46年、40年、27年、18年の建物が混在し耐震構造が十分ではありませんでしたので、「もう、病院は潰れた。おそらく、職員、患者も大変なことに...」との思いが脳裏をかすめました。副部長2人が直ちに「病棟をみてきます」と二手に分かれ、部長室を出て行きました。数分後、戻った2人から、「病棟・患者・職員とも無事です。建て増し部分の亀裂、壁の崩壊、スプリンクラーの配線の亀裂による水もれはあるものの、大丈夫です」の報告を受けました。「病院はcする!」、早速、院内災害対策本部へ状況を報告し、おし寄せてくるだろう患者の受け入れ体制に入りました。

The extraordinary shaking

At 14:46 on March 11, I was in the Nursing Director Room, where I was making the final preparations for the next fiscal year. As we had experienced small earthquakes from a few days before, I continued to work thinking “Not again.” Nevertheless, the shaking gradually became stronger, “This is extraordinary”, I thought. As I looked out of the window while desperately holding a laptop in front of me and taking a side glance at documents falling on the floor one after another, the buildings in the city were shaking like large waves.

I felt the shaking continue for a very long time. My foreboding, “the hospital has collapsed. Perhaps, the staff members and patients have run into deep trouble,” passed through my mind, because, after repeated extensions, the hospital buildings of 18, 27, 40 and 46 years of age were standing together and did not have enough earthquake-resistance in its structure. Immediately, two assistant directors said, “We are going to see the hospital wards”, and were separately going out of the Nursing Director Room. In a few minutes, they came back and I got the reports from the two that “Our wards, patients and staff members are all safe. It’s all right in spite of some cracks in some extension buildings, some collapses of walls, and some water leaks due to cracks in some sprinkler pipes.” I thought that “the hospital will need to take action!” I immediately reported this situation to the Hospital Emergency Response Headquarter, and we started a system to accept patients rushing to our hospital.

トリアージエリアの設置

地震の規模は気仙沼市で震度6弱でした。当院のマニュアルでは、震度5強以上で初動を開始するとされていました。災害医療コーディネーターの医師を中心に、トリアージポスト、受け入れエリアを設置すべく救急室へ向かった時、既に職員は自主的に動いていました。当院は災害拠点病院として、集団災害マニュアルを作成し年1回以上の訓練を実施、2007年には、病院全体でトリアージ訓練を実施していました。その成果を見た思いがしました。

緑ブースは、正面内科外来待合ホール・黄色ブースは新館外来待合ホール・赤ブースは救急室・黒は感染病棟と、あらかじめ考えていた場所に設置、外来の椅子を組み合わせでのベッド作り、各外来から医療器材の搬入、人員の配置等、初動準備は30分程度で完了しました。同時に、当院は、高台に位置する為、避難して来る近隣住民が後を立たず、混乱を避ける為、その住民の誘導にもあたりました。

その後、「津波が来るぞ!」との声が聞こえ、ふと外を見ると茶色の煙と霧の様なものが見えました。直ちに、入院患者を安全な高階層、外来棟へ誘導・搬送し窓から周辺を見ると、車や破損した家の一部、発泡スチロールの箱が多数流れていました。病院の真下まで津波がきていたのです。余震が続く中、夜間の移動にリスクの高い妊産婦の事を考え、3階の産科病棟の患者さんは外来棟で、スプリンクラーの水もれのあった2階西病棟の患者さんは4階の面会ホールで、それぞれ一夜を過ごすことになりました。なお、当院の災害マニュアルに津波の想定はされていませんでした。

Setting up of triage areas

The scale of the earthquake in Kesennuma was of seismic intensity of lower 6 [on the Japanese seven-stage seismic scale]. The manual of our hospital says that an initial response must commence when the seismic intensity is of upper 5 or more. As we were going to the Emergency Room under the leadership of our Disaster Medical Coordinator Doctor in order to set up triage posts and patient-accepting areas, our staff members had already been working voluntarily. As a disaster-base hospital, our hospital had prepared the manual for large-scale disasters, had been conducting

disaster drills once or more times a year, and the entire hospital conducted a triage drill in 2007. I felt as if I had been watching the outcome unfold.

Triage posts were set up as we had planned beforehand: the green booth at the waiting hall of the outpatient clinic of internal medicine located at the main entrance, the yellow at the waiting hall of other outpatient clinics in the newer building, the red at the emergency room and the black at the Infection Ward. Putting sofas in the outpatient clinics, we made beds, carried medical equipment from each outpatient clinic, arranged personnel, and our initial preparation had been completed in about 30 minutes. At the same time, as the hospital is located on a hill, there seemed to be no end to the number of evacuating neighbors; to avoid confusion, some staff guided them.

Then, we heard a voice, “a tsunami is approaching!”, looking out, we could see something like brown smoke and fog. Soon, we guided or transferred inpatients to safer upper floors or the building of outpatient clinics. As we looked around through the windows, we could see a lot of cars, parts of damaged houses and Styrofoam-boxes consumed in the flow. We noticed that tsunami had come up to just below the hospital. While aftershocks were continuing, considering the movement of pregnant women at night would be risky, the patients of the Maternity Ward on the third floor and patients in the 2nd Floor West Ward, which had a sprinkler-water leakage, had to spend a night in the outpatient wing and in the meeting hall of the 4th floor, respectively. Additionally, the disaster manual of our hospital had no careful guide in the case of a tsunami.

患者を守る覚悟

トリアージタグを使った受け入れは、3月22日朝まで続きました。受け入れ患者は、12日間で1,918名、震災当日は64名、2日目175名、3日目435名でした。

患者の多くは、トリアージタグが緑か黄でした。後で分かった事ですが、津波による死因の95%以上が溺死で、今回の震災の特徴は、トリアージタグの黒か軽症者しかいないということでした。

震災当日の患者が少なかったのは、津波により街に瓦礫が散乱し、重油混じりの汚泥の為、救急車が当院に来られず、患者搬送が出来なかった為でした。患者の多くは海水に浸かっての低体温、重油まみれの海水を飲み込んだことによる肺炎であり、緑ブースでは、油の臭いが充満していました。

震災当日の入院患者368名(担送166名、護送101名、独歩101名、人工呼吸器装着患者4名)。ライフラインは何とか確保出来ていましたが、病院機能を100%維持することは不可能な状況であり、翌日から、104名の透析患者をはじめ、合計209名の患者さんを安全な地域の病院に送り出すことになりました。緊急の対応であり、期限も分からないまま遠隔地に送られることに泣きながら不安を訴える患者さんもありました。見送る看護師もまたなすすべもなく泣いていました。

震災後に発生した火災が広がり、市ガスの貯留タンクまで近づいた時、患者さん全員の避難も考

えられました。ある病棟の看護師は、万が一に備え、自分の腕にマジックで自らの名前を書きました。「爆発して、バラバラになっても私だと分かるから」と。スタッフには看護師として最後まで患者を守る覚悟がありました。

Making up our minds to protect the patients

Admission by using triage tags lasted until the morning of March 22. The admitted number of patients was 1,918 for 12 days: 64 on the day of the earthquake, 175 on the second day and 435 on the third day.

Most patients received a triage tag of yellow or green. We later found out that, more than 95% of the cause of deaths was due to drowning in the tsunami, and the characteristic of this disaster was that we had only patients with a black triage tag or mild patients. We had few patients with a red tag.

A lot of rubble was scattered all over the city by the tsunami, and heavy oil sludge prevented ambulances from coming to our hospital, having ended up with the failure of patient-transport; these were why the number of incoming patients on the day of the earthquake was small. Many of the patients had hypothermia after being soaked in sea water or pneumonia caused by swallowing sea water covered with heavy oil, and the smell of oil had filled the green booth.

We had 368 inpatients on the day of the earthquake: 166 stretcher patients, 101 escorted patients and 101 ambulatory patients including 4 ventilated patients. Although we had somehow secured utilities, we were in the situation where 100% maintenance of hospital functions was not achievable. From the next day, it was decided that 209 patients in total including 104 hemodialysis patients would be sent out to hospitals in other safer regions. It was an emergency response, and some patients were crying and anxiously complaining of being sent to remote locations without knowing when they would be able to come back. Nurses sending them off were also crying helplessly.

When the fire that had occurred after the earthquake was spreading and approaching to the storage tanks of city gas, the evacuation of all patients was also considered. A nurse of some ward, preparing for emergency, wrote her name with a marker pen on her arm. She said, “This would make me identifiable if in the case of being ripped to shreds after an explosion.” Within in the staff members, there were nurses who had mentally prepared themselves to protect the patients to the end.

職員も被災者

職員の3分の1が被災し、自宅に帰るすべもなく病院に寝泊りする者が多数おりました。その一方で交通経路が遮断され病院に来られない者もいました。職員もほとんどが被災者でした。人手が足りず通常の3交替を2交替のシフトに替え、救急患者受け入れブースを担当した外来職員には夜

勤シフトを導入、ガソリンが手に入らない事で更に条件は厳しくなり、ガソリン券の配布、職員同志の相乗り等で対応しました。

看護部職員の被災状況:職員全員無事
家族の安否(当時 死亡10名、不明14名)
家屋(全半壊100名 浸水7名)
車(流出、及び使用不能 117台)

家族を亡くしたり、家族の安否が不明な看護師もいましたが、皆が懸命に患者さんに寄り添いました。後日、ある看護師が「仕事をしていたからこそ自分を保てた。もし、この場にいなかったら、私は崩れ落ち、自分自身をも見失っていた」と、語りました。自らの苦しみを隠し、笑顔で患者に接して動きまわる彼女達の姿に、看護師としての誇りを感じずにはいられませんでした。

The staff members were also victims

One-third of the staff members were affected, having no way to go back home, and a lot of staff were sleeping in the hospital. On the other hand, some staff could not come to the hospital due to the blockage of their traffic routes. Most of the staff members were victims. We changed our shift system to a two-shift system instead of our normal three-shift system because of insufficient manpower, and introduced a night shift in the outpatient clinics, which were in charge of the acceptance booth for emergency patients. Furthermore, the unavailability of gasoline made our conditions even worse; we resolved this by distributing gasoline tickets, carpooling of staff and so on.

The disaster situation of the staff members of the nursing department: All staff members were safe.

The safety of their families: 10 people lost their lives and 14 were still missing at the time of.

Their houses: 100 houses were completely or partially destroyed, and 7 houses were flooded.

Their cars: 117 cars were washed away or not functional

Although some nurses had lost their family members or weren't able to know the safety of their families, everyone was diligently thinking of their patient's needs. At a later date, some nurse said, "I was able to keep my sanity because I was working. Had I not been here, I may have collapsed and lost myself." Observing them, they were hiding their distress and were moving around to aid their patients with smiles, I could not help but feel proud of them as nurses.

混乱の中で

時間がたつとともに、家族の安否を確認する住民で正面玄関はごった返しました。「何してるんだ！早く調べろ！」と、怒号も飛びかう有様。「病院にきたのはわがった。どごさ帰ったが教えてけろ」と懇願する多くの声に、2人の副部長はトリアージタグからの情報に、患者がどこに帰るのか聞き出し名簿に書き加えました。入院患者に関しては、氏名と病棟名を掲示し、一刻でも早く無事を確認したい住民への情報提供を行いました。さらに玄関から薬局まで混み合う患者の中を、帰るすべのない患者さんの為にプラカードや拡声器を使い、相乗りをお願いするなど協力を求めました。

本来の業務が出来なくなった各部門の職員や委託業者に、患者さんの誘導、医療器材の移動、汚れた床の清掃、不安を抱える妊婦への対応、治療が終っても帰れない患者さんへの援助など、協力を要請しました。物資が不足する中で、今必要とする物を次々にマスメディアを通じて呼びかけました。日々変化する状況の中で機転を働かせて混乱を制御したのは看護師の采配でした。

In the confusion

As time went on, the front door was crowded with residents trying to ensure the safety of their families. “What are you doing? Check it, quickly!” People were in uproar. Responding to the many voices begging, “I know he/she came to the hospital. Tell me where he/she went back,” two assistant managers of the nursing department asked patients where they would go back, added it on the information of their triage tags and made out a list of those patients. For hospitalized patients, we posted the information of the names and the ward names of our inpatients and provided it to residents who wanted to confirm their safety as quickly as possible. Further, in the space packed with patients from the entrance to the hospital pharmacy, we asked people for assistance such as carpooling of patients who did not have any means to return home, using loudspeakers or placards.

We also asked for cooperation to the members of each department and contractors, who were no longer able to work at their original job, about getting involved in duties such as guiding patients, conveying medical equipment, cleaning dirty floors, supporting anxious pregnant women and helping patients unable to return home even after their treatment. With an insufficient amount of goods, we called for things we needed through the mass media one after another. In the context of day-to-day changes, it was through our nurses’ directions that were able to control the chaos [in the hospital] with their promptness.

私たちを救った40人の仲間

震災から1週間もすると、院内は少しずつ落ち着きをみせてきましたが、職員の疲労はピークを迎えていました。

今まで、がむしゃらに働き続け、自分の事も家族の事も二の次にしていた職員は、いつまで続くか分からない困難な現状に苛立ち、これからの生活をどうしたら良いのか、という現実直面して

いました。院長始め多くの医師から、「看護師は大丈夫なのか。皆疲弊しているのではないか。応援はいらないのか」と問われるまで、当院職員で乗りきるしかないと考えていた私は、確かにこのままでは本当に職員が倒れてしまうと思いました。そこで、院長自らが埼玉県知事へ職員派遣の要請をし、埼玉県病院局より3月22日～4月11日まで、総勢40名の看護職員の派遣が実現しました。透析室を宿泊スペースとして確保して迎え入れました。他施設の看護職員を受け入れるのは初めてで私達には不安もありましたが、大型バスで乗り入れた第1陣10名も、おそらく災害地へ向かう不安と、どんな支援が出来るのだろうか、胸中複雑だったに違いありません。到着した彼らの表情には一様に緊張が滲み出ていました。最初のオリエンテーションの時、私は「皆さんに当院の看護師と同じに働いてもらうつもりはない。自分たちの看護を普通にしてほしい」とお願いしました。

翌日から、延々と続く救急患者の対応で疲労もピークとなっていた救急室スタッフの一員として夜勤も含めたシフトを作成し現場での活動が始まりました。当初はとまどいながらのスタートでしたが、埼玉のゼッケンをつけて、来院する患者さん、搬送される患者さんへと接する中、被災の現状を徐々に受け入れていったようです(資料1.引継ぎ書)。

Forty comrades who saved us

A week in from the earthquake, the hospital was regaining its stability little by little, but the fatigue of our staff was reaching its peak.

The staff members, who had continued to work relentlessly up until then and had made their family affairs as well as their own needs secondary, were irritated at the tight status quo, in which no one knew how long the situation would continue, and were facing the reality of how to manage their lives from here on. I was thinking that there was no other way out of the situation except by the overcoming it just with our staff members, until I was asked from many doctors including our Hospital Director, “Are the nurses all right? They’ve all exhausted themselves, haven’t they? Do we need help?”, I was definitely worried that they may certainly become sick if they continued to work. From there, the Hospital Director requested by his own accord, the dispatch of the personnel to the Saitama Prefectural Governor, which resulted in the dispatch of 40 nursing members in total from the Saitama Prefecture Hospital Office from March 22 to April 11. We secured our hemodialysis room as their accommodation space and welcomed them. As it was the first time that we accepted nursing staff of other facilities, we were anxious about it. I’m sure that the first group of 10 members, who were coming on a large bus, must have also had complex feelings, anxiety of not only going to the disaster area but also asking themselves what kind of assistance they would be able to give. On their arrival, they uniformly looked nervous. At the first orientation, I asked them “I am not going to get you to work in the same way as our hospital nurses. I would like you to do your ordinary nursing.”

From the next day, they became the members of the emergency room staff, as staff there had fatigue that was also peaking in dealing with the endless stream of

emergency patients. A work shift table including night shifts was provided and they started their activities in the field. They started their tasks puzzled at first but, as they put on the bibs of Saitama Prefecture and came in contact with patients coming or being transferred to the hospital, they seemed to gradually understand the situation of the disaster (Reference 1: the Succession Document).

ありがとう埼玉

当初はリーダー、サブリーダーとのミーティングを行い、日々のスケジュールを組んでいましたが、日々の被災地の患者さんとの関りから湧き出る苦悩を、リーダーだけでは受けとめきれない状況になり、その後は全員参加(夜勤以外)のミーティングを勤務終了後に1時間程実施しました。そこでは「私は、役に立っているのだろうか」、「患者の声に何と答えていったら良いのか分からない」等々、支援する看護師としての悩みが出されていきました。その度、「話を聴くだけで良い」、「いつもの看護をしてほしい」、「辛い時は辛いと言って」と、彼らのその時感じた想いに答えていきました。

Thank you, the Saitama Team

While the leaders and the sub-leaders had meetings initially and were making the schedule of each day, they were heading toward a situation where they could not bear the stress stemming from the daily interpersonal relationship with patients in the affected areas. Then, they had meetings, in which all staff except night shift nurses participated, for about an hour after work. At one of those meetings, a nurse opened up about problems as a supporting nurse, such as ‘I wonder if I am of help to the patients’, ‘I don’t know how I should respond to the patients.’ Each time, I continued to answer their qualms, saying, “You have only to listen to their stories”, “I would like you to do your usual nursing” and “Please let us know when you are having a hard time.”

ミーティングを繰り返す中で、彼らは自ら支援看護師としての役割を認識し、日々変化する状況の中で、「医療事故を防ぐ意味で、応援看護師のやれる事(検査介助、移動、検体提出、待機患者とのコミュニケーション)・やれない事(指示受け、注射箋の処理)を明確にしよう」と、様々な提案をして、その役割を果たしてくれました。

While repeating those meetings, they recognized their roles as support nurses by themselves. In a situation that changed daily, in order to prevent medical accidents, they made clear the difference between what the support nurses were able to do such as assistance of patients at their checkups, patient-transfer, specimen-submission and communication with standby patients, and what they could not do such as getting instructions, handling of injection prescriptions; they made a variety of proposals and carried out their roles.

救急室の状況が落ちついてくると、「病棟へ応援に行きます」と、手うすになっていた清潔ケアを

してくれました。病院を出て患者を探そうと地域へのローラー作戦が始まると、「外にも行きます」と、被災した街中へ積極的に気仙沼市立病院の職員として参加してくれました。4月7日の再度の地震でのトリアージポスト設置の際も、いち早くかけつけ診療体制に加わってくれました。

As the situation of the emergency room was calming down, some of them said, “I will go to a ward to give support”, and went into cleansing care (bed baths), which were shorthanded. When we went out of the hospital and the door-to-door checks began in the local areas in order to find patients, some of them said, “I will go outside”, and they proactively participated as staff of Kesennuma City Hospital and went inside of the affected city. Also at the time of the installation of triage posts when another earthquake occurred again on April 7, they came back swiftly and got involved in the medical care system.

初めて支援看護師を受け入れて不安だった私は、当院職員から、「彼女達と話を始めて泣けました」、「休みがもらえて家の事が出来ました」、「埼玉のゼッケンをみると私達に救援はないと思っていたけど、私達にも災害支援してくれる人がいると嬉しくなります」との言葉を聞き、彼らを受け入れて本当に良かったと思いました。同時に、彼らへの「支援に来て良かった」、「役に立った」と感じて帰ってもらいたいと思い、震災当日の他部門の動きはどうだったのか、手術室ではどうだったのか、通勤経路を遮断され病院に来ることができず、3月31日まで、避難所を守った看護師はどうだったのか、勤務の合間に時間を作って多くの職員との語らいの場を設けました。また、被災した気仙沼をみてもらいたいと、積極的に市街地へも足を運んでももらいました。日々の活動を一人一人日誌に書いてもらい、ふりかえりもしました。彼らは、帰る時、自分は「支援に来て良かった」、「役に立ったと思う」と自信をもって話してくれ、その役割を果たし、任務を終えました。この時の「応援日誌」は、まぎれもなく「当院の宝物」となりました(資料2.応援日誌)。

I had anxiety about the first acceptance of those support nurses. However, when I heard our staff members' words such as “I cried only after I talked with them”, “I was able to take care of my home as I was able to get some days off [thanks to you]” and “I thought that there'd be no relief at all, but looking at the bibs of Saitama Prefecture, I was glad knowing that we have supporters,” I thought that it was great for us to have accepted them. At the same time, I wanted them to go back feeling happy that they came to support us and glad that they could be of help, so I made time among shifts and arranged some opportunities to have discussion between them and many of our staff members, in which several topics were discussed such as “How were the operations of other parts of our hospital on the day of the earthquake?”, “How was the situation in the operating rooms?”, and “What was the situation of nurses who could not come to the hospital because of shut-offs on their commuting routes and had worked at the shelters until March 31?” In addition, I wanted them to look around the affected areas of Kesennuma, and had them actively go into the urban area of the city. I had each of them write down in a diary of day-to-day activities, and we also made

reflections. When they went back, they said to me with confidence, “It was good to have come to support you” and “I think we have been able to serve you”, they carried out tasks and completed their missions. The support diary of that time has unquestionably become the treasure of our hospital. (Reference 2: “The support diary”)

この40人の仲間が来てくれなかったら、私達は、どうなっていたことか、あらためて災害看護のあり方を考えさせられました。かけがえのない40人の仲間に関わりましたが、上司としてかかわれた事を誇りに思います。同時に、自施設も、大変な状況下、快く職員を送りだしてくれた病院関係者、さらに不安な中、送りだしてくれた彼らの家族へ深い感謝を込めて「ありがとう埼玉！」の気持ちを送りたいと思います。

I wondered, if those 40 comrades had not come, what would have become of us. It made me rethink the ways of disaster nursing. It was in only a short period of time that I could get involved with those irreplaceable comrades as their superior, it was an honor. At the same time, I want to send my feelings of, “Thank you, Saitama” with deep gratitude to people concerned with those hospitals, who willingly sent off their staff members in spite of the difficult situations of their own facilities and, more so, to their families sending them off in uneasy circumstances.

今後の課題と期待

この震災を体験し、当院職員の果たした役割は大きく「本当によくやった」と褒めてあげたい気持ちでいっぱいです。そして看護部長としてあらためて実感したことは、その時々で瞬時の判断が求められる中で、職員一人ひとりの判断を「ベストの判断だったのだ」と尊重し決断、すべての責任を負うということでした。

見えてきた課題も少なくありませんでした。

Challenges and expectations for the future

The staff of our hospital had experienced the disaster, and the role they played was immense. I am full of feelings of praise for them and want to let them know that they have done well. What I have realized anew as a nursing director was to respect the judgments of each member as best I can in a situation where instantaneous judgments are required at any given time, to decide on those judgements and to bear all the responsibility.

There were a lot of issues that came up too.

①病院建物の耐震性

老朽化した建物が、再び強い地震が起きたら耐えられるのか？

災害拠点病院としての役割を果たせる新病院建設への速やかな対応。

②備蓄物資の確保

自家発電の燃料、患者及び職員分の水と食料・医薬品・衛生材料の備蓄を何日分とするか？
加えて特有の流通確保。

1: The seismic resistant capacity of our hospital buildings

Will the deteriorated buildings be able to withstand a strong earthquake again, if it were to occur again?

We have to make a rapid response to construct a new hospital that can play a role as a disaster base hospital.

2: Ensuring reserve goods

How many days' worth of stockpiles should we have? : Fuel for the in-house power generation, water, foods, pharmaceuticals and sanitation materials for patients and our staff.

In addition, we have to ensure the distribution of unique materials.

③通信手段の確保

衛星携帯電話の配置がされていましたが、使用できず、外部との連絡が一時途絶えた。院内PHSも機能しなかった。

院内・外含めた情報の共有化を図る上での通信手段の確保。

④災害時シフトの検討

災害発生の時間帯により、参集できる職員数は大きく異なる。

夜間の災害発生をも想定した柔軟性をもったシフトの検討・マニュアル化。

3: Ensuring communication means

Although a satellite-based mobile phone was located, we could not use it. So, we could not communicate temporarily. Our hospital PHS system did not function as well.

We have to ensure means of communication in an attempt to share information including both inside and outside of the hospital.

4: Consideration of work shifts around the disaster

Depending on the time of disaster occurrence, the number of our staff that can gather in the hospital varies quite a bit.

We have to consider and formalize work shifts having some flexibility that assumes disaster occurrence at night as well.

⑤人的支援の受け入れ

看護職員が被災した事を踏まえた、人的支援を受け入れる為の体制づくり(受け入れ時期・業務内容・安全の確保等)。

⑥災害時マニュアルの見直しと訓練

津波を想定した災害時マニュアルの見直し

委託業者をも含めた、院内災害訓練の実施。

⑦ネットワークづくり

災害拠点病院としての、院内・外問わず、災害時に医療を最大限発揮できる為のシステムづくり。

5: Acceptance of physical support

Taking into account that our nursing staff were affected, we should arrange a system for accepting physical support such as: the time of its acceptance, work contents, safety ensuring.

6: Reviewing our disaster manual and training

We have to review our disaster manual on the assumption of a tsunami.

We have to implement hospital disaster training including our contractors.

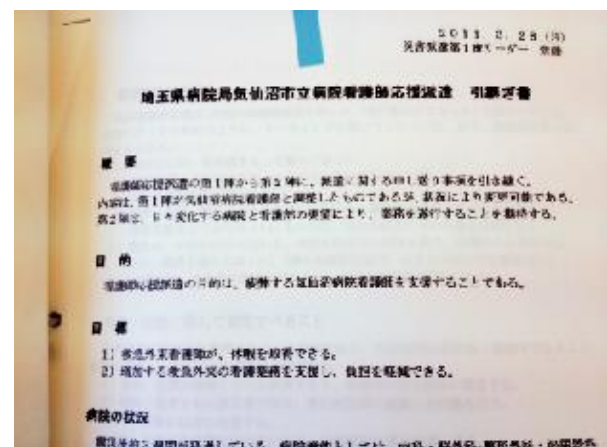
7: Building networks

We have to develop a system as a disaster base hospital to maximize the medical care both inside and outside of the hospital in the event of disasters.

一刻をあらそう災害医療の現場では、行政の対応をまつことなく、病院内にとどまることなく広く地域の情報をキャッチし、気仙沼市立病院職員として、今何をすべきか、また何を求められているのかを常に考え行動しなければなりません。

確かにこの震災は不幸なことでしたが、得たもの少なくありませんでした。数多くの、物的・人的支援を頂いたことに感謝すると共に、私達もそれだけの支援ができるような看護師をめざし日々研鑽していきます。気仙沼は美しい海と美味しい魚の街です。一日も早く元の気仙沼を取り戻して、皆さんと再会できる事を期待します。

「ありがとう全国の皆さん、がんばろう気仙沼」。



資料1. 引き継ぎ書

Reference 1: the Succession Document



資料2. 応援日誌

Reference 2: “The support diary”

In the field of disaster medical care, in which there is no time to lose, without waiting for administrative response and also without staying in a hospital, we have to collect a wide range of local information, always consider what we have to do in the moment and what we are asked to do, and play our role as the staff of Kesennuma City Hospital.

Certainly, this earthquake disaster was unfortunate but the things we gained were not few. We are grateful for having been given a lot of human resources and material support, and at the same time, we will continue to improve ourselves daily aiming to become nurses who can give as much support as they gave us. Kesennuma is a city full of delicious fish and has the beautiful sea. We hope that we will be able to restore Kesennuma to its former glory as soon as possible and meet again.

Thank you to everyone all over the country. Let's do our best, Kesennuma.

1Fナース発 活動報告と今後の課題

1階病棟

The Hospital Ward Department

From the 1F (1st Floor) Nurses

Our activity report and our challenges for the future

The 1st Floor Ward

はじめに

3月11日東日本大震災が発生して災害医療という貴重な経験をしたが、今後も災害、防災に対する意識を持ち的確な対応がとれるようにしなければならない。震災を経験したことで整形外科病棟独自の問題点、具体策が見えてきた。それらを今後の取り組みに生かしていきたい。

Introduction

The Great East Japan Earthquake occurred on March 11, which gave us a valuable experience of disaster medical care. We have to stay aware of disasters and disaster preparedness and make sure of taking precise actions also in the future. We have experienced the earthquake disaster, which has enabled us to see both problems and concrete measures specific to an orthopedic ward. We would like to make use of them in our future activities.

基礎データ

<当日の勤務者>

日勤:医師:3名

看護師:10名

看護助手:4名

<当日の患者数と手術>

患者数:44名

担送:11名

護送:32名

独歩1名(外泊1名)

OP 骨接合術(伝達麻酔)

終了間際であったためそのまま続行。

避難指示が出る前に帰室。

患者の家族と面談者は数名いたが人数は把握できず。

Basic data

<Workers of the day>

Day Shift: 3 Doctors

10 Nurses

4 Nursing assistants

<The number of patients and an operation on the day>

The number of patients: 44

11 Stretcher patients

32 Escort patients

1 Ambulant patient (1 Staying-out patient)

Operation: Osteosynthesis (block anesthesia)

An operation continued as it was nearing the end of the operation.

The patient had come back to the room before an evacuation order was issued.

There were some family members of patients and visitors but we could not grasp how many they were.

<震災当日の活動>

① 入院患者および付き添い家族の安全確保と被害状況の確認

地震発生直後、各病室を廻り患者と建物の被害状況の確認をスタッフ総出で行った。

建物に関しては壁や 床に亀裂が生じ一部分崩壊したが、窓ガラスの破損はなかった。患者に関しては転倒や負傷する人もなく無事だった。間もなく病棟の窓から道路に物が流れてくるのが見え津波が来たと確認。師長の指示により、車いすと、ストレッチャーを使用し、皆無事にリハビリ室へと避難させた。間もなく2階へ避難指示が出たが、エレベーターは使用できず西側、中央階段からの移動となった。医師、手術室、薬局、リハビリ、事務、医療事務委託業者の方々がすぐに駆けつけ、車いす患者は車いすごと4人で運び、ベッドの患者はタンカを使用し7人から8人で運んだ。およそ30分で2階内科外来前に全員避難させたが、さらに3階へ避難指示が出され同じように小児科外来前へ移動させた。

< Activities on the day of the earthquake >

1: Ensuring safety and confirming the situation of our inpatients and their attending family members and the extent of damage.

Immediately after the earthquake, all staff went around each hospital room and confirmed the status of our patients and our building.

In terms of the building, some walls and floors had cracked and partially collapsed but there was no damage to windowpanes. Regarding our patients, they were all safe without any falls or injury. It was not long before we could see things flowing on

streets through the windows of our ward and confirmed a tsunami was approaching. According to the instructions of our chief nurse, we evacuated every patient safely to the rehabilitation room of the hospital with wheelchairs and stretchers. Though evacuation orders to go up to the second floor were soon issued, elevators could not be used and we had to relocate through the west and the central staircases. Our doctors, the staff members of the operating rooms, the pharmacy, the rehabilitation room and the office, and medical office contractors came immediately; four people carried each wheelchair patient together with the wheelchair and each bed-ridden patient took seven to eight people by using a stretcher. In about 30 minutes, we were able to evacuate every patient to the front of the outpatient clinic of internal medicine on the second floor. A further evacuation order to the third floor was issued and in a similar manner, we transferred the patients to the front of the outpatient clinic of pediatrics.

② 職員の安否確認

携帯電話や固定電話が使えず、安否確認は自ら来院する以外方法がなかった。津波前に駆けつけた職員は3名いたが、夜勤の勤務者は道路の寸断や浸水、火災などにより通勤困難と予想された(通勤途中で津波の被害に遭遇した看護師もいたが、無事だった事が後に判明した)。

2: Safety confirmation method of our staff

As we could make no use of mobile and landline phones, there was no safety confirmation method of our staff except physically coming to the hospital. We had three staff members rush to the hospital before the arrival of the tsunami, and expected the workers of the night shift to have difficulties to come in because of the cutoff and inundation of their commuting routes, and fire; some nurses encountered places damaged by the tsunami on their way to work, we later confirmed them to be safe.

③ 排泄の管理

床上安静を必要とされていた患者の多くはストレッチャーに寝ており、オムツでの対応とした。場所は入り乱れているホール内で介助するしかなく、段ボールを衝立代わりに利用し行った。車イス患者にはポータブルトイレを外来トイレ内に置き看護師が付き添い、使用させた。

3: The management of bodily wastes

Most of the patients requiring bed rest were lying on stretchers, for whom we decided to use diapers. There was no choice but to assist with their toileting in the hall amidst the confusion; we carried this out by makeshift folding screens with cardboard. For wheel chair patients, we placed some portable toilets in the outpatient lavatory, and nurses escorted them and had them use those toilets.

④ 精神的ストレス

院内には外より避難してきた方もあり、火災、橋の崩落など曖昧な情報が飛び交い泣き出す患者もいた。窓から見える炎に不安は募り病室に戻った後も怖くて眠れない人やパニック状態になる人がいた。看護師は患者のそばに寄り添い話を聞いた。

4: Mental stress

There were also people who evacuated outside the hospital, ambiguous information about things such as fire and the collapse of some bridges were in circulation, and some patients began to cry. Flames visible from looking out the windows increased our anxiety, which made some people too scared to sleep and panic even after returning to their hospital room. Nurses accompanied those patients and listened to them.

<活動内容からみた問題点と課題>

① 入院患者及び家族の安全確保と被害状況の確認

患者移送に関しては他の部署の職員と協力して短時間で行えた。マンパワーの重要性を再認識した。今回の災害は日中であったため多数の手を借りることができたが、夜間だった場合どう動くべきか災害マニュアルの見直しが必要である。車いす患者の移送は車いすごとではなく、患者のみ先に抱えて避難したほうが人手も少なく時間の短縮になったのではないかと、という意見もあり、患者を想定したシミュレーションも行っていきたい。

< Problems and challenges from the viewpoint of our activities>

1: Securing the safety of our inpatients and their families, and the confirmation of the damage status

For transporting of patient, we were able to complete it in a short period of time with the cooperation of staff members of other departments. I recognized the importance of manpower again. Although we were able to make use of a large number of staff members as the disaster occurred during the daytime, it is necessary to review the disaster manual of how we should move if one were to occur at night. An opinion later brought up was that it might have been more efficient both in terms of manpower and time to carry each wheelchair patient individually in our arms rather than to carry each patient together with their wheelchair; we also would like to try a simulation assuming the condition of each patient.

② 職員の安否確認と避難の確認

携帯電話、固定電話、パソコンが使えず連絡する術がなかった。自己の安否を伝える方法は病院へ来るしかないのだろうか。途中災害に見舞われる危険性を考えると問題は残る。

2: The safety confirmation of our staff and the confirmation of evacuation

Being unable to use mobile phones, fixed phones and personal computers, we had no measures to communicate with each other. I wonder if there was no other way to

confirm our own safety except by physically coming to the hospital. Given the risk of suffering a disaster on the way to the hospital, some problems would remain.

③ 排泄の管理

外来にあるトイレは、狭く洋式トイレの数も少ない。車いすの患者を介助するのは大変であった。高齢者が増えている現状からもう少し広いトイレ、車いす専用のトイレが必要ではないか。

3: The management of bodily wastes

The toilets in the outpatient sections were narrow, with only a few Western-style ones. Assisting wheelchair patients was very difficult. I think that the current situation of an increasing number of the elderly would require toilets to be a little larger and those to be exclusive to wheelchair patients.

④ 精神的ストレス

患者が受けたショックは大きかった。患者だけでなく職員も同様、今後のアフターケアに力を入れていくべきである。ストレス外来の利用やコミュニケーションを多く取るなどして心の傷が少しでも癒されたらいいと思う。職員にも十分な休養と、リフレッシュが必要と思われる。

4: Mental stress

We had a large number of patients in shock. Not only our patients but also for our staff, we should continue to focus on the course of after-care. I hope that their mental trauma will heal even by just a little bit by using the outpatient clinic of stress management, by having more communication. I feel that the staff also need enough rest and to relax.

<震災翌日以降の活動>

① 入院患者受け入れ準備とベッドコントロール

3月12日に入院した患者数は、病棟の全看護師が少なくとも一名以上受け持つほど多かったが、整形外科的な手術が必要な患者はすぐに後方支援病院に搬送されたため、実際に病棟に残る人数は少なかった。内科の入院患者が多かったため整形疾患と内科疾患の患者チームに分けて管理した。

<The activities after the next day of the disaster>

1: Preparation for the acceptance of patients and bed control

The number of patients admitted on March 12 equated to every nurse of all the wards taking charge of at least one or more patients. But patients who actually stayed in the wards were few, for those patients in need of orthopedic operations were immediately sent off to other hospitals. As many patients of internal medicine had been hospitalized, we managed patients by dividing them into two, one group for the patients with internal diseases and the other for the patients with orthopedic diseases.

② 患者搬送

3月15日から手術対象となる患者や他の病院へ転院を希望した患者の搬送が始まった。医師がリストアップして、当病棟からは震災中24名が搬送された。搬送当日、今まで使用していた看護サマリーを作成しレントゲン袋に入れて準備した。

2: Patient transport

From March 15, we began to transport patients who were subject to operations or who wished to be transported to other hospitals. Our doctors made a list of those patients, and 24 patients of our hospital ward were transported around the earthquake disaster. On the very day of transportation, we wrote up a nursing summary that had been used up until now, put it into the paper bags of X-ray photographs and made preparation for transport.

予定時刻にあわせて患者を1階面会ホールに集めて順次送り出し救急車の到着を待った。中には、家族が来院できないため搬送できなかった患者もいた。搬送先との交信に時間がかかったために待ち時間があり不安がる患者もいた。

We gathered patients in a meeting hall on the first floor to get them ready by the scheduled time, sent them out sequentially, and waited for the arrival of ambulances. Some of them could not be transported because their families could not come to the hospital. It took a lot of time to communicate with their forwarding addresses, which made some of them anxious.

③ 患者状態の記載方法

特別変化のあるときのみカードデックス(患者様の状態を把握するため簡潔に記載された用紙)とフローシート(毎日の観察項目が記載された用紙)に記載し簡素化を図った。

3. The recording method of patient status

We recorded data on a *cardex* only in the case of special changes, (a sheet on which we wrote briefly in order to grasp the status of each patient) and a flow sheet (a sheet on which the daily items of observation were written) and aimed at simplifying.



④ 病棟の環境整備

掃除してもすぐに泥だらけになってしまい、看護助手が中心となり掃除を頻回に行った。

4. Environmental improvement of our hospital ward

Floors soon became muddy even after cleaning, so we frequently cleaned together

with our nursing assistants, who were playing a central role.

⑤ 医薬品、資材の確保

薬品に関しては病棟内の在庫で間に合った。しかしオムツ不足となり交換の回数を少なくした。他にも患者が使う日用品が不足した物もあったが支援物資で賄えた。

5. Ensuring medications and materials

There was enough stocks of medication in our ward, but we were running out of diapers and had to reduce the amount of changing them. Among others, some of patient commodities also ran short but we were able to serve them with support supplies.

⑥ 情報の共有

患者誤認防止として意思疎通困難の患者には病衣にガムテープを貼り名前を書いた。

3月15日夜間近隣での火事では、病棟内の医師、看護師で避難経路の確認や搬送する順番、役割など話し合い、ホワイトボードに書きだした。また、カードックスの最初のページに担送、護送の一覧表を作り各勤務帯で必ず目を通すようにした。

6: The sharing of information

We stuck packing tape on the hospital gown of our patients who had difficulties communicating and wrote each name on it in order to prevent patient misidentification.

When fire occurred in the neighborhood on the night of March 15, our doctors and nurses discussed the confirmation of evacuation routes, the order of transport of patients and our roles, and wrote them out on a whiteboard. In addition, we made a table of our stretcher-and escort-patients on the first page of the cardex, and planned to look through it in each working shift.

⑦ 勤務体制の整備・調整

準夜勤務者が来られず、日勤者が準夜・深夜勤務を行った。また、移動手段を奪われて病院に泊まり込みで仕事をしていた職員がほとんどで体力、精神的にもきつい勤務だった。ガソリンの供給制限もあり、唐桑・高田方面から来る職員は乗り合わせて来るなどして対応した。

7: The maintenance and the adjustment of our work system

As the nurses of the late shift on the day of the disaster could not come, those of the early shift also performed both the late and the night shift. In addition, most of the staff lost their commuting method and were working without going home; it was both physically and mentally taxing work. There was also a limited supply of gasoline, so the staff members coming from Karakuwa and Takata directions managed to come to work by carpooling.

<活動内容から見た問題点と課題>

① 入院患者のベッドコントロール

他科の入院は、カルテの様式が違っており、処置も不慣れであった。全科共通のカルテもしくはパスのようなものが必要と思われる。

< Problems and challenges in terms of our activities >

1: The bed control of our inpatients

In the case of admission of other departments' patients, their method of medical recording differed from ours, and we were also unfamiliar with their treatment methods. It would be necessary to have something like a medical record form or a medical path form that could be used across every department.

② 患者家族との連絡

震災直後から携帯電話が使えなくなった。緊急搬送などの重大な決断を迫られる可能性もあり、入院時に確実に家族と連絡をとる方法を聞いておくのは大切だと痛感した。家族にも可能なかぎり病院へ足を運んでほしいと声掛けすることも必要だ。

2: Communication with our patients' families

We had not been able to use mobile phones immediately after the earthquake. In the case we might be forced to make a serious decision such as emergency transport, we fully recognized the importance of asking about how to get in touch with patients' families at the time of their admission. It is also necessary to tell their families to come to the hospital as often as possible.

③ カルテの活用

カーデックスは受け待ち看護師が整理しているものだが、申し送りの際にはとても役に立った。

3: The utilization of medical records

The data of a cardex had been organized by the nurses in charge, which helped a lot at the time of the hand over.

④ 病棟の環境整備

泥による汚染が目立っていた。節水もあり出来る限りの整理整頓を心がけた。必要以上に持ち物が多い患者もいて入院特に必要最小限の荷物の持ち込み徹底が必要であると感じた。

4: The environmental improvement of our ward

Contamination due to mud stood out. As we were also saving water, we tried our best to keep the place clean and tidy. Some inpatients had more belongings than they needed, which made me feel that it is necessary to thoroughly minimize, especially at the time of hospitalization.

⑤ 医療品、資材の確保

一時、オムツ不足になり交換回数を減らして対応したが患者は不快な思いをしたと思う。入院患者の年齢層を考慮して病棟内の在庫は多い方が良い。

5: Ensuring medical supplies and materials

I think that the patients who dealt with the reduced number of diaper exchanges because of the shortage must have felt uncomfortable. It would be better to have enough stock in every ward in consideration for the age groups of hospitalized patients.

⑥ 情報の共有

患者確認の方法として病院全職員が情報を共有できるものが必要である。方法の一つにリストバンドの着用があるが当院には導入されていない。繁雑化する医療現場で患者安全のためにも導入が望まれる。

6: Information sharing

We need a system by which all staff members of the hospital can share information to identify patients. Although wearing a wristband is one of the methods to do so, it has not yet been introduced to our hospital. In the increasingly complicated medical field, those systems would be desirable also for the safety of patients.

⑦ 勤務体制の整備・調整

少ない勤務体制であり、お互い声を掛け合い行っていたが異常事態の対応にとっても忙しかった。このようなときこそ落ち着いて行動し、それぞれが責任を待ち最後まで役割を果たすことが重要であり業務内容もその都度負担が多くならないように工夫して行う必要がある。

7: Maintenance and adjustment of our work system

In the working system with a small number of staff, we were calling out to each other but were very busy with responding to abnormal situations. It is important for each member to act calmly in such cases, to have responsibility and carry out ones role to the end; it is also necessary to plan our responsibilities on each occasion and to carry them out so that they do not overwhelm us.

おわりに

千年に一度といわれる大地震、大津波を経験し学びえた事は多かった。自分自身の安全確保は勿論のこと何より先に患者の安全確保が大切である。私たちには冷静で的確な判断と行動力が必要とされる。今後は職員の意識向上のために話し合う機会を増やし可能な限りシミュレーションを行い災害時に備えたい。

In conclusion

We have experienced the great earthquake and the giant tsunamis that are said to be once in a thousand years and in turn, have learned a lot. While it is quite natural to ensure our own safety, the most important thing is to ensure the safety of our patients.

We need calm and make precise judgment, and have the ability to take action. In the future, we would like to increase the number of opportunities to have discussions in order to raise the awareness of our staff, to perform as many simulations as possible and to prepare for a disaster.

東日本大震災を振り返って

－ 脳外科病棟における今後の大規模災害に備えるための振り返りと課題 －

2階東病棟

The Hospital Ward Department

Looking back on the Great East Japan Earthquake Disaster

- The Review and Challenges in the Neurosurgery Ward

In order to prepare for a large-scale disaster in the future –

2nd Floor East Ward

はじめに

当科では、脳外科疾患による意識障害やADL低下があり、介助を要する患者が大半をしめている。今回の震災を体験し、刻々と変わる状況の中で、私たちの活動の内容を振り返りまとめた。

Introduction

In our medical department, most patients had some disturbance of consciousness and some decrease in ADL (Ambulatory Daily Life) due to brain diseases and were in need of assistance. We experienced the earthquake disaster, looked back over and summarized the contents of our activities in a situation where things were changing every second.

I. 震災直後の被害状況

停電にて自家発電に切り替える。

人工呼吸器、生体監視モニター、輸液ポンプ使用可。

中央配管(酸素、吸引)使用可。

PC、オーダーリングは、使用不可。

照明、暖房、使用不可。

外線電話使用不可。

患者の収納棚(頭上)からの落下は、ほぼなし。

一部の病室のドアの開閉が困難。

水道は確保できたが、温水はでなかった。

I. The damage status immediately after the earthquake

We switched to our in-house power generation because of power failure.

Ventilators, body monitors and infusion pumps were usable.
 The center piping system (of oxygen and suction of our hospital) was usable.
 Personal computers and our ordering system were unusable.
 Lighting and heating were unusable.
 The outside lines of telephone were unusable.
 Most of the patients' baggage in overhead storage shelves did not fall.
 Some doors of the hospital rooms had some difficulties opening and closing.
 We managed to secure tap water, but hot water could not be secured.

II. 当科患者とスタッフの状況

当日の勤務者

日勤: 医師 3名 (うち1名は災害医療コーディネーターのため病棟にはほとんど不在)

看護師 8名 (師長不在 副師長1名勤務中)

看護助手 2名

患者数 36名 担送: 32名 護送: 3名 独歩: 1名 (外泊中)

患者の家族と面会者は数名いたが、人数は把握できず。

看護度:

(人)

	I	II	III	IV
A	11	0	0	0
B	18	3	1	1
C	0	1	0	1

II. The situation of our patients and staff

The workers on the day

Day Shift: Three doctors (one doctor was almost absent in the hospital ward for duty of the Disaster Medical Coordinator)

Eight nurses (our head nurse was absent, one deputy head nurse was on duty)

Two nursing assistants

The number of our patients: 36

(stretcher patients: 32, escort patients: 3, ambulatory patient: 1 (staying out))

There were some family members of patients and some visitors in our ward, but we could not grasp the number.

Nursing Degree:

(The Number of Patients)

	I	II	III	IV
A	11	0	0	0
B	18	3	1	1
C	0	1	0	1

意思疎通困難: 20名 体位変換: 22名 くも膜下出血術後 経過観察中: 2名
 生体監視モニター: 4名 人工呼吸器: 1台 気管内挿管: 3名
 持続点滴: 14名 輸液ポンプ: 3名 酸素療法中: 4名
 吸引: 12名

The number of patients with difficulty communicating: 20

The number of patients in need of postural changes: 22

The number of patients under follow-up after an operation for subarachnoidal hemorrhage: 2

The number of patients under medical monitoring: 4

The number of patients using a ventilator: 1

The number of patients under endotracheal intubation: 3

The number of patients under continuous infusion: 14

The number of patients using infusion pumps: 3

The number of patients under oxygen therapy: 4

The number of patients under aspiration treatment: 12

Ⅲ. 震災当日の活動内容

1. 入院患者および家族の安全確保

病棟の避難経路は3か所あった。しかし、1カ所は水漏れで利用不能となり、もう1カ所は階段を通過しなければならず、唯一正面玄関方向が避難経路として使用可能だったため、患者を玄関に近い面会ホールと、隣接している通用路に集めて待機させた。移動は持ち手付きのマットレス(約10kg)にて行った。震災数日前に、持ち手付きのマットレスに交換したばかりだったので、人数が少ない中でもなんとか患者を移動することができた。また、意思疎通困難な患者が多く、患者確認のためベットネームをベットマットに直接貼った。当科のベットネームには、氏名、住所、生年月日書き込まれており患者確認に役立った。数時間後、看護部長より面会ホールから病室に戻すように指示があったが、余震が続いていたため、面会ホールとナースステーション付近の2人室に3～4名ずつ床に直接マットレスを敷いたり、ストレッチャーに乗せたりして収容した。面会ホールにもマットレスを敷き、患者を集約させた。付き添い家族および面会者へは、避難するように誘導したが、ほとんどの方がそのまま付き添っていた。外泊中の患者が1名いたが、安否の確認はできなかった。

Ⅲ. Activities on the day of the earthquake disaster

1. Ensuring the safety of our patients and their family

We had three evacuation routes in our ward. However, one was unavailable because of a water leak, another had a staircase that we had to pass through, and the other route to the main entrance was only available as an evacuation route. Therefore, we gathered patients into the meeting hall near the entrance and the adjacent path, and had them wait. We transferred them by using mattresses with handles (about 10 kg weight). A few days before the earthquake, we had just replaced mattresses with new ones with handles, so we were able to somehow transfer the patients in such a shorthanded situation. In addition, we had a lot of patients who had difficulty communicating, and we put the bed-names of those patients directly on their bed mattresses for their identification. The bed-name of our ward had the name, the address and the date of birth of each patient written on it, so it helped a lot for patient identification. A few hours later, our nursing director instructed us to move the patients from the meeting hall to their hospital rooms. As the aftershocks were continuing, we accommodated every 3 to 4 patients in every twin room near our nurse station and the meeting hall after spreading mattresses directly on the floor or putting patients on stretchers. We spread mattresses also in the meeting hall and put the patients together. Although we guided family attendants and visitors to evacuate, most of them kept attending without change. One patient was staying elsewhere, but we could not confirm their safety.

2. 看護師の安否の確認

当日、安否確認できない看護師が数名いたが、数日後には全員の安否が確認できた。

2. Confirmation of the safety of our nurses

We could not confirm a few nurses' safety that day, but everyone's safety was confirmed in the following days.

3. 入院患者の受け入れ準備

患者を誘導した後、面会ホールを開放し、処置車、ベッド、ストレッチャー、観察室経過表、血圧計、体温計、酸素飽和度測定器を準備した。倒壊のおそれがある部屋は使用せず、2人部屋を3名、特室を2名で使用し、面会ホールを入院受け入れの場所と設定し準備をした。

3. Preparation for hospitalizing patients

After guiding the patients, we opened up the meeting hall and prepared some carts for treatment, beds, some stretchers, process-recording sheets for our observation room, blood pressure monitors, clinical thermometers and oxygen saturation measuring devices. Deciding not to make use of any rooms that have a risk of collapsing, we made preparation for hospitalization after accommodating three patients in each twin room and two patients in each special room and setting up the meeting hall as a space for incoming patients.

4. カルテの活用、トリアージタグの活用

通常のカルテは使用せず、当科で使用している観察室経過表を利用し、それに医師指示、病歴、コストを一括して記録できるように準備した。入院患者は、トリアージタグを付けて入院してきており、タグの活用方法が一部わからないところがあった。

4. Utilization of medical records and triage tags

We did not use regular medical records but made use of process-recording sheets for our observation room, which have used in our department, and we prepared those sheets to collectively record our doctors' instructions, medical history and costs. Newly hospitalized patients were coming with a triage tag on their wrist. We did not understand some parts of their usage.

5. 患者管理

数日間オーダーリングPCが使用できず、手書きで病室、氏名、食事内容、移送方法を記録した。患者の移動が多く、取り違いを防ぐためにベッドネームをベッドに直接貼った。病室の前に、患者の氏名と食事内容を掲示した。

5. The patient management

For several days, we could not use ordering PC's, so we recorded hospital room numbers, names, dietary contents and transfer methods by hand. The patients were frequently moved, so we put their bed name directly to their bed to prevent misidentifying them. In front of each hospital room, we posted their names and their dietary needs.

6. 入院患者の環境整備

新規入院患者受け入れの準備として、入院中の患者の床頭台や収納棚中の荷物は移動せず、患者のみ移動させてベッドコントロールを行った。

津波による汚泥にて長靴着用の面会者も多く、廊下の泥を掃くなど環境整備に努めた。

6. Environmental improvement of the inpatients

In preparation for accepting incoming patients, we did not move bedside tables and luggage onto the storage shelves of inpatients, and carried out bed control only by moving the patients.

As a lot of visitors wore boots to walk on muddy roads having been flooded by tsunami, we tried to improve the environment mainly by sweeping the mud off the corridors.

7. 食糧の確保

摂食訓練中で経口摂取困難の患者は、医師の指示もあり、胃管カテーテルを留置し、経管栄養に切り替えた。

7. Ensuring food

For patients who had difficulty with oral ingestion, some who were undergoing eating training, under the doctors' orders, we indwelled a stomach tube and switched from food to tube feeding.

8. 勤務体制の整備・調整

病棟は混乱状況にあり、どのくらいの看護師が病院に駆け付けられるか不明で、日勤終了後も帰ることが出来ず数名の日勤看護師は24時間以上超過勤務をしていた。日勤者の中には、車を流されたため帰宅することが出来ない職員もいた。

8. The maintenance and adjustment of our working system

Our ward was in turmoil, and we had no idea of how many nurses could get to the hospital; the day shift nurses of that day could not go home even after working; some of them had to work for more than 24 hours. Some of the day shift workers, whose car had been swept away, could not go back home.

IV. 震災翌日以降の活動内容

1. 人工呼吸器装着患者の転棟

3月14日16時市街地で発生した火災が病院近くのガスタンク付近まで炎上してきたとの情報が入った。

IV. Activities after the next day of the day of the earthquake disaster

1. The transfer of a mechanically ventilated patient to another building

At 16 o'clock on March 14, we received information that a fire had broken out in the city area and was approaching the neighborhood of gas tanks located near the hospital.

3月15日早朝4時頃 医師らによる緊急会議が開かれ、緊急患者移送体制がとられた。看護副部長より連絡があり、入院患者の移送シミュレーションを行うように指示があった。当科は担送・護送の患者が95%を超えており、業務を行いながら深夜勤務者3名で移送のシミュレーションを行うことは容易でなく、準夜勤務後の2名の看護師の協力を得て移送の順番を決めた。また、棟内に安定した電力を供給できなくなり人工呼吸器装着患者を3階北病棟に移動させるよう指示が出た。他部署の看護師、事務、技士の方々の協力を得て患者を移送した。3階北病棟にあった人工呼吸器は当病棟で使用しているものとは異なる機種だったため、当科の人工呼吸器（タイコ：約200kg）を3階北病棟に階段を経由して人力で上げ、患者に装着した。その間、30分間はアンビュバックを3階北病棟の看護師の



協力を得て交代で押し続けた。自家発電による電力の供給不足は、中央配管の吸引にも影響があり、十分な痰の吸引ができなかった。口腔内を拭き取ったり、注射器で吸引したりした。また、移送後より当科の看護師1名は、翌日の日勤者と交替するまで付き添ったが、その看護師は、日勤準夜勤務後帰宅せず、病棟に残っていた看護師だった。

Around 4 am on March 15, the emergency meeting of doctors was held, and the emergency transport system of patients was undertaken. An assistant nursing director contacted us, giving us instructions to simulate the transport of our inpatients. More than 95% of the patients in our ward were stretcher/escort-patients. It was not easy to perform the transport simulation with only three midnight workers while keeping up normal nursing services. Therefore, we decided the order of their transfer with the cooperation of two nurses after their late shift. Moreover, a stable power supply into the building was getting worse, and we were instructed to transfer our ventilated patient to the 3rd Floor North Ward. We transferred the patient with the cooperation of the nurses of other departments, office workers and engineers. As the ventilator of the 3rd Floor North Ward was that of another model different from ours, we lifted and moved the ventilator (Tyco® - about 200kg) of our department by physical strength via stairs through the 3rd Floor North Ward. Then, we attached it to the patient. During the time, for about 30 minutes, we kept pushing an Ambu Bag® in turns with the cooperation of the nurses of the 3rd Floor North Ward. The short supply of power by private power generation also affected our central suction pipes, which prevented us from adequately aspirating sputum. We carried out things such as wiping the patient's oral cavity or aspirating sputum with a syringe. In addition, one nurse of our ward was accompanying the patient after the transfer up until the arrival of the next day's day-shift nurse, and did not return home after her day shift and even a late shift, and remained in the ward.

2. 他病院、施設への搬送

3月15日～3月31日までの搬送人数: 21名

月 日	担送 (人)	護送 (人)	独歩 (人)	搬送した トータル人数	搬送先	搬送手段
3月15日	1	0	0	1	東北大学病院	ヘリコプター
3月18日	3	1	1	5	岩手県立磐井病院	ヘリコプター
3月19日	1	0	0	1	東北大学病院	ヘリコプター
3月21日	1	0	0	1	広南病院	ヘリコプター
3月24日	8	0	0	8	東北大学病院(4名) 特養 山王(2名) 特養 若藤園(1名)	ヘリコプター 救急車 救急車

					特養 いちちょうの里(1名)	救急車
3月29日	2	0	0	2	仙台徳洲会	徳洲会病院の救急車
3月30日	2	0	0	2	仙台徳洲会	徳洲会病院の救急車
3月31日	1	0	0	1	仙台徳洲会	徳洲会病院の救急車

2. Patients' transport to other hospitals and facilities

The Number of Patients Transported from March 15 to March 31: 21

Date	No. of Stretcher Patients	No. of Escort Patients	No. of Ambulatory Patients	No. of Transferred Patients in Total	Transport Address	Transport Means
Mar. 15	1	0	0	1	Tohoku University Hospital	Helicopter
Mar. 18	3	1	1	5	Iwate Prefectural Iwai Hospital	Helicopter
Mar. 19	1	0	0	1	Tohoku University Hospital	Helicopter
Mar. 21	1	0	0	1	Kounan Hospital	Helicopter
Mar. 24	8	0	0	8	Tohoku University Hospital (4) Special Elderly Nursing Home (SENH) San-ou (2) SENH Wakahujien (1) SENH Ichou-no-sato (1)	Helicopter Ambulance Ambulance Ambulance
Mar. 29	2	0	0	2	Sendai Tokushukai Hospital	The Ambulance of Tokushukai Hospital
Mar. 30	2	0	0	2	Sendai Tokushukai Hospital	The Ambulance of Tokushukai Hospital
Mar. 31	1	0	0	1	Sendai Tokushukai Hospital	The Ambulance of Tokushukai Hospital

紹介状や看護サマリーの準備、患者の荷物の整理、内服薬の準備、家族への連絡と説得の日々が続いた。被災している家族も多く、搬送を承諾してもらうのに時間がかかった。

It took many days to prepare the letters of introduction and nursing summaries to other facilities, to organize patients' baggage, to prepare oral medications, and to inform and persuade patients' families. Many families of our patients were affected, and it took time to get them to accept the transport of those patients.

3. 勤務体制

震災前に予定していた勤務表シフトでは人員を確保するのが難しく、通勤できる看護師は毎日自分の意志で通勤していた。その日の勤務者の中からその日の夜勤者を決定した。ガソリン不足のため、同地区の看護師同士で乗り合わせをしたり、日夜連続して勤務をしたり、それに合わせて勤務表も調整した。通常の夜間勤務になってからも、ほとんどの看護師が日勤後帰宅せず、別室にて仮眠をとり、仕事を続けた。また、道路状況が悪化し運転に危険を伴うため、準夜勤務後は仮眠をとって朝方帰宅という状況であった。副師長のうち1名は、津波と火災で避難先の小学校が孤立してしまい、その後、3月31日まで避難先で救護活動を行った。

3. Our work shift

Having difficulty in securing our personnel for a normal roster shift, which had been scheduled before the earthquake disaster, our nurses who were able to commute were coming to the hospital every day by their own will. Each day, we decided night shift workers from among our day shift workers of that day. As gasoline was running short, the nurses living in the same area were coming together by car, working night and day continuously, and also adjusting the roster depending on the situation. Even after a regular night shift began, most of our nurses did not return home after their day shift, took naps in a separate room and continued to work. As driving was dangerous with worsening road conditions, we were in situation where the nurses of late shifts were returning home in the morning after taking naps after work. One of the two deputy chief nurses of our ward, whose evacuation destination was an elementary school which was isolated by fire and tsunamis, was subsequently conducting relief activities in her refuge until March 31.

4. 食事

廊下の患者ネームに食事内容を表示し配膳しやすいように工夫した。病室内のすべての電気が使用できず、自力摂取や介助の患者には明るいうちに夕食を配膳した。経口摂食困難患者は、栄養課が通常稼働するまで、胃管カテーテルより経管栄養を行った。

4. Meals

We planned to make it easier to serve meals by displaying the contents of meals on patients' nametags on the corridor-side walls. Electricity in all hospital rooms was not

available, so we served supper before dark to patients who could feed themselves and those in need of assistance. Until the Nutrition Division was able to begin its normal operation, our patients who had difficulties in oral ingestion were on tube feeding through gastric tubes.

5. 看護

吸引チューブ不足がし、単回使用できず、口腔・鼻腔からのチューブは1患者1日1本使用と決め、気管内挿管用のチューブはオスバン液にて消毒し、攝子を使用して吸引を行った。常備しているオムツが少なかったため不足は深刻であった。失禁の患者は、医師の許可を得て膀胱留置カテーテルを挿入し、オムツ交換は汚染時のみと最小限の使用にとどめた。数日後に支援物資が届き、オムツ、パットの使用が可能となった。温水も出なかったため清拭は、体拭きシートで対応した。口腔ケアは震災の数日前にサンプルが届いており毎日実施できた。節電のため、エアマットが使用できず、通常以上に褥瘡発生に注意して体位変換を行った。

5. Our Nursing

As the shortage of suction tubes prevented us from going single use, we decided to use one tube per patient per day for use in their oral or nasal cavity, disinfected the tubes of endotracheal intubation with Osvan Solution® [disinfectant solution] and performed aspiration by using tweezers. The shortage of diapers was serious, for the quantity of diapers usually provided was short in supply. With the permission of our doctors, we inserted bladder-indwelling catheters for patients with incontinence and were changing their diapers only when soiled, which could minimize the use of diapers. Relief supplies arrived a few days later, which made it possible to use diapers and pads without restriction. As hot water was not available, we cleaned their bodies with cleaning sheets. We were able to carry out oral care every day as samples of oral care items had arrived a few days before the earthquake. To save power, air mats were not available, so we were repositioning our patients with more care than usual to prevent bedsores.

6. 家族への対応

震災により入院した患者の家族から「もっといい治療はないのか?」「見殺しにするのか?」などと何度も繰り返し訴えられ、十分に看護を行えないジレンマを強く感じながらの対応であった。少ない医療資源の中、出来る限りの治療を行っていたが、納得していただくまでに、何度も医師から説明してもらった。

6. The management of the patients' families

The family members of some patients who had been hospitalized due to the disaster were complaining repeatedly, saying “Can’t you conduct better treatment?”, “Are you attempting to leave them to die?” and so on. We were intensely experiencing the dilemma of not being able to provide sufficient nursing care. Among few medical

resources, we were performing as much treatment as possible. We had our doctors explain our treatment to them many times until they were convinced.

V. 活動内容から見た問題点と課題

1. 入院患者および家族の安全確認

2006年作成の集団災害発生時初期対応の手引き(病棟用)がナースステーションに掲示されており、また震災当日勤務していた看護師は経験豊富であり、刻々と変わる状況に対応はできた。しかし、人数の少ない時間帯、経験年数の少ない看護師だけの人員構成の場合もあり、今後、病棟独自の震災に対する災害時マニュアルの作成が必要であると同時に、看護師全員が種々の災害において対応できるように、さまざまな場面を想定したシミュレーションが必要と思われた。また当科の入院患者の95%は担送護送患者であり、安全に移送するための人員確保が必要であると考えられる。夜間付き添い家族については把握できているが、日中のみの家族の付き添いや見舞客も多く、災害による建物倒壊の際には人数の把握や安否の確認は難しい。

V. The problems and challenges in terms of our activities

1. The safety confirmation of our inpatients and their families

The manual of initial response at the occurrence of a great disaster (for each hospital ward), which had been created in 2006, had been posted on the wall of our nurse station, and our nurses working on the day of the earthquake were experienced, which allowed us to respond to a situation that was changing every minute. Sometimes, however, we had some periods of time with insufficient staff or other occasions with only inexperienced staff members. In the future, it will be necessary to make the disaster manual of our own ward in preparation for an earthquake disaster to come. At the same time, it will also be necessary to perform a simulation assuming various scenarios so that all nurses can respond to various disasters. In addition, as 95% of the hospitalized patients in our ward are stretcher/escort-patients, it would be necessary to secure staff members to safely transfer patients. While we can figure out the family members of our patients attending at night, we also have a lot of attending family members and visitors only during the day, which makes it difficult to grasp the number of people and to check their safety in case of building collapse due to a disaster.

2. カルテの活用、トリアージタグの活用

様々な疾患の患者が入院したため混乱が生じた。災害時独自のカルテと入院部屋の確保が必要であると思われる。トリアージタグの取り扱いや活用方法も再認識する必要がある。

2. The practical use of medical records and triage tags

The hospitalization of patients with various diseases created disorder. It would be necessary to have medical records specific to the time of disaster and to secure hospital rooms. We should confirm again how to handle and make good use of triage

tags.

3. 環境整備

当科は正面玄関から近く、人の出入りが多かったため、汚泥による、廊下、病室、トイレなどの汚れが深刻だった。掃いた片端から人が出入りし汚れていたため、時間を見つけて、看護師や看護助手、また付き添い家族が見かねて掃除していた。環境整備の視点からも玄関での泥落としなどの工夫も必要である。

3. Maintaining the environment of our hospital ward

As our ward is close to the front entrance of the hospital, with a lot of visitors coming and going, the corridor, the hospital rooms and the lavatories of our ward were severely soiled with sludge. As soon as we swept, people would walk in and out, making the environment dirty. Nurses, nursing assistants as well as attending family members who were unable to remain spectators were finding time to clean. Some devices such as doormats for dropping mud at the entrance would also be necessary from the point of view of maintaining the environment.

4. 勤務体制の整備・調整

地震や津波による被害にあった自宅の片づけや、行方不明の家族の捜索をしながらの勤務、さらに、避難所や避難宅から通う看護師もあり、疲労は大きかった。一定の目途が着いた時点で心身共に休めるよう、連続した休暇が取れる勤務体制が必要であると思われた。

4. The maintenance and adjustment of the work shift system

Some staff members had to clean up their homes, which had been damaged by the earthquake and tsunami, others had to work in shifts while trying to find their missing family members, and furthermore, others were coming from their shelters or evacuating houses; so the exhaustion of our nurses was critical. It would be necessary to have a work system enabling them to take continuous days off to allow them to refresh their body and mind once certain goals are achieved.

5. 看護

褥瘡については、注意深く体位変換を行っていたが、仙骨部の発赤や炎症徴候のみられる患者が2名いた。電力が復旧したあとすぐにエアマットを使用し、褥瘡が悪化することなく経過した。当科では、敷布団がなくマットで調整しているため、褥瘡の状況にあわせたマットの種類を選択する必要があった。

5. Our Nursing

For pressure ulcers, our nurses were repositioning patients carefully, but we had two patients with signs of redness or inflammation on their sacral regions. We used air mats for them immediately after power restoration, and their pressure sores were unchanged without worsening. As we had no mattresses and used mats to make

adjustment in our ward, it was necessary to select the type of mat to match the condition of pressure ulcers.

6. 看護体制

緊急災害時は柔軟な看護体制を作り、業務分担することにより効率的なケアの提供につなげていく必要がある。

6. Nursing system

It is necessary to create a flexible nursing system and to share services in case of an urgent disaster in order to provide efficient care.

VI. 『もし、災害発生時間が夜間などの人員の少ない時だったら...』というアンケート調査より

- 夜勤スタッフは3人と少なく、自分の身の安全を守りながら、患者を安全に避難させることができるか不安だ。
- 夜間の道路事情を考えると、人員確保は難しい。しかしながら、夜勤3人で患者の移動や安否確認、トリアージされて新たに入院してくる患者の受け入れなどの対応も難しいと思う。
- 自宅や家族を心配しながら働くスタッフの精神的ストレスや不安は、日中に比べ夜間の方が強いと思う。
- 冷静に対応できないかもしれない。

などの回答があげられ、看護師の不安や精神的ストレスが大きい事もわかった。院内のマニュアルをより現実的なものにすること、また夜間の院内・院外の応援体制を築くことが今後の課題かもしれない。

VI. From the questionnaire survey “If the disaster would occur when we are short of hands, such as at night ...”

- There are only a small number of night shift nurses, three to be exact. I am anxious about whether we would be able to safely evacuate patients while protecting our own safety.
 - Considering road conditions at night, staffing would be difficult. However, I think it would also be difficult with only three night members to transfer patients, confirm their safety and correspond to things such as accepting incoming patients to the hospital after triage.
 - I think the mental stress and anxiety of our staff working at night while worrying about their homes and families would be stronger than that of those working during the day.
 - I have no confidence that I can respond calmly
- was an answer to the above. We found that anxiety and mental stress levels were high. It might be our challenge for the future to make the disaster manual of our hospital more realistic and build a night-support system both inside and outside of the hospital.

終わりに

三陸沖地震は、高確率で発生すると予測されていたが、今回私たちは、誰もが経験したことの無い、想定外の大規模な災害を経験した。地震直後の患者の安全を守るための患者移動、市街地の火事による人工呼吸器装着患者の人力による転棟、患者搬送など、刻々と加わる状況に迷いながらも冷静に対応でき、混乱する患者もいなかった。院内訓練はしていたものの、当科独自の災害に対する訓練は行われていなかった。大災害では、看護師一人一人の冷静な判断力が必要とされ、より迅速な対応をするためには、病棟の災害マニュアルのさらなる整備と、全看護師が状況に沿った対応ができるように、シミュレーションを繰り返し行う必要があると考える。災害時は通信手段も限られており、院内の連絡体制の強化が必要である。震災にあたって災害医療を経験できたことは貴重であり、見えてきた課題を克服し経験から得たものを今後の看護に生かしていきたい。

In conclusion

The Sanriku-Oki Earthquake had been expected to occur with high probability, but this was an unprecedented major disaster that nobody has ever experienced. In spite of being unable to make a quick decisions in varying situations, we were able to respond calmly: transferring our patients in order to protect their safety immediately after the earthquake, physically transferring the ventilated patient to another building after the occurrence of the fire in the city, transferring other patients and more. No patients were confused. We had previously trained in our hospital, but our own disaster training in the ward had not been performed. In a large disaster, the calm judgment of every nurse is needed. In order to make quicker responses, it should be noted that we need to develop our ward's own disaster manual and repeatedly perform simulations so that every nurse can respond to such a situation. Communication means would also be limited in a disaster, which demands the reinforcement of our in-hospital communication system. It is valuable that we have experienced the disaster medical care in the earthquake disaster. We would like to overcome the challenges that have come into our view and to make use of what we have obtained from the experiences for nursing of the future.

危機的状況の中でとった私たちの災害看護

－ 33名の入院患者との避難を経験して －

2階西病棟

The Ward Department

Our disaster nursing in a critical situation

- The experience of evacuating our thirty-three inpatients -

The 2nd Floor West Ward

I. はじめに

平成23年3月11日14:46 東日本を襲った未曾有の大地震は気仙沼市では震度6弱、津波が到達したのは15:30頃であった。その災害発生直後から、私たち病棟のスタッフは患者の安全確保に努め、自家発電の停止や備蓄物資の枯渇など度重なる悪条件の中、さらに自ら被災しながらも可能な限りの看護活動を展開した。

I. Introduction

The unprecedented major earthquake, which struck East Japan at 14:46 on March 11, 2011, registered a lower 6 on the Japanese seismic intensity scale (out of 7) in Kesennuma, and tsunami waves arrived around 15:30. Just after the occurrence of the disaster, our ward staff were making efforts to ensure the safety of our patients; even though we were affected, we were coordinating as many nursing activities as possible in the rapidly worsening conditions such as the shutoff of our in-house power generation and the depletion of our stockpiles.

II. 基礎データ

2階西病棟は病床数55床、医師6名、看護師24名、看護助手2名の外科病棟である。当日は日勤スタッフ13名で幸いにも当日は手術がなく、前日手術した患者2名(閉塞性動脈硬化症で下肢切断術、胆のう摘出術)、腹部大動脈瘤破裂手術後で人工呼吸器を離脱した患者1名、モニタリング5名、酸素療法中7名、骨盤牽引1名含む担送15名、護送7名、独歩11名の計33名の患者がいた。

II. Basic data

The 2nd Floor West Ward is a surgical ward of 55 hospital beds staffed by 6 doctors, 24 nurses and 2 nursing assistants. That day, there were 13 nurses on the day shift and fortunately there were no surgeries booked. We had 15 stretcher-patients, 7

escort-patients and 11 ambulatory patients, 33 in total, including 2 patients who had had an operation the day before (one operation was lower limb amputation due to arteriosclerosis obliterans, and the other was cholecystectomy), one patient having been removed off a ventilator after the surgery of an abdominal aortic aneurysm rupture, five under vital sign monitoring, seven on oxygen therapy and one on pelvic traction.

Ⅲ.活動背景

1. 3月11日(金)地震発生

地震発生直後2階西病棟看護師詰所の被害状況としては、院内停電、詰所のバインダーが落下した程度であった。しかし、病棟の廊下は天井から滝のように水漏れが起きていたり、壁に亀裂が入ったりという状況で揺れの大きさを目で認識することができた。

Ⅲ. The background of our activities

1. The occurrence of the earthquake on March 11 (Friday)

The state of damage in the 2nd Floor West Ward Nurse Station immediately after the occurrence of the earthquake was to the extent that hospital power failed and some binders fell off from shelves in the station. However, the corridor of the ward had water leaking like a waterfall from the ceiling, and I was able to visually recognize the magnitude of the shaking when seeing the cracks in the walls.

地震発生時は、午後の検温後のカルテ記載を行っている時間帯であった。看護師はそれぞれ、詰所隣の重症患者の所で付き添ったり、また検査終了し帰室したばかりの患者を揺れの間ストレッチャーから落ちないように抱え込んだ。ベッドサイドにいる家族をイスに座らせるなど患者・家族の安全を守った。揺れがおさまった後、スタッフは他の患者、病室の被災状況確認へと急いだ。また、避難経路を確保するため窓を開けたり、湯沸しのガス栓を閉めたり二次災害の予防と安全確保に努めた。水漏れ場所に対してはバケツを置き、布団で吸水する処置を行った。

The time of the occurrence of the earthquake was during the time when we were writing medical records after taking patients' temperature in the afternoon. Some nurses were attending critically ill patients in the room next to the nurse station, and others were holding up a patient who had just come back to their hospital room after medical examination so that the patient would not fall down from a stretcher while the shaking occurred. We had the family members of our patients near their beds sit on chairs to keep patients and family members safe. After the shaking calmed down, our staff members rushed to confirm the situation of the hospital rooms and patients. In addition, we made efforts to prevent secondary disasters and ensured safety by opening windows and closing gas taps for boiling water and securing evacuation routes. They placed buckets under leakage and water was absorbed with a futon (Japanese bedding)

震災直後、外では防災無線の大津波警報のサイレンが鳴り響いたが、電話・PHSが使えず通信機能が断たれ、情報が伝達できなかった。病棟内のラジオや看護師自身の携帯のワンセグを使い情報収集した。日勤スタッフは患者の安全確認後、詰所へ戻り避難指示を待った。

Immediately after the earthquake disaster, outside the hospital, warning sirens of a great tsunami from the disaster preparedness center were blazing, but the communication function within the hospital was cut off because of the unavailability of phones and PHS's, so we could not communicate with each other. We collected information via radio in the ward or by using one-segment channels of our nurses' personal mobile phones. After confirming the safety of our patients, the day shift staff returned to the nurse station and was waiting for evacuation instructions.

2.地震直後

外科医師、看護師が病棟へ集合した。ラジオで情報収集する中、スタッフが外の異変に気づいた。病院坂の下の道路に、ヘドロ混じりの海水と市場や水産加工倉庫から流れ出た大量の魚、自動車などが流れ着いていた。高層階への避難が必要と考えられ医師より患者避難の指示が出され、詰所脇の面会ホールに歩行可能な患者を集めて待機した。停電に伴い寒さも増してきたため、待機中は布団や毛布を2～3人で使い患者の保温に役立てた。骨盤牽引中であったり、術後2～3日目、人工呼吸器離脱直後の患者をはじめとする担送患者は、詰所の隣の重症患者観察室にベッドで移動した。

2. Immediately after the earthquake

Our surgeons and nurses gathered to the ward. While collecting information from the radio, some staff members became aware of the changes occurring outside. Seawater mixed with sludge, a large amount of things such as fish were flowing out of the fish market and the warehouses of fish-processing companies, and automobiles had drifted all the way to roads around the foot of the slope of our hospital. It was considered necessary for us to evacuate to upper floors, and our doctors issued instructions to evacuate our patients. We got our ambulatory patients together at a meeting hall beside the nurse station and waited together. Since the cold was also becoming more apparent due to the power failure, we had patients share a futon and blanket together with two or three others to keep them warm while waiting. We transferred the stretcher-patients including one under pelvic traction, some on the 2nd or 3rd day after surgery and another immediately after withdrawing a ventilator with their beds into our observation room for critically ill patients beside the nurse station.

その後は避難へ向けて必要となりそうな物品の準備を行い、速やかな避難、移動の障害になると思われた持続点滴を医師の指示のもと抜去し、中心静脈栄養カテーテルはヘパロックを行った。重症患者観察室の患者に関しては、継続した観察と薬剤投与が必要だった

ために、点滴類の抜針は行わず継続された。また、患者の名簿作成と、ガムテープで名札を作成し病衣に貼り付け、ひと目で確認できるように工夫した。

Thereafter, we made the preparation of articles that might become necessary for evacuation, and removed continuous drip infusions, which were likely to become an obstacle to the rapid evacuation under the doctors' instructions. Then we carried out the heparin lock of their central venous nutrition catheters. For critically ill patients in the observation room, their infusion was continued without the withdrawal of needles, because the maintenance of observation and drug administration were necessary. In addition, we wrote up a list of our inpatients, made nametags with tape and pasted them on their hospital gowns; we devised them so we could confirm our patients at a glance.

3. 全棟避難開始

2つの経路で避難開始となる。歩行可能な患者、および車椅子移送患者は、3～4人のスタッフが車椅子を持ち上げて階段を使用し耐震構造のある建物の3階北病棟、北側外来ホールへと移動した。わずかな照明で薄暗いホールは来院していた患者と避難してきた一般市民であふれていたが誰も取り乱すことなく静かだった。看護師の中には、避難してきた知人から、自宅が流されたことを聞きショックを受けながらも努めて冷静に業務を遂行している者もいた。

重症患者観察室の担送患者は、レントゲン室や他部署の多くのスタッフの協力により病室のベランダから病院脇の坂を使ってマットレスごと4階西病棟へ移動した。また、ベランダからの移動に際しては近くの住民や高台へと避難してきていた市民の協力も頂いた。入院患者は安全な病棟へ避難した。必要物品を持参しそれぞれの避難先に所在確認のための避難患者のリストを表示した。2階西スタッフは、避難先に分かれて看護を継続した。



避難経路となった病院脇の坂

A slope along the side of our hospital used as an escape route

3. All the ward started to evacuate

The evacuation commenced in two routes. Ambulatory patients and wheelchair-patients were lifted together with their wheelchair by 3 to 4 staff members, going upstairs, and then transferred to the 3rd North Ward and the North Outpatient Hall, which were located in the building with earthquake-resistant structure. The dimly lit hall was full of patients having come to the hospital and many citizens having evacuated, but it was quiet with nobody getting upset. Some of our nurses, who were shocked to hear the news of their houses having been swept away by tsunami from their evacuated acquaintances, were still striving to carry out their work

calmly.

Each stretcher-patient in the observation room for critically ill patients were moved together with each mattress from the veranda of the hospital through the slope on the side of the hospital to the 4th West Ward with the cooperation of many staff members of other departments including the X-ray department. When we were transporting the patients from the veranda, we received voluntary cooperation of nearby residents and citizens who had evacuated to higher ground. Inpatients were evacuated to safer wards. We got the patients to bring their own necessities themselves and posted the list of the evacuating patients to confirm their location at each evacuation site. The staff members of the 2nd West Ward were divided into each location and continued nursing.

4. 重症患者受け入れ準備

患者全てを避難させたあと 2 階西病棟は、震災による重症患者収容のための体制をとることになり、自家発電により電源が確保できる重症患者観察室へ人工呼吸器を 4 台配置した。また余震によるガラス飛散防止のため、窓にガムテープを貼りつけ、重症患者受け入れの準備を行い、患者のトリアージ移送も行った。



4. Our preparation for accepting critically ill patients

After evacuating all the patients in our ward, the 2nd West Ward was set up to accommodate critically ill patients affected by the earthquake and four ventilators were placed in the critically ill patient observation room, where we were able to secure private power generation. Tape was pasted on every windowpane to prevent glass scattering from aftershocks, preparations were made for accepting critically ill patients and triage-transfer of patients was carried out.

5. 避難先から帰棟開始

避難先が数ヶ所に及ぶため看護師配置の継続が困難になり、患者 22 名を 2 階西病棟に戻すことになった。手術室看護師の応援も得て、詰所近くの大部屋 3 室の床に 22 名分のマットレスとシーツを敷き患者を戻した。さらに医師指示により、避難時に点滴ラインを抜去した患者の点滴を再開。スタッフは各々の状況により帰宅または病棟に残った。帰宅したスタッフの中にはおにぎりの差し入れや衣類を持参するなど前方支援を行った者もいた。また予測困難な状況が長期化すると考え、残ったスタッフが当面の食糧の確保を行った。

他病棟に避難した患者のため、看護師計 8 名で各病棟 4 名ずつ 2~3 時間交代のシフトを組んだ。中には家族の安否・家の被災状況を確認できないスタッフもいたが、少ない毛布

と衣類の重ね着で寒さをしのぎながら、交代で狭い休憩室のソファや床で仮眠をとり勤務にあたった。

その後、状況が理解できず大声や暴力などの強い不穏症状が現れた 2 名の患者を、2 階西病棟に急遽戻した。

5. The commencement of bringing back our patients from their place of evacuation to our ward

It was decided that we should return 22 patients to the 2nd West Ward because maintaining nurse distribution became difficult as evacuation sites were extending to several places. With the support of the operating room nurses, we spread mattresses and sheets for 22 patients on the floor of three large rooms near our nurse station and brought the patients back to our ward. Furthermore, we resumed, under our doctors' instructions, infusions to patients who had their infusion lines removed during evacuation. Our staff members either went home or remained in the ward depending on their situation. Some staff members who had been able to go home, carried out backup logistic support such as gifts of rice balls and clothes. Also, assuming the continuation of our unpredictable situation, our remaining staff tried to reserve immediate food.

For the patients who took refuge in the other wards, we set up 2-3 hour work shifts by 4 nurses for each ward, 8 nurses in total. Some members had not been able to confirm the safety of their families and the situation of their houses. While we were overcoming the cold by using the few available blankets or by layering garments, we were taking naps in turns on the floor and the sofas of our small resting room, and kept working.

After that, two patients who could not grasp the situation showed strong restlessness such as by raising their voice and being violent so we urgently returned them to the 2nd floor west ward.

6. 3 月 12 日(土) 全員帰棟、トリアージ患者の受け入れ

深夜帯になると 5 名の入院があった。全員が津波による溺水で呼吸器障害があり酸素投与が必要な重症患者であった。

通常勤務の 3 名では手が足らず、病棟に残っていたスタッフ総勢 14 名でオムツ交換や体位交換・食事介助を行った。他病棟へ避難していた患者のケアもそれぞれ担当時間を決め交替で行った。

朝にはすべての患者が帰棟した。

その後、トリアージ患者受け入れのため多くのベッドが必要になり、入院受け入れを準備し、日勤帯に入って 8 名のトリアージ入院があった。

6. On March 12 (Sat), all our patients came back to the ward, and we also accepted triage-patients

Five patients were hospitalized during the midnight shift of that day. They all had respiratory failure due to drowning in the tsunami and were all critically ill patients in need of oxygen administration.

We were short of hands with just the three nurses doing regular duties, so the 14 remaining staff members in the ward at the time, carried out diaper changes, repositioning of patients and meal assistance. We also decided on people in charge of each ward and were alternatively caring for those patients who had been evacuated to the other wards.

All patients came back by morning (on March 12, Sat).

After that, many beds were required for accepting triage-patients, and we prepared for incoming patients. Eight triage-patients were hospitalized during the day shift of the day.

7. 3 月 15 日(火)再び避難準備とその後

停電や物資の不足に加え重症患者が多く、ヘルプ体制を継続していた。15 日深夜、市内の火災が風向きでガスタンクに延焼の危険性があったため、避難準備指示が出た。自家発電が切れ暗闇の中避難に備え患者・家族に状況を説明した。看護師自身も不測の事態に備え腕にペンで名前を書く者もいた。幸いにも延焼をのがれ避難の必要はなくなった。しかし、重症患者観察室の患者が急変し挿管され東京 DMAT のヘリで東北大学病院へ搬送された。その日の午後より東北電力から通電があり病院機能が徐々に回復した。16 日になると震災後初の緊急全麻手術が行われるようになった。

19 日は後方支援の大学病院より患者受け入れの申し出があり、短時間で重症患者 9 名のサマリーを作成したのちヘリで搬送が行われた。20 日以降肺炎や褥瘡悪化、低栄養による入院患者の増加が見られた。

7. March 15 (Tue), our preparation for the second evacuation and what happened thereafter

In addition to power outages and lack of supplies, there were many seriously ill patients, so the help system continued. At midnight on March 15, there was the risk depending on the wind direction, of fire advancing in the city toward the gas tanks. The instruction of preparation for hospital evacuation was issued. In the darkness caused by the failure of private power generation, we explained the situation to our patients and their family members about the evacuation. Some nurses themselves wrote their name with a pen on their arm in preparation of unexpected events. We were fortunately spared of the fire spreading and no longer needed to evacuate. However, the condition of a patient in the observation room for critically ill patients suddenly changed, and the patient was intubated and transported to Tohoku University Hospital by the helicopter of the Tokyo DMAT. That afternoon, the Tohoku Electric Power Company restored electricity to our hospital, and its function was being

recovered gradually. On March 16, an emergency operation under general anesthesia became available for the first time after the earthquake.

On March 19, we received an offer to accept patients from Tohoku University Hospital, which was in charge of our backup logistic support. After we swiftly created the summaries of nine critically ill patients, their transport was carried out by helicopter. There was an increase in the number of hospitalized patients with pneumonia, worsening of pressure ulcers and malnutrition after March 20.

8.工夫した点

- 食事について
 - ・ 食事のトレイ・割りばしカップの再利用
 - ・ ペットボトルのふたに穴をあけストローを通し、吸いのみにした
 - ・ 配膳用名簿を作成し、活用した
- 医療・看護用品の節約
 - ・ 酒精綿を 1/4 までカットし節約
 - ・ 抗生剤の点滴セットは一日 1 セット
 - ・ オムツ交換は最小限にした
 - ・ 陰部清拭は布を切って代用（バスタオル・シーツ・白衣など）
 - ・ ハルン捨てにポリタンク使用
 - ・ シーツが不足し布団カバーを使用
- 水の節約
 - ・ トイレに節水の表示
 - ・ ペーパータオルの使用は避け、布タオル使用
- その他
 - ・ 被災した患者・スタッフのために衣類の提供
 - ・ 照明不足で常夜灯を所々に設置

8. What we devised

- Concerning meals
 - ・ Re-use of disposable food trays, chopsticks and cups
 - ・ Making a straw hole in the lid of a bottle, which was used as a feeding bottle
 - ・ Creating and using a roster for serving meals
- Saving medical and nursing supplies
 - ・ Sheets of alcohol cotton were cut into a fourth of their original size
 - ・ Using only one infusion set per day for antibiotic administration
 - ・ Minimizing the frequency of diaper changes
 - ・ Substituting cut-clothes for genital area cleaning (such as bath towels, sheets and white gowns)
 - ・ Using plastic tanks as urine-disposal tanks
 - ・ Using futon (Japanese-style mattresses) 's covers to make sheets
- Saving water

- ・ posting posters about ‘Water-Saving’ in toilets
- ・ avoiding the use of paper towels and using cloth-towels instead
- Others
 - ・ providing clothes for affected patients and staff members
 - ・ placing nightlights in some places because of lighting shortages

IV. 今後の課題

震災の発生直後、避難誘導するにあたり、色々な部署の協力を得ることができた。災害時には地域や職場のつながりがとても大切であると感じた。また、停電し電話・PHSなど通信機能が断たれ、避難準備情報が不足したため非常通信手段の確保の重要性を感じた。さらに災害時の物品や食料の備蓄、リストバンドの導入、帰宅困難者の休憩所設置など避難時の体制を整え、日ごろから防災マニュアルを認識し訓練を行い防災減災の意識を高めおくべきである。しかし、夜間に災害が発生したり、今回のようにマンパワーが得られない場合や建物の倒壊などさらに過酷な事態に陥った時など、その時々状況下で柔軟に活動内容を考え臨機応変に対応することが災害時の看護に重要であると考えた。

IV. Challenges for the future

Immediately after the earthquake disaster occurred, upon our evacuation guidance, we were able to have various departments cooperate in our hospital. We felt it very important for us to have ties among workplaces and the region in the event of a disaster. In addition, as power outages made communication functions such as telephones and PHS's unusable, and the information of evacuation preparation was insufficient, we felt the importance of securing means of emergency communication. Furthermore, we should adjust the system of evacuation such as by stockpiling goods and food in the case of a disaster, introducing wristbands for patient identification and setting up some resting rooms for people who have trouble returning home. We should also reflect on the disaster preparedness manual on a daily basis, repeat trainings and keep a high awareness regarding disaster preparedness and measures for the reduction of damage caused by a disaster. We recognize that it is important for nurses to think flexibly about how to respond and adapt to the situation: such as, in the event of a disaster at night, when manpower cannot be obtained like this time round, or when a more severe situation such as the collapse of a building occurs.

V. おわりに

私たちが経験したこの未曾有の災害を記録に残し、常に防災意識を維持し災害看護に取り入れていかなければならないと思った。

V. In conclusion

We should keep record of this unprecedented disaster that we have experienced, always be aware of disaster preparedness and incorporate it into disaster nursing.

混合病棟における震災時の対応

－ 災害時の安全な避難と事後の災害対策に必要なこと －

3 階東病棟

The Ward Department

Our response in the Mixed Ward around the earthquake disaster

- What is needed for safe evacuation of a disaster
and disaster recovery after the occurrence -

The 3rd Floor East Ward

はじめに

3 階東病棟(以下当病棟と記す)は産婦人科、小児科、眼科の 3 科混合病棟である。大震災発生時、当病棟には 10 名の新生児、妊婦、分娩後間もない褥婦や高齢者などあわせて 27 名の患者がいた。震災当日、耐震面から病棟にとどまることは危険であると判断し、患者・スタッフ全員が産婦人科外来へ安全に避難し、一晩外来で過ごした。震災当日を中心に状況と対応を振り返り、その中から今後の課題が見えてきた。

Introduction

The 3rd Floor East Ward (referred to as “our ward”, hereafter) is a mixed ward of obstetrics and gynecology, pediatrics and ophthalmology. At the occurrence of the great earthquake disaster, our ward had 27 patients in total including 10 newborn babies, pregnant women, women shortly after delivery and the elderly. On the day of the earthquake, made a judgement call that it was too dangerous to stay in the ward in light of the earthquake-resistance capacity; all patients and our staff evacuated safely to the outpatient clinic of obstetrics and gynecology, and spent the night there. We looked back at the situation and our response mainly around the day of the earthquake, from which our challenges for the future were coming to the fore.

地震発生時の状況

【勤務者】 10 名 師長、産婦人科チーム 4 名(助産師)、小児眼科チーム 5 名

【患者情報】

* 患者数 27 名 (このうち新生児は含まず)

*** 救護区分** 担送: 2 名 護送: 6 名 独歩: 19 名 (担送は分娩直後の褥婦 1 名と婦人科の手術後で膀胱留置カテーテルを留置しており離床していない患者 1 名)

<産婦人科>

17 名 (妊婦 2 名、褥婦 10 名、婦人科 4 名)

新生児: 10 名 (新生児室 4 名 母児同室中 5 名 分娩室 1 名)

分娩 2 件 ①自然分娩 (深夜帯 3 時 26 分) ②自然分娩 (日勤帯 14 時 01 分)

地震発生時は点滴中の褥婦 1 名が分娩室にいた。

重症者: 帝王切開手術後 1 日目の患者 1 名、輸液ポンプ使用 2 名 (切迫早産の妊婦)

<小児科> 0 名

<眼科> 7 名 (硝子体手術後患者 2 名、白内障手術後患者 5 名)

<内科> 3 名

The situation at the occurrence of the earthquake

[Staff] 10 nurses: a head nurse, 4 nurses of the obstetrics and gynecology team (including midwives) and 5 nurses of the pediatrics and ophthalmology team

[Patient information]

- **The number of patients:** 27 (not including newborns)

- **Relief Division:** 2 stretcher patients, 6 escort patients and 19 ambulatory patients (One stretcher patient was a woman who had just delivered and the other was a gynecological patient having been operated on, still lying on a bed with an indwelling bladder catheter being placed)

<Obstetrics and Gynecology>

17 patients (2 pregnant women, 10 women shortly after delivery and 4 gynecology patients)

Newborns: 10 babies (4 in the room for newborns, 5 in each mother's room with its mother and one in the delivery room)

Delivery: 2 natural childbirths (at 3:26 in the late-night shift period and at 14:01 in the day shift period)

At the occurrence of the earthquake, there was a woman receiving infusion immediately after delivery in the delivery room.

Seriously ill patients: one on the first day after the surgery of Caesarean section, two on infusion pump use (pregnant women with urgent premature delivery)

<Pediatrics> 0

<Ophthalmology> 7 patients (2 patients after vitreous surgery and 5 patients after cataract surgery)

<Internal Medicine> 3 patients

病棟の被害状況

- 新生児室の壁、新生児室向かいトイレ、廊下の壁に大きなひび割れ

- プレイルーム側トイレ前に水漏れがおこり、廊下・トイレ・リネン室・外来点滴部屋が水浸しとなった
- 中央トイレ入り口：両側の壁落下、ドアの開閉ができなくなる
- 分娩室：時計が落下
- 小児外来点滴部屋：窓側の壁が剥がれ落ちる。外来点滴部屋は今現在でも使用禁止中。また、プレイルーム側のトイレが立ち入り禁止となる。

The damage situation of our hospital ward

- Large cracks in the walls of a newborn nursery, a washroom on the opposite side and the hallway
- Water leakage occurred in front of a washroom on the side of a playroom, so the hallway, the washrooms, a linen room and an outpatient infusion room became flooded.
- The entrance of the central washroom: the walls of both sides had collapsed, preventing us from opening and closing the door.
- The delivery room: a clock had fallen down.
- The pediatric outpatient infusion room: the wall of the window side had fallen. The outpatient infusion room was unavailable. In addition, it was prohibited to enter the washroom on the side of the playroom.

I. 震災当日

1. 揺れが起きたときの様子（各場所にいたスタッフからの証言）

【Ns ステーション】

パソコンやプリンターがデスクごと中央へ動き、棚の本などが落下した。身の安全を確保した後、帝王切開手術後の患者の病室に走った。点滴スタンドが倒れないように支え、揺れがおさまるまで声がけをした。その後、Ns ステーションに戻り、ヘルメットをかぶり各部屋を巡回、患者確認と火の元の確認を行い、初期対応に努めた。靴、最低限の貴重品、防寒着を着用させ、避難指示がでるまで部屋で待つよう話した。リーダーは救護区分などの患者把握につとめ、いつでも避難できるよう準備した。病棟外にいたスタッフも、すぐに病棟に駆け付けた。

I. On the day of the earthquake disaster

1. The occurrence of the shaking (The testimonies from our staff members in each location)

[The Nurse Station]

Some personal computers and printers moved to the center of the room together with desks, and things such as some books on the shelves had fallen off. After securing our safety, we ran into the hospital room of our patient after Caesarean surgery. While supporting the infusion stand, we were speaking to the patient until the shaking subsided. Then, we came back to the nurse station and put on a helmet, made rounds to each room, confirmed the status of our patients and fires, and worked on initial

measures. We had our patients put on their shoes, bring minimum valuable goods and winter clothes, and told them to wait in each room until evacuation instructions were issued. Each leader tried to grasp the situation of our patients such as relief classification and prepared for urgent evacuation. Some of our staff members, who had been outside of the ward, were also rushing to the ward

【分娩室】

分娩直後の褥婦が分娩台で臥床し、授乳していたのを介助していた。そこで大きな揺れがあり、壁の時計が落下。分娩室内の机やカート、機械がすぐ傍まで移動してきた。天井の無影灯が褥婦の体の上に移動してきたので、落下物から守るため、褥婦と児の上に覆いかぶさり、揺れがおさまるのを待った。

[The Delivery Room]

I was assisting a woman lying on a delivery bed who had just delivered and was breast-feeding her baby. At that moment, there were big swings, and a clock on a wall fell down. A desk, carts and devices in the delivery room were edging towards us. An astral lamp on the ceiling was moving above her body, so I stooped over her and her baby in order to protect them from falling objects and was waiting for the shaking to subside.

【新生児室】

新生児は 10 名おり、6 名の児は母児同室中で母親のもとにいた。新生児室には 4 名の新生児がおり、すぐに新生児室近くにいたスタッフも駆けつけ、スタッフ 4 名で一人ひとり新生児のベッドを押さえ、新生児の安全確保に努めた。揺れがおさまり、母親の元へ預け、病室での待機を指示した。

[The Newborn Unit]

There were 10 newborns, and 6 were with their mother in the same room. The 4 other newborns were in the Newborn Unit. The staff members nearby rushed to the room, and each of the 4 members held each bed of the newborns to try to secure their safety. The shaking subsided, and we left them to their mother and instructed them to wait in the hospital room.

2. 外来へ避難

認知症や自立歩行できない護送の患者は車椅子で面会ホールに集めた。他の患者には防寒を指示し、貴重品を身につけ、部屋で待機してもらい、いつでも避難できるよう準備した。その間にも大きな余震が頻繁に続き、揺れのたびに不安にならないよう患者に声をかけた。しかし、情報がなく私たち自身も不安な気持ちであった。避難の際、患者確認ができるよう、ガムテープに名前を書き、衣服に貼った。また医師指示の元に点滴を止められる患者は抜針した。水漏れのあった場

所では、スタッフ数名が水をかき出す作業をしているうちに津波が来るのがみえた。他病棟のスタッフや患者が新病棟へ避難していることを知り、院内放送などの明確な避難命令はなかったが当病棟は旧病棟であり、耐震面から病棟にいることは危険であると考え、新病棟にある産婦人科外来へ避難することとなった。担送患者はストレッチャーで、護送患者は車椅子で移動し、再び、外来避難後に患者の点呼を行った。停電のために病棟は暗く、看護が困難であると判断し、病棟にあるだけのマットレスや毛布などを搬入し、翌朝まで産婦人科外来にとどまることにした。余震は続いていたが、患者・スタッフとも全員が翌朝 6 時頃病棟へ戻った。



避難した産婦人科外来

The outpatient clinic of the obstetrics and gynecology where we kept evacuation

2. Evacuation to the outpatient clinics

We gathered our dementia patients and escort patients who were unable to walk by themselves, using wheelchairs in the meeting room. We instructed the other patients to protect themselves against the cold, bring their valuables and wait in their own rooms. We made preparations for them to evacuate at any time. In the meantime, large, frequent aftershocks continued, and we asked patients not to be alarmed at every shake. However, we were also feeling uneasy, because we couldn't get any information. To identify our patients during the evacuation, we wrote their names on pieces of packing tape and stuck them on each patient's clothes. We removed the needles of infusion from patients whose infusion could be stopped under the doctors' instructions. While a few staff members were scooping out water at a water-leakage, they could see a tsunami drawing near. Knowing that patients and the staff members of other wards had evacuated to the new wards, we had no clear evacuation instructions through the in-hospital broadcasting. Our ward was in the deteriorated building and risky to be in during an earthquake, which made us decide for ourselves to evacuate to the outpatient clinic of obstetrics and gynecology in the newer building. The stretcher-patients were transferred on stretchers and the escort-patients in wheelchairs. After that, we did a roll call again. The power outage made the ward dark, which made nursing difficult to do; we carried as many blankets and mattresses as we had in our ward, and decided to stay there until the next morning. The aftershocks were continuing, but both patients and staff members went back to the ward around 6:00 in the next morning.

【外来避難中の様子】

<産婦人科>

① 分娩

分娩セットや救急カートを運び、分娩ができるよう準備した。幸い、この夜の分娩はなかった。

② 妊婦

切迫早産の治療中でリトドリン塩酸塩(ウテメリン)点滴をしていた患者は医師の指示により、抜針できる人は抜針した。2名は輸液ポンプを使用していたため、非常電源につなぎ、診察室のベッドに休ませた。安静が必要でトイレには車椅子で送り、ポータブルトイレを利用した。

[The situation of our evacuation in the outpatient clinic]

<Obstetrics and Gynecology>

1) Delivery

We carried some delivery sets and an emergency cart to prepare for delivery. Fortunately, we had no deliveries that evening.

2) Pregnant women

Under the doctors' instructions, among our patients who were receiving the infusions of ritodrine hydrochloride (Utemerin®: uterus smooth muscle relaxant) during the treatment of preterm labor, we removed infusion needles from those who could have them removed. Since two of them were using an infusion pump, we connected them to the emergency power supply and had them rest in beds of the examination room. They needed bedrest, and we transferred them to the bathroom with a wheelchair and had them use a portable toilet.

③ 新生児、褥婦

産婦人科外来に避難する際は、母親が新生児を抱きかかえ、外来まで移動した。外来で調乳を用意し、哺乳後の哺乳瓶は清潔を保つためラップでくるみ母親に預けて再利用した。外来の畳敷きの寒くない場所を母子のスペースに定めて、非常電源の電気ポットで湯を沸かして湯たんぽにより新生児の保温に努めた。また、オムツの在庫が少なかったためティッシュペーパーをオムツにはさみ、尿だけのときはオムツを替えなくてもよいように工夫した。

3) Newborns and women immediately after delivery

When we evacuated to the outpatient clinic of obstetrics and gynecology, the mothers moved to the outpatient clinic with their newborn baby in their arms. We prepared some powdered milk in the outpatient clinic, wrapped baby bottles in cellophane after suckling to keep them clean, left them to their mother and reused the baby bottles. An outpatient room with tatami mats was set up in the mother's and child's space, and hot water was boiled with an electric pot with an emergency power supply to keep the newborns warm. As we were lacking diapers, we inserted some tissue inside of the diaper. By doing this, we managed to not exchange diapers in the case of urination.

④ 婦人科

婦人科手術後の患者と疼痛緩和治療中の患者がいたが、この日は痛みを訴えることはなかった。認知症患者が不穏状態にならないよう看護師がそばで一晩付き添った。

4) Gynecology

Although we had a patient after gynecological surgery and a patient under pain relief treatment, they did not complain of pain on that day. A nurse was attending a patient with dementia overnight to keep her calm.

<小児科>

在宅で人工呼吸器を使用している 5 歳の患児が、停電により人工呼吸器が使えなくなったため、救急搬送され入院となる。耐震設備のある新館病棟に収容し、当病棟へ戻る朝方までスタッフ 1 名が付き添い観察をおこなった。

<Pediatrics>

A 5-year-old child patient using a ventilator at home could no longer use it due to a power failure, and was urgently transferred and admitted to our hospital. The patient was accepted in a ward in the new building with earthquake-proof construction, and one of our staff had been accompanying and observing the patient until the next morning, when they came back to our ward.

<眼科、内科>

産婦人科外来と泌尿器科外来の外待合室に、ソファの上と床に布団やマットレスを敷き、ベッドを作成して休ませた。

<Ophthalmology and internal medicine>

In the waiting room of the outpatient clinic of obstetrics and gynecology and the outpatient clinic of urology, we spread futons and mattresses on the floor and some sofas, made some beds and rested our patients.

<食事>

患者には栄養科よりパンとジュースの食事が提供された。体が冷えないよう紙コップにポットのお湯を入れ患者に配った。スタッフは手持ちの菓子を少しずつ分け合った。

<Meals>

Patients were provided with meals of bread and juice by the Nutrition Department. We filled paper cups with hot water and handed them out to the patients so that they would not feel cold. Our staff members divided their sweets on hand little by little to each other.

<トイレ>

断水にならなかったがバケツで水を用意し、患者が使用する際は、懐中電灯で明かりを灯し、付き添って介助を行った。

<Toilet>

Our water supply was not cut off, but we prepared water with buckets. When patients wanted the restroom, we used a flashlight to accompany and assisted them.

<スタッフの状況>

15時頃から勤務以外のスタッフが病院に駆けつけた。自宅の状況や交通事情から、夜勤に来ることができなくなったスタッフの代わりに駆けつけたスタッフが夜勤を行った。患者には不安と緊張がみられたので、そばに寄り添うようにした。

<The situation of our staff>

From around 15:00, non-rostered staff rushed to the hospital. Those staff worked on the night shift in place of the staff who could not make it due to their housing situation and traffic issues. As our patients appeared to have anxiety and tension, we tried to stay close to them.

II. 震災後 2 週間までの 3 階東病棟の出来事

【震災翌日、3 月 12 日】

産婦人科入院(深夜帯 4 名、日勤帯 3 名)。このうち陣発入院 6 名。

12 日に分娩 1 件ありと帝王切開手術が 1 件行われる。

II. Events in the 3rd Floor East Ward until two weeks after the earthquake

[The next day of the earthquake, March 12]

Some patients were hospitalized to the obstetrics and gynecology ward (4 patients during the late night shift, 3 patients during the day shift). Of them, 6 patients were hospitalized due to the onset of labor-pains.

We had one delivery, and an operation of Caesarean section was performed on March 12.

<緊急帝王切開>

自衛隊に路上で収容された 38 週骨盤位の妊婦。緊急手術することになり、午前 8 時 22 分に児が誕生する。震災後、初めての赤ちゃんの誕生は周囲を元気づけてくれた。

<Urgent Cesarean section>

A 38-week pregnant woman presenting fetal breech, who had been housed on the street by the Self-Defense Forces came to the hospital. An emergency operation was performed, and the child was born at 8:22 A.M. This was the first birth after the earthquake and it brought joy to all around.

<最初の分娩>

午前9時17分に分娩室で自然分娩。分娩室は非常電源が稼働していたが、暖房は使用できなかったため冷え込みが厳しい中での分娩となった。

<The first delivery>

We had a natural childbirth in the delivery room at 9:17 A.M. The delivery room was provided with emergency power supply, but the delivery was carried out in the severe cold without heating.

<小児科>

入院3名(深夜帯2名、日勤帯1名)。気道熱傷の4歳児は、避難中に家族とはぐれ、一人で行ったところを発見され当院に搬送となる。他、溺水と窒息の患者が入院となった。

<Pediatrics>

We had hospitalization of 3 patients (2 patients during the late night shift, one patient during the day shift). A 4-year-old child with smoke inhalation, who had strayed from his/her family during evacuation was found alone, and was transported to our hospital. Other patients that had nearly drowned or had suffocated were hospitalized.

【3月15日 大火災発生と院外への避難の可能性、自家発電停止・転院搬送】

夜中に市内で大規模火災が発生。患者・スタッフ全員退避の可能性があった。また、深夜2時頃の申し送り中に停電となる。人工呼吸器使用の患児がいたが、内蔵バッテリーがあったため呼吸器は停止しなかった。旧病棟の自家発電がもたなくなり、早朝4時ころ完全停電となったため当院で対応できない患者は搬送することが決定される。切迫早産の妊婦、陣発待ちの妊婦、あわせて7名を朝方からリストアップし、9時ころから夕方までかけて順次搬送となった。以後の分娩に関しては手術室で行うことになり、分娩セットなどを手術室に備えた。人工呼吸器を使用している患児も搬送の対象となる。母親は当院から離れることに対し不安を抱いていたが、医師、看護師で安全な場所での治療を考え、母親も納得し、転院を決定した。停電の間、吸引が使えなかったため、蒸留水の空ボトルに吸引チューブをつけて代用した。

[The occurrence of a large fire on March 15, the possible evacuation outside of the hospital, the power failure of in-house power generation and the transport of patients to other hospitals]

A large-scale fire occurred in the city in the middle of the night. It seemed probable that all patients and staff would have to evacuate. Moreover, we had a power failure while we were handing over duties around 2:00am. We had a child patient using a ventilator but it didn't shut off as it had a built-in battery. The self-generation of the old wards was lacking, and we faced complete power loss around 4:00am in the morning. This determined the transport of patients whom we could not manage in our hospital. We made a list of pregnant women in preterm labor and pregnant women with onset of labor-pains, 7 patients in total, and they were sequentially transferred from around 9am up until the evening. After that, we determined deliveries to be

carried out in the operating room and prepared some delivery sets in an operating room. The child patient on the ventilator was also included in transport. The mother had been anxious about leaving the hospital, but the doctors and nurses convinced her that treatment would be safer at a different location. We determined the hospital-change for the patient. During the power outage, we could not use suction apparatus', so we substituted a suction tube by connecting an empty bottle of distilled water as a suction device.

【その他の出来事】

- 退院許可があつたが帰宅困難の妊婦や患者のためにリハビリ室などの部屋を提供した。

[Other events]

- The permission of discharge was issued, but we provided pregnant women and other patients that had difficulties going home with rooms such as a rehabilitation room.

● 新生児のオムツやミルクが不足しており、いつまで在庫がもつかわからない状況であつた。尿だけのときはティッシュペーパーをオムツの中に入れて対応し、極力おむつ交換の回数を減らした。院外からオムツやミルクをもらいたいと来院する方がいた。また、乳幼児のオムツやアレルギー用のミルクの問い合わせもあつたが在庫がないため対応することができなかった。物資が届くまでの間、職員が提供してくれたオムツや衣服で対応し、2 日目以降から物資が届き始めたので、ミルクやオムツ、調乳用の飲料水などを退院する患者や地域の方々に渡すことができるようになった。

● We were running out of diapers and milk [powdered milk for babies] for newborns and were in a situation where we could not make a judgment on when we were going to have those inventories. We responded by inserting some tissue inside the diaper. By doing this, we managed to not exchange diapers in the case of urination. Some people came from the outside to our hospital to ask for diapers and powdered milk for babies. Also, we had inquiries for diapers for infants and special powdered milk for allergic infants, but we could not meet their requests as we didn't have enough in supply. Until the stock was replenished, we offered diapers and clothes that our staff had supplied. After the second day, goods began to arrive, which enabled us to provide things such as milk [powdered milk for babies], diapers and drinking water for the preparation of milk for patients who were going to leave the hospital and for citizens who needed them.

● 新生児の沐浴は通常毎日行っていたが、沐浴槽のお湯が使用できないため、電気ポットでお湯を沸かし生後 1 日目のみ行った。

● We carried out the bathing of newborns' every day, but only once on the day after birth because hot water for a bathtub was not available. We boiled water in a hot water dispenser instead.

【3月11日～24日までの分娩件数】

17件(自然分娩14件、帝王切開 3件)

震災後、当院以外の市内の産婦人科が被害を受けたため、分娩を行っていない。そのため、分娩件数が普段より多くなっている。(H24. 1月現在)

[The number of deliveries from March 11 to 24]

17 (14 natural childbirths, 3 Cesarean sections)

As all clinics of obstetrics and gynecology in the city except for our hospital were damaged after the earthquake, they could not carry out deliveries. Therefore, the number of deliveries became more frequent than usual (as of Jan. 2011).

Ⅲ. 震災の体験から安全な避難と今後の災害への備えに必要なこと

1. 安全確保

患者・スタッフ・新生児とも一人も外傷や生命に異常をきたすことなく、安全の確保ができた。入院時に棚の上に物をおかないことを説明していたので落下物などで外傷を負う患者はいなかった。新生児についても、大きく揺れている中でもすぐにスタッフが駆けつけ、安全確保に努めることができた。点滴中や保育器収容の児がいる場合、避難する際は、保温に努めて迅速に避難することとしている。揺れがおさまった後、病室を回って患者の状態把握をし、指示があるまでこの場を動かないよう話した。今後は、ナースコールが使用可能であれば、布団などで身を守り、スタッフが回るまで部屋で待つように一斉放送をすぐに行い、その後に巡回する必要があると思われた。

III. What we need for safe evacuation and future disaster preparedness from the viewpoint of our experience of the earthquake disaster

1. Security

All of the patients, staff, and newborns were able to secure safety without trauma or dysfunction to their daily life. As we had explained to the patients at the time of admission, that they must not place anything on the top of shelves, none of the patients suffered an injury. As for the newborns, staff were able to rush to secure their safety immediately, even during the violent shaking. If in the case we were to care for a child during infusion or in an infant incubator, we determined that when we try to evacuate, we should keep the child warm and evacuate swiftly. After the shaking subsided, we made rounds of our hospital rooms, grasped the state of the patients and told them to stay put until further instruction. In the future, if nurse calls are available, it would be necessary for us to immediately make simultaneous announcements [through the ward speakers] to inform people to protect themselves with things such as bedclothes and wait in their room until staff arrive, and then patrol.

2. 患者確認

患者の身元が分かるように、ガムテープに名前を書いて病衣に貼った。しかし、この作業は時間

がかかってしまうため、患者確認がすみやかにできるよう、患者ネームが入ったリストバンドを使用する方が良いと考えられた。

2. Patient identification

We wrote the names of our patients on pieces of tape and stuck them on the hospital gowns so that we could identify them. However, it took time, so we thought that it would be better to use wristbands with every patient's name on them to be more efficient.

3. 避難

産婦人科外来へ避難し安全を確保できた。1 か所に患者スタッフとも集まることで、患者把握をしやすい、患者もスタッフも不安の軽減につながった。地震、津波、火災など災害の状況で変わってくるが、避難できる場所、避難ルートを周知しておくことが必要であると思われた。

3. Evacuation

We evacuated to the outpatient clinic of obstetrics and gynecology and ensured safety. By getting the patients and the staff together in one place, it was easy to grasp the situation of the patients; and dispel the anxiety of the patients. Depending on disaster situations such as an earthquake, a tsunami or a fire, we felt it is necessary to make the public know where and how to evacuate.

4. マニュアルの再確認

活動の中で身元確認、持ち出し物品、寒さの対応など改善すべき点があった。患者トリアージや非常用持ち出し物品、報告先、各スタッフの役割が分かる行動図などを提示し、緊急時の対応が一見して分かるようにしておくことがよいと思われた。

4. Revisiting the manual

In our activities, there were several points to be improved upon such as how to confirm identity, what items need to be taken out of the hospital and how to respond to the cold. It seems better to present an action plan, which would enable us to understand patients' triage, take-out emergency articles, reporting on destinations and each staff member's role in diagrams so that the emergency response can be understood at a glance.

5. 停電への対応

停電後すぐ自家発電に切り替わった。災害を想定した予行演習の際に非常電源の場所を確認していたので停電への対応はスムーズにできた。各病室とトイレには自家発電からコードを引き、電気を供給したが、十分な明るさがなかったため、懐中電灯なども使用した。廊下を這うコードに、患者がつまずく可能性もあり、注意が必要であると考えられる。

5. Our responses to power failure

The power supply was switched to in-house power generation immediately after

power failure. We smoothly responded to the power outage as we had checked the locations of emergency power supply during our disaster drill. We extended electric cords from the outlets of the in-house power generation to each hospital room and a bathroom, and supplied electricity. However, as we could not get sufficient lighting, we also used things such as flashlights. We must keep in mind that patients may also stumble on crawling cords in hallways.

6. 災害時用物品の備蓄

物資が届くまでの期間を乗り越えられるように、各病棟の災害用物品を院内で備蓄する必要がある。入院患者だけでなく地域住民の方々が新生児のミルクやオムツを必要として来院することがあった。今後、地域の方にも配分できるように、病院での対応方法を検討しなければならない。

6. Stockpiles of disaster articles

In order to overcome a lag period until goods arrive, we need to keep stockpiles of disaster articles for each ward in the hospital. Not only for inpatients but also for the local residents in need of milk and diapers for newborns. In the future, we have to consider how to respond to such a situation in the hospital so that we can distribute those articles to local residents as well.

7. スタッフの心身のケア

自分の家族の安否も分からない状況であったが、病院を離れることはできず、帰る場所もなかった。病棟の空き部屋に泊まり待機をしながら働いたが、この状況は長期に渡ったことから、スタッフの待機場所の確保も必要であると考えられた。また、スタッフ用の食料がなかったため、食事の確保も考えなければならない。スタッフ自身も被災者で、ストレス環境の中で働いていたが、お互いを労い、支えあいながら震災を乗り切ることができた。今後は、スタッフに対しても継続した組織的なメンタルヘルスケアが必要であるとする。

7. Caring about the mental and physical wellbeing of each staff member

Having been in a situation under which we had no information even about the safety of our family, we could not leave the hospital and had no place to go. We were working while staying and waiting in empty rooms of the ward; this situation continued over a long period of time, so we also needed to secure a waiting area of our staff. In addition, we had no food for our staff. Therefore, we also have to keep securing foods in mind. Our staff members were also victims and were working in a stressful environment. However, we expressed thanks each other and were supporting each other, which enabled us to overcome the earthquake disaster. In the future, I think we need to have continuous and systematic mental health care for our staff.

おわりに

地震、津波や突発的な災害は今後も発生する可能性がある。混合病棟である当病棟は、生ま

れて間もない新生児から出産を控えている妊婦、小児科患児・その家族、高齢者など幅広い患者層への対応が求められる。災害に備えてすばやい判断と安全な行動ができるように、スタッフ全員が意識統一と訓練しておく必要がある。災害は防ぐことはできないが、日頃から災害に備えて体制を整えておくことで、患者・スタッフの安全を確保し、二次災害を防ぎ、災害時の各個人の負担軽減にもつながっていくと考えられる。災害の経験を風化させず、今後の災害対策を整えていきたい。

In conclusion

The possibility of sudden disasters such as an earthquake or a tsunami is very real. Our ward, which is a mixed ward, needs to provide services for a wide range of patients from newborns shortly after birth, to pregnant women waiting to give birth, pediatric patients, their families and the elderly. It is necessary for all staff to have unified awareness and to train so that quick decisions and safe actions can be made in case of a disaster. It is not possible to prevent a disaster, but the improvement of the system in preparation for a disaster on a daily basis will enable us to ensure the safety of our patients and staff members, prevent secondary disasters, and will also result in reducing the burden of each individual at the time of disaster. We must not forget our experience of the disaster, and would like to improve our disaster countermeasures in the future.



災害を乗り越え スタッフアンケートから得た課題

3 階北病棟

The Ward Department

Overcoming the disaster

- Challenges identified from the survey of the staff -

The 3rd Floor North Ward

はじめに

2011 年 3 月 11 日、14 時 46 分。突然襲った東日本大震災。

病棟スタッフは未曾有の出来事に遭遇し混乱の中、自分たちの使命を果たすべく努力し行動した。

当病棟は旧病棟より築年数が新しく耐震設計がなされており、他病棟からの重症患者の受け入れ先の一つとなった。さまざまな患者が一度に移動してくるという状況の中で、今まで得た防災知識を活用し、スタッフひとりひとりが今なすべきことを判断し行動した。

どのような看護を提供し何を感じ思ったか実際に体験したスタッフからの声を聴きまとめた。

Introduction

At 14:46 on March 11, 2011, the Great East Japan Earthquake Disaster struck suddenly.

Amidst the confusion, where our ward encountered unprecedented events, we had made great efforts and acted to carry out our mission.

Our hospital ward was newer than some other wards and had an anti-earthquake design, which made it one of the host destinations of critically ill patients from other wards. In a situation with various patients coming to our hospital all at once, we made good use of the knowledge of disaster preparedness we had gained so far, and every staff member made their own judgements about what needed to be done and took action.

We listened to and summarized the stories of each staff member who had experienced the events, how they went about their nursing, what they felt and thought

I. 災害発生時の状況

3月11日。病棟にはスタッフ24名のうち看護師9名、看護助手1名の10名が勤務していた。定床49床中入院患者数35名うち担送9名、護送12名、独歩14名。重症者5名、行動注意者7名、モニター監視者1名。

震災発生直後、医師の許可のもと患者3名を退院、4名は外泊、外出となった。病棟スタッフは直ちに、患者の安全確認を行いつつ、水の確保、簡易トイレの設置、自家発電への切り替え準備、患者受け入れのためのベッド作成など、準備を急いだ。

I. The situation at the time of the disaster

On March 11, there were nine nurses and one nursing assistant of our 24 staff members, 10 in total, working in our ward. The number of hospital beds in our ward was 49, to which we had 35 inpatients including 9 stretcher patients, 12 escort patients and 14 ambulatory patients; 5 seriously ill patients, 7 needing action-monitoring, and one on a monitor.

Immediately after the earthquake, with permission from the doctor, 3 patients were discharged and 4 temporarily stayed at other accommodation and went out of the hospital. While confirming the safety of the patients, our ward staff hurried to prepare for the emergency including by securing water, setting up portable toilets, making preparations to switch the power supply to in-house power generation and making hospital beds for incoming patients.

震災発生から1時間後、他科から13名の患者が一時預かりとして搬送されてきた。そのうち1名が人工呼吸器を装着していた。その他に外来受診後帰宅できず避難してきた親子1組の姿もあった。21時には搬送されてきた患者11名が元の病棟へと戻っていった。22時には2名の救急入院があり、うち一人はクラッシュ症候群で重症であった。

One hour after the occurrence of the earthquake, 13 patients were transferred from other wards to temporary stay. One of the patients was on a ventilator. In addition, there was a parent and child, who had evacuated because they could not return home after their visit to an outpatient clinic of our hospital. By 21 o'clock, 11 patients having been transferred here all returned to their original wards. At 22 o'clock, we had the hospitalization of two patients, one of whom had severe crush syndrome.

病棟内の被害は、停電のためパソコン、オーダーリングが使用できなかった。パソコン1台と本の落下があった。水道は使用可能だったが、温水は使用できなかった。倉庫と隣接した病室の水漏れ、天井の壁などが剥がれ落ち、火災警報器が鳴り、防火扉が閉まった。

The damage in the ward was as follows:

We could not use our personal computers due to power outage, which prevented us from using our ordering system. One computer and some books fell down. City water

was available, but hot water was not available. We had water leaking in a hospital room adjacent to a warehouse and some peeling-off of ceilings, with fire alarms sounding and fire doors closing.

II. スタッフアンケートから得られたもの

3月11日、震災当日のあの激震後スタッフはどのように行動したのか、8月初め『震災発生直後からの自分の振り返り』と題し病棟スタッフにアンケートを実施した。

質問は以下8項目で自由記載とした。

1. 入院患者及びその家族の安全確保のためどのように行動したか
2. 急患の受け入れ準備はどうか
3. トリアージ入院カルテはどのように使用したか
4. 患者リスト管理はどのようにしたか
5. 医薬品、資材の確保はどうだったか
6. 情報の共有はどのようにしたか
7. 課題など
8. 感じたこと、思ったこと（不安だったこと、安心したことなど）を自由にお書きください

アンケート回収率は100%である。

以下アンケートから得られたことをまとめた。

II. What we have learned from the staff questionnaires

On March 11, the day of the earthquake disaster, how did our staff take action after the severe earthquake? We conducted a survey in our ward staff at the beginning of August, which was titled “Review of your own experience immediately after the occurrence of the earthquake.”

The questions asked are the 8 items below, and we decided that they could answered freely (free entry).

1. How did you take action to ensure the safety of our inpatients and their family?
2. What did you do to prepare for accepting emergent patients?
3. How did you use Triage Hospital Medical Records?
4. How did you manage the list of our patients?
5. What did you do to ensure medications and goods?
6. How did you share information?
7. What are some challenges that you noticed?
8. Please write freely about what you felt and thought: for example, what made you anxious and what brought relief.

The response rate of the survey was 100%.

What we have learned from the questionnaires is summarized below.

1) 入院患者及びその家族の安全確保

ナースコールが使用できない状況で、患者の状態を把握するために1～2時間おきに巡視を行い、声がけと同時に正しい情報を伝え安心感を与えるよう努力した。避難に備え、2か所の避難通路を確保した。そして、本人確認の為ベッドネームを直接患者の病衣に貼って避難準備をした。

また余震に備え、危険物を排除し安全確保に努めた。

1) The safety of the inpatients and their family

In a situation under which we could not use nurse calls, we made rounds in the ward every one to two hours to grasp the condition of our patients. We did our best to relay accurate information while speaking to them and tried to give them a sense of security. We secured two evacuation pathways in preparation for evacuation. We attached their bed name directly to their hospital gown for identification and made preparation for evacuation. At the same time, in preparation for imminent aftershocks, we took away dangerous objects and tried to secure our safety.

2) 急患の受け入れ準備

患者の受け入れを増やすため、マットレス、寝具類は他病棟から手配して増床した。また、津波、がれきの中からの救助であれば、汚れていることを想定し撥水性ロールシートを敷いて準備した。

2) Preparation for accepting emergent patients

In order to increase the number of incoming patients, we arranged mattresses and bedclothes from other wards and increased the number of beds. In the case of those rescued from the tsunami and debris, we prepared waterproof disposable sheets on the assumption that they'd be covered in dirt.

3) トリアージ入院カルテの利用方法

震災による入院は一般入院患者と区別するためカルテの背表紙に赤テープで㊟と表示した。データベース聴取は災害入院であること、患者の負担軽減を勘案し必要最小限とした。

3) The way we use Triage Hospital Medical Records

Hospitalization due to the earthquake was marked with red tape on the back cover of the medical record to distinguish them from general inpatients. We took into consideration the amount of questions asked to those hospitalized due to the disaster to minimize the burden on the patient.

4) 患者リスト管理

患者の情報については、パソコンが使えないためワークシートをコピーして使用。在院患者管理のために情報シートを作成。担送、護送、独歩の確認は頻回に行い正確に把握した。ネームボードには患者情報を表記し情報の共有を図った。

4) Management of the list of patients

As for patient information, since we could not use computers, we copied our worksheets and used those. We frequently and accurately checked the patient's status to confirm whether they were a stretcher patient, an escort patient or an ambulatory patient. We wrote the patient information on a name board and tried to facilitate information sharing.

5) 医薬品、資材の確保

医薬品については、酒精綿は 1/2～1/4 で使用、抗生剤ラインは一日ごとに使用し、留置針も血管異常のない限りそのまま使用した。医師指示のもと輸液ポンプは外し、手動（マイクロドリップ式輸液セット）に変更し、必要な輸液を行う事とした。エアマットは電源を切り、褥瘡予防策として布団を入れ、ドレッシング材を使用、体位交換などによる除圧を試みた。オムツ交換は汚染の状況を見ながら交換していった。また、陰部洗浄には、スタッフが持参したタオルやシーツの切ったものを使用。温水がでなかったためバケツに水を張り、日の当たる窓辺に置き太陽光で温めて、患者の創洗浄に使用した。蓄尿器が使用不可となり、ウロガードの尿はビニール袋による廃棄から蓄尿ガメの利用に切り換えた。また、尿量は蓄尿せず尿量カウントで対応。給食の容器は本人用として洗って再利用した。

5) Ensuring pharmaceuticals and materials

As for pharmaceuticals, an alcohol-swab was divided and used in 1/2 to 1/4 sizes, only one antibiotic infusion line was used daily per patient, and an indwelling needle was used as it was unless there was a vascular abnormality. Following instructions of our doctors, we decided to stop infusion pumps, replace them with normal ones (micro drip infusion sets) and perform necessary infusions. We turned off air mattresses, used futons to prevent pressure ulcers, used medical dressing materials and tried depressurizing by doing things like repositioning their body. We were replacing diapers depending on how contaminated they were. For perineal care, we used cuttings of towels and sheets that some staff members had brought. As hot water was not available, we filled up buckets full of water, put them in sunny places by the window, heated them up by sunlight and used the warm water to cleanse injuries. The urine storage device became unusable, so the disposal method of urine in Uro-Guard's [urine bags] was switched from being discarded in a plastic bag to urine collection containers. In addition, to calculate the volume, instead of collecting urine, urine counts were performed. Hospital meal containers were washed and reused for individual use.

6) 情報の共有方法

朝と夕の勤務者と院内に泊まっていたスタッフで師長からの連絡会議の伝達を受けた。ここで勤務者の確認と勤務可能者をその都度確認し情報を共有した。給食配膳において、

分類表を作成し、誰もが分かるように工夫した。刻一刻と変わる最新の情報をスタッフ自ら目を通し情報把握するよう努めた。

6) The method of sharing information

The staff on duty in the morning, those in the evening and those staying at the hospital were receiving relayed information from our chief nurse about liaison conferences. Each time, we confirmed staff members presently on duty and checked who were available to work (other shifts), and shared information. In serving meals, we prepared a classification table and devised it in a way for everyone to understand. Our staff members revisited the up-to-date information that was constantly changing and tried to make sense of it.

7) 課題など

当病棟は耐震設計が行われた新病棟の為、他病棟からの受け入れ先となり、急患対応のため物品の備えが必要と思われた。

また、給湯停止により、温水が出なかったため砂まみれで搬送されて来た患者への温タオルでの清拭、洗面等の保清が十分にできず、感染の危険性が問題としてあげられた。

7) The issues

As our ward had an earthquake-resistant design, it became a hub for the other wards; it's necessary for our ward to stockpile articles to meet the needs present in an emergency.

Hot water was unavailable because the hot water supply had stopped; we could neither wipe the bodies of patients who had been covered with sand and were carried to the hospital, nor could we wash their faces with warm towels, among other things; we could not keep patients sufficiently clean. The risk of infection was addressed as a problem.

8) 感じたこと、思ったことなど

アンケートに、各自の思いをありのまま書き出すことにより、スタッフの精神的不安軽減につながれば.....という思いで、この質問を追記した。

家族の安否を案じながらも、皆で力を合わせて働き、仕事の素晴らしさ、仕事のありがたさを感じ、スタッフ同士で会話することで安心感がもて、買い物もできない状況下で食事の差し入れなど、とてもありがたかった。また、逆に家族と連絡がとれず不安な思いで仕事をしなければならなかったつらさ、地震、津波がまた来るのではという不安、そして、一時間の徒歩通勤のきびしさ、ガソリンの供給も不安定で車の使用も制限されていた大変さ等があげられた。また、急な退院や緊急搬送することになった患者の心情を十分私たちが理解していたのか、不安を軽減することができたのか、いつまでも心に重くのしかかっていた、などの回答が得られた。

8) What you felt, what you thought e

We had added this question to the questionnaire, thinking that writing one's own feelings freely would bring about some relief of anxiety.

The answers were as follows. While we were worrying about the safety of our family, all of us were able to work together, feel the splendor and the blessings of our work, gain a sense of security by talking among staff members, and the receiving gifts and the likes were much appreciated during the difficult situation where we could not even go to the shops. On the other hand, other answers included bitterness towards their duty to have to work while not being in communication with their own family, anxiety about the second coming of an earthquake and tsunami, the pains of having to commute one-hour on foot and the limited car usage due to the uncertain supply of gasoline. One of other answers obtained was as follows. "Whether we adequately understood the emotional conditions of each patient who was abruptly discharged or urgently transferred to another hospital and whether we were able to relieve their anxiety weighed heavily on mind."

おわりに

私たちは震災当日より無我夢中で患者の対応に当たった。発生時間が 14 時 46 分と平日の日中で人手の多い時間帯だったため、それぞれがその時必要と思われる看護業務の中で知恵を出し合い行動し困難を乗り越えた。今後の災害に備え、避難方法、師長、リーダー、メンバーの役割、停電時の対処方法等、マニュアルを基に実際に活用できるよう、訓練を定期的に行わなければならないと思った。

これから見えたひとつひとつの課題に早急に取り組み災害に対しての意識の向上を図り、ひとりひとりが確実に対応できるようにしていきたいと思う。

In conclusion

We feverishly coped with the management of our patients since the day of the earthquake. As the earthquake occurred at 14:46, during the daytime of a weekday, we had a lot of manpower around at that period of time. Therefore, each member pulled their heads together to respond to what was required at that time in their nursing, took action and overcame difficulties. In preparation for a disaster in the future, we must train ourselves on a regular basis so that we can practically utilize evacuation methods, understand the roles of chief nurses, leaders and other members, the coping strategy during a power failure and among other things based on the manual.

We will tackle each challenge that we have noticed from our experience as soon as possible and aim to raise awareness of disasters so that each staff member will be able to cope with those challenges.

震災の看護活動から見えてきた今後の課題

4 階西病棟

The Ward Department

Future challenges that have come to the fore from our disaster nursing activities

The 4th Floor West Ward

はじめに

2011 年 3 月 11 日午後 2 時 46 分、初めは小さな揺れであったが次第に大きさを増し、一瞬にして院内の機能は著しい制限を強いられた。大津波は周囲にまで達し、病院は孤立状態となった。私達はこの予期せぬ事態の中、看護活動を行った。

私達が勤務する 4 階西病棟は院内で最も多い病床数を持ち、患者の大半は介助を必要とする寝たきり患者である。本論では震災直後から 2 週間までの看護体験と教訓を述べ、それを基に多くの医療従事者が今後のあらゆる災害看護に対し、どのように活かすべきかを考えた。

Introduction

At 14:46 on March 11, 2011, the gentle shaking gradually increased in magnitude; the earthquake instantly forced our hospital into a situation in which its function was severely restricted. The great tsunami reached the neighborhood of our hospital, where we became isolated. In the unforeseen circumstances, we were undergoing nursing care activities.

Our 4th Floor West Ward had the largest number of hospital beds, where the majority of the patients were bedridden and in need of assistance. In the main issue [of this report], we will explain our nursing experiences and the lessons we have learned from the time of the earthquakes up to two weeks after. Based on those experiences, we thought it'd be of great benefit to many health care workers to make use of these experiences of disaster nursing in the future.

I. 震災発生時の状況

勤務者: 看護師 11 名、看護助手 2 名

患者数: 病床数 58 床中、入院患者 55 名【担送 26 名、護送 11 名、独歩 18 名】

重症者: 10 名【人工呼吸器 2 名 (インテグラ、バイパップ)、酸素療法 8 名、輸液ポンプ 2 名、モニター管理 5 名、ドレーン管理 1 名、エアマット 20 名】

検査状況: 胃カメラ 3 件、腹部エコー 2 件、MRI 2 件 いずれも地震発生前に終了。

病棟内の被害状況: 廊下の天井が一部崩壊し、病室内の壁や床にひび割れ

I. The situations at the occurrence of the earthquake

Workers: 11 nurses, 2 nursing assistants

The number of patients: 55 inpatients in our ward with 58 hospital beds including 26 stretcher patients, 11 escort patients and 18 ambulatory patients.

Seriously ill patients: 10 patients including 2 on a ventilator (INTEGRA[®], BIPAP[®]), 8 on oxygen therapy, 2 on an infusion pump, 5 on monitor management, 1 on drain management and 20 on an air mattress.

The situation of medical examinations; 3 gastroscopies, 2 abdominal echoscopies and 2 MRI's had been completed before the earthquake.

The damage status of our ward: the ceilings of our corridor partially collapsed and some walls and floors of the hospital rooms had cracked.

II. 震災当日

1. 地震発生時

ちょうど午後の検温やおむつ交換が終わり、ナースステーションで記録をしたり、それぞれの受け持ち患者のもとへ向かったりしていた中の突然の地震であった。ほとんどのスタッフは、「いつもの軽い地震だ」と思ったが、その揺れは、弱まったり強くなったりを繰り返すとても長い揺れで、病室のドアや防火扉が大きな音を立てて何度も開閉した。自分の体を支えながら病室のドアが開閉しないように押さえている者、ヘルメットを取出し配る者、中には揺れている中患者の安否確認をしながら、危険物の確認のため巡回を開始した者もいた。



II. On the day of the earthquake

1. When the earthquake occurred

The earthquake suddenly occurred while some of us were recording our patients' data in our nurse station, others were taking each patients' afternoon temperature or exchanging diapers. Most of the staff members at first thought that *this was just a normal earthquake*. However, the swings were very long, fluctuating in intensity; the doors of the hospital rooms and fire doors were repeatedly opening and closing. Some were holding the door of a hospital room so that it would not open and shut while supporting their own body, others were giving out helmets, and others began to go

around the ward in the tremors of the earthquake to confirm hazardous materials while confirming the safety of our patients.

揺れがおさまり病棟内を巡回すると、一部廊下の天井が落下し、病室の床や壁に亀裂が入っており、病室内ではそれぞれの棚からおむつ等が散乱、点滴スタンドはベッドサイドから大きく移動していた。安全確保のためガスの元栓を閉め、天井が落下した場所にはバリケードを作り通行禁止と表示し、亀裂の入った病室は安全確認ができるまで患者を一時的に面会ホールや他の病室に移動した。また、さらなる地震に備えて病室のドアは開放状態に、輸液ポンプはベットサイドから離れないようにするため包帯などを使用し固定した。患者達は携帯電話で家族の安否を確認しようと不安そうにしていたが、指示があるまで各病室に待機するよう呼びかけると、大きな混乱は起きなかった。患者 1 名が頭上の棚からティッシュ BOX が落下し、擦過傷程度の怪我をした。

When we went around the ward after the tremors subsided, we found that a part of the ceiling of a corridor had crumbled, some floors and walls of hospital rooms had cracked, things such as diapers had scattered from the shelves in hospital rooms, and infusion stands had largely moved from the bedsides. We closed a main gas valve to ensure safety, made a barricade, and displayed ‘passage prohibited’ in a place where a ceiling had collapsed. We temporarily moved some patients in the hospital rooms with cracked walls to the meeting hall of our ward or other rooms until we were able to confirm safety. In addition, in preparation for further earthquakes, we kept the doors of the hospital rooms open and fixed infusion pumps with bandages to prevent them from being separated from the bedsides. Our patients seemed anxious and eager to verify the safety of their own family by mobile phone. However, they made no fuss when we told them to wait in each hospital room until further instruction. A tissue box on an overhead shelf fell down on a patient, which resulted in an abrasion.

2. 停電

地震の最中に停電となり、揺れがおさまるとすぐに自家発電に切り替えられ、バイパップ使用中の患者は自家発電がある病室に転室させた。自家発電の残量も限られるため、優先順位の低いものから輸液ポンプの使用を中止し、小児用点滴に切りかえ、エアマットも電源を切らなければならなかった。日中でさえ薄暗かったが、夜間になると病室は真っ暗になり、その暗がりの中、懐中電灯や各自で持っていた LED ライトなどで照らしながら作業を行った。

2. Power failure

The power supply was cut off during the earthquake and was switched to the in-house power generation as soon as the shaking subsided. A patient using a BIPAP, a kind of artificial respirator, was moved to a hospital room with in-house power generation. As the remaining amount of in-house power generation was limited, we

discontinued the use of infusion pumps in ascending order of priority, switched to infusion sets for children and also had to turn off air mattresses. It was dim even during the day, and the hospital rooms became pitch-dark at night. In the darkness, we worked with things such as flashlights and LED lights in hand.

3. 避難、移動等に備えて

全ての患者と家族の胸に名前・病棟名・部屋番号を表示し、避難しやすいよう必要最低限の点滴だけを残し抜針またはヘパロックを行った。また、担送・護送・人工呼吸器使用・酸素使用・膀胱留置カテーテル使用などの患者情報を書いたものを作成し、避難時に持っていけるよう必要な物資をまとめるなどした。

3. In preparation for evacuation, transfer, etc.

We displayed the name, ward name and room number of every patient and family member on their chest. We removed infusion needles or carried out heparin locks leaving only the minimum infusions necessary for the patients so that they could evacuate easily. In addition, we wrote up a sheet of patient information including details such as ‘stretcher, escort patient, the use of a ventilator, oxygen therapy, the use of an indwelling bladder catheter’. We organized necessary materials to take during evacuation.

4. 他病棟からの患者の受け入れ

PHS が使用できず病棟間の連絡が取りづらい状態であった。津波の襲来に伴い、下の階の患者が当病棟に避難することとなり、スタッフ総出で避難スペースを確保し、避難してきた患者には担当病棟の看護師が付き添った。また、面会ホールに避難している患者のプライバシーに配慮してシーツをカーテン代わりに目張りをした。

4. The acceptance of patients from other wards

With the unavailability of PHS's, it was hard to get in contact with the other wards. With the onslaught of the tsunami, it was decided that the patients of the lower floors should evacuate upstairs to our ward. All nurses in our ward ensured spaces to evacuate, and the nurses of the wards in charge accompanied those evacuating patients. We also set up some screens with bed sheets instead of curtains in consideration of the privacy of patients who were taking refuge in the meeting hall.

5. スタッフ

勤務外だったスタッフは病棟に駆けつけてくれ、準夜勤務だった 3 人は津波の難を逃れて無事に到着した。

誰一人家族の安否が分からないまま、日勤者は 20 時まで病棟で待機もしくは仕事を行った。帰宅しようと試みたが、被害が大きく帰路がふさがれ途中で戻ってきた者や、日勤から病棟にとどまりそのまま深夜勤務に入った人もいた。出入りしたスタッフの所在を明ら

かにするために出勤時間、帰宅時間、行き先をノートに記入した。食事は各自手持ちのペットボトルやわずかなお菓子を分け合った。安否確認ができないスタッフが数人いたため、翌日からの勤務については可能な者で勤務調整を行った。

5. Our Staff

Our off duty staff members thankfully rushed to our ward, and three members of the late shift arrived safely after escaping the danger of the tsunami.

While no one knew the status of their own family, the staff of the day shift kept waiting or working in our ward until 20:00. Some members attempted to go home but ended up coming back halfway because of the extensive damage, which had blocked their way home, and others stayed in the ward after their day shift and went on to start their midnight shift. To clarify the whereabouts of our staff coming and going, we noted down the time of their attendance, the time they clocked off and kept track of their destinations. As for meals, we shared drinks in PET bottles and whatever sweets that staff had on hand. Because there were a few staff members whose safety had not been confirmed, in regard to the next day's shifts, we were coordinating working hours among those who were capable of working.

《これからの災害に備えて必要な事とは》

地震発生時、私達は大きな揺れに恐怖心を抱きつつ、看護師として患者を守らなければいけないという責任感と使命感から、揺れの最中に突発的に患者のもとへ走ったり、院内の巡回を開始するという行動をとっていた。しかし、病棟内では天井からブロックが落ちてきた場所もあり、揺れの中で行動するのは危険な状態であった。震災時パニックにならず冷静に対処出来るよう、揺れの最中は自分の身の安全を確保しつつ周りの状況を把握し、揺れがおさまってから落ち着いて行動を起こすよう常に意識していくことが大切である。また、今回の震災は津波による被害が大きく、駆けつけた職員や勤務のため病院に向かったスタッフは途中で津波に巻き込まれる危険が大きかった。当院のマニュアルでは震度5以上（当病棟独自のマニュアルでは震度4以上）は駆けつける決まりになっているが、これが夜間だった場合、向かっている途中で巻き込まれる危険性はさらに高くなると考えられ、今後院外から駆けつけた職員の安全をどう確保するかが重要な課題となる。

《Requirements to prepare for a disaster in the future》

When the earthquake occurred, while we dreaded the strong shakes, our sense of responsibility and our mission as nurses to guard patients lead us to spring into action and run to our patients in the midst of the shaking and begin to make our rounds. However, there was also a place where blocks had fallen from the ceiling of the ward, so it was a dangerous state for us to take action in the shaking. We should be aware of the dangers around us while ensuring our own safety during the shaking so that we will not panic in an earthquake disaster and will be able to react calmly. We should take steady actions after the shakings subside; it is important for us to be aware of

these actions at all times. In addition, much damage resulted from the great tsunami in the earthquake disaster this time, which posed a lot of danger for the workers rushing here and staff members heading for the hospital for their duty. They could have been caught in the tsunami on their way. According to the manual of our hospital, seismic activity of 5 or more (4 or more in the manual of our ward) requires a prompt assembly of staff to come to the hospital; if it occurs at night, the risk of being caught in a tsunami on the way would become even higher. An important issue will be how to ensure the safety of staff assembling to the hospital.

自家発電については震災時、停電になってから優先順位を考えたため非効率的であった。停電に備え、優先順位をあらかじめ決めておく必要がある。そして、自家発電からすぐに電源を引けるよう延長コードなどを病室の常備品として用意しておく必要がある。

As for our in-house power generation, we were inefficient because we considered the order of priority after power failure. It is necessary to determine the order in advance in preparation of power failure. It is also necessary to provide things such as extension cords as one of standing materials of each hospital room so that we can immediately use power from the in-house power generation.

III. その後（震災 2 日目～2 週間）

1. 自家発電の限界と火災の危機

震災発生 4 日目の 15 日深夜帯、当病棟側の自家発電がオーバーヒートし 30 分に 1 回の停電が起きた。また、前日夕方頃より発生した市街地の火災が徐々に当院へ迫ってきており、市街地のガスタンクに引火した場合当院にも被害が及ぶ可能性があった。

III. After that (from the second day of the earthquake ~ 2 weeks)

1. The limit of our in-house power generation and the fire crisis

During the midnight shift on March 15, the 4th day from the earthquake occurrence, power failures were occurring every 30 minutes due to the overheating of the in-house power generation system in the building which our ward was in. Furthermore, the fire in the city since the previous evening was gradually looming near, and there was a possibility that damage would extend to the hospital if the gas tanks of the city caught fire.

深夜勤務の 3 名と病棟内に残っていた 4 名で対応し、停電の度に各部屋の患者と付き添いをしている家族の安全確認と、人工呼吸器等の誤作動確認を行い、当病棟とは別の自家発電が作動している 4 階北病棟へ人工呼吸器使用患者と低圧持続吸引器使用患者を医師の指示のもと転室させた。避難に備え震災当日に患者や家族につけたネームを再確認し、入院患者と付き添い家族、勤務スタッフの名簿を作成し、さらに避難経路の確認を行いながら、移送しやすいように各部屋と廊下の環境整備を行って、万が一の火災に備えて各部屋

のカーテンをすべて束ね引火しにくいようにし、避難しやすいよう各部屋のドアを開放した。

Three staff of the midnight shift and four others remaining in the ward performed safety checks of the patients and their attending family members in each room every time there was a power failure, as well as checking for malfunctions things such as ventilators. According to the doctors' instructions, they transferred patients on ventilators and those on continuous low-pressure suction units to the hospital rooms of the 4th Floor North where another in-house power generator was working. In preparation for evacuation, we again confirmed the names we had attached to the patients and family members on the day of the earthquake, and made up a list of the inpatients, their attending family members and our staff members. While confirming our evacuation path, we carried out environmental maintenance of each room and the hallways to make it easier to transfer the patients. In preparation for a fire emergency, we bound all the curtains of each room to make it harder for them to catch on fire, and opened the door of each room to enable swift evacuation.

介助が必要な患者が多い中、7名という人数では、安全にかつリスクを最小限に避難させるには厳しい状況であったが、他部署のスタッフも同様の問題を抱えていたため応援に呼ぶことはできず、少ない人数で対応しなければならない状況であった。

While there were many patients who needed assistance, it was difficult to evacuate them safely with a minimum of 7 people, but staff of other departments also had similar problems, so we could not call on them for support. The situation forced a small number of people to respond.

《完全停電などの緊急時に対応するには》

完全停電になった際は避難経路が見えづらくなる危険性があり、暗闇の中で大勢の患者を避難させることは困難となる。そのため、避難経路がわかるよう廊下に、コンセントからの電源を必要としない置き型 LED ライトをいくつか設置することで避難経路の目印となり避難時の安全が確保されるのではないだろうか。また、当病棟の患者は寝たきりが多く、護送や担送の対象も多くいるが、避難時に患者数に見合うマンパワーがあるわけではない。よって、担架以外の物での搬送方法なども検討し、少ない人数でもスムーズにかつ安全に移送できるよう定期的に勉強会や訓練をしていく必要がある。

《How to manage an emergency such as during complete power loss》

When there is a complete power outage, there is a risk that the evacuation route would be hard to see, making it difficult to evacuate a large number of patients in the dark. Thus, by setting some standing LED lights in corridors that do not require power from outlets, escape routes could be marked and lit which would secure safety during evacuation. In addition, our ward has many bedridden patients and also many patients

needing to be escorted or stretcher-transferred, but we do not always have enough manpower necessary for the number of patients during evacuation. Therefore, it is necessary to study transportation methods other than by stretchers, and to hold study sessions and training sessions regularly so that even a small number of people can transport patients smoothly and safely.

2. 震災後の看護

震災後は物資不足となり、様々な物を節約しながら使用していた。例えば、オムツ対応だった患者数名には医師の許可を受け膀胱留置カテーテルを留置し、オムツの交換回数を最小限にしたり、清拭タオルが十分確保出来ない間は、使い捨ての清拭用ペーパータオルを使用した。衣類やリネン類も在庫に限りがあり、多少汚れても交換することが出来ず、汚染していないリネンは次の入院患者へ使用することもあった。さらに、普段なら単回使用する点滴セットなどの医療品も複数回使用したり、医師の指示により点滴の使用を最小限にするなどしていた。

2. Nursing after the earthquake disaster

After the earthquake disaster, supplies were running short and we were doing various things to avoid expending them. For example, we indwelled a bladder indwelling balloon catheter to a few patients in need of diapers after getting the doctors' permission, minimized the number of diaper exchanges and used disposable paper towels for wiping when wiping towels were not sufficiently available. There was also limited stock of clothes and linen, so we could not exchange them even if they became dirty to an extent; we occasionally used linen prepared for next hospitalized patients. We used medical supplies multiple times for each patient such as an infusion set that's usually used only once, minimized the number of infusions according to our doctors' instructions among other things.

また、エアマットを使用出来ず布団類も不足していたため、褥瘡が発生・悪化する患者や、施設・自宅でもエアマットが使用出来なくなったことにより褥瘡の持ち込み入院が増えた。低体温で入院される患者も増えたが、暖房も電気毛布も使用出来ず、お湯も出なかったためアルミのマットを敷き、毛布や布団を何枚も掛けるなどして保温に努めたが、それだけでは十分な保温は出来なかった。

In addition, there was the increasing number of inpatients with pressure ulcers developing or getting worse due to the unavailability of air mattresses or the shortage of futons, and patients coming to the hospital with pressure ulcers due to the unavailability of air mattresses in their facility or at home. Although patients hospitalized with hypothermia increased, heating as well as electric blankets were not available and we could not use hot water, so we tried to keep them warm by laying down aluminum sheets, covering the patients with some blankets and futons, but it was insufficient

《限られた資源の中での看護》

震災後、様々な物資が不足し普段の看護が出来ずにいたが、その中でもなんとか最低限のケアを行おうとスタッフ間で試行錯誤した。しかし、保清が十分に出来ず、エアマットも使えない状態での褥瘡予防はなかなかうまくいかず、何人かの患者に発赤や軽度の褥瘡が発生してしまった。

«Nursing with the limited resources»

After the earthquake disaster, a variety of supplies were lacking, and we could not deliver our usual nursing. The staff were going through trial and error to try and carry out minimum care by any means in the situation. Nevertheless, we could not keep the patients clean and weren't successful in the prevention of pressure ulcers as air mattresses were unavailable; flares and mild pressure ulcers developed in some patients.

今後、物が無い中でどう工夫していくか、代用できるものにどのような物があるのか、考えることで非常事態に臨機応変に対応することが出来るようになるのではないだろうか。

In the future, by thinking of how to overcome a situation where supplies are limited and how we can make substitutions, we may become able to flexibly respond to an emergency.

また、震災後は物資不足を心配し、どんなものでも使用を制限していたが、もっと他部署との連帯が取れ、物品や薬剤の在庫数などの情報が得られれば、余裕のあるものは使用を無理に制限することなく患者に提供出来たのではないかと考える。

Also, because we were worried about the shortage of supplies after the earthquake, we restricted the use of everything. If we had better communicated with other departments and got information on stock quantity, supplies and medications, we might have been able to provide patients with what we had enough of without unreasonable restriction.

3. 職員の心理的状況

自宅や車などの物質的損失と、家族や親戚そして友人など人的喪失を負って仕事に従事していた。余震や津波、火災に対する恐怖や不安は、日々の勤務での過度な緊張感や不眠、慢性の便秘という形で現れ、蓄積された疲労感が感じられていた。

3. The psychological situation of our staff

Some staff members were bearing the material loss such as their house and/or car, and human loss such as their family members, relatives and/or friends, and were working even in such a situation. Fear and anxiety about aftershocks, tsunami and fire manifested in the form of excessive stress during daily work, insomnia, chronic

constipation, and accumulated fatigue.

家族の安否などはっきりしない同僚は、勤務と勤務の合間に避難所や遺体安置所を巡り、家族の消息を捜し歩いていた。同僚としてこのような状況をどのように見守っていくべきか仲間で話し合い、気持ちの共有を図るよう努めていた。被災した本人が気持ちを表出するような場面では、常に傾聴する気持ちで接し、心の落ち着くところをお互いに探していた。

Some colleagues who could not clearly confirm the safety of their family were going to shelters and morgues in their spare time away from their work and were walking around looking for the whereabouts of their family. We were talked about how we, as coworkers, should look out for them in a situation such as this, and were trying to understand their feelings. In such moments where affected members personally exposed their feelings, we were always trying to connect with them and listen closely, and talked until feelings had calmed down.

《外部支援者がもたらした職員へのメンタルケア》

震災時は、何においても神経が張り詰めていた私達であったが、1週間2週間と時間が経つうちに、震災前はどんな仕事をしていたのだろうか、どんなケアを提供していたのだろうかという無気力や脱力感に襲われた。そんな時外部からの支援、例えば院内の他部署の応援者、また歯科衛生士などの口腔ケア指導を受けることが出来た。これにより、私たちは看護に対する「きっかけ」を見出すことが出来たと考える。私達は必要とされている事の認識と、職業人としてまた大きく言えば人間としての絆を認識した。

《Mental care that support members from the outside brought about》

At the time of the earthquake disaster, our nerves were under constant strain. As one to two weeks passed, we wondered what kind of work we had been doing before the earthquake and what kind of care we were able to provide; a feeling of weakness and lethargy was coming over us. In such a moment, we had support from outside entities such as from other departments of the hospital and received oral care guidance by our dental hygienists. This may have lead us to find the ‘trigger’ that brought us to nursing. We recognized that we were required and also could recognize the bonds we have as professionals, or broadly speaking, *the bonds of humans*.

IV. まとめ

- 災害発生時、何よりも優先すべきは自分の身の安全であることを常に意識していくことが大切である。
- 基本が身についてこそその応用。非常時に柔軟な対応するためには、日頃から防災訓練や避難方法等のシミュレーションを繰り返し体験しておくことが必要である。
- 外部支援者の存在は、スタッフの過度な緊張感やストレス、肉体的負担を軽減するだけで

なく、普段の看護を取り戻すきっかけを与えてくれる。

IV. Summary

- It is important that what we should consciously prioritize more than anything is our own safety when a disaster occurs.
- We can apply the basics just after we have mastered them. In order to flexibly respond to an emergency, it is necessary to repeatedly experience disaster preparedness drills, the simulations of evacuation methods and the likes on a daily basis.
- The presence of external supporters gave us an opportunity to regain our typical way of nursing as well as to reduce the excessive tension, stress and physical burden of the staff.



おわりに

震災から8ヶ月が経とうとしています。現在、被災により退院後に自宅へ帰れない方や、施設などの減少により退院先が決まらない為、入院が長期化している方もいます。まだまだ震災の影響が続いてはいますが、それぞれが復興に向けて日々努力を重ねています。これまでの体験、教訓を風化させることの無いよう語り継がなくてはなりません。

In conclusion

Eight months have almost passed since the earthquake disaster. Currently, we have some patients who cannot go back home after discharge due to the damage of their housing and others whose hospitalization is prolonged because their destination after discharge remains to be determined due to the decrease of facilities. The impact of the earthquake disaster is still continuing, but everyone has been repeating daily efforts for restoration. We must hand down our experiences and lessons from generation to generation so they do not fade with time.

「東日本大震災、その時私たちは」

～被災した一看護師の視点から～

4 階南病棟

The Ward Department

“The Great East Japan Earthquake, the reality at the time”

- From the point of view of a nurse, one of the victims -

The 4th Floor South Ward

はじめに

2011 年 3 月 11 日、巨大地震が発生したあの日、私は 2 歳の息子と出掛けその帰宅途中、千厩町で地震に遭った。

Introduction

On March 11, 2011, the day of the huge earthquake, I went out with my 2-year-old son. On our way home when we experienced the earthquake passing through the Town of Senmaya (a town in the neighboring prefecture).

不安を抱えながら車を運転し魚町まで来たが、あと 100m 位で自宅という所で右前方の脇道から巨波が見えたため、車を捨てて息子を抱きかかえ近所の 2 階へ駆け上がった。あっという間に水かさは増し、あらゆるものが流されていく光景を目の当たりにし死を覚悟した。その家の柱の 1 本がなくなったので高台への避難を試みたものの、道は流されてきた家でふさがれ通れず、息子を片手で背負い、もう片手で瓦礫の上を這い上がり別の家へ移った。間もなく火災が発生し、外は石油臭く今度は焼け死ぬことを覚悟した。夜中に南町信金ビルの 4 階(写真矢印)へ避難できたが家族の安否がわからず、また自分たちの生存すら伝えることができなく、とてももどかしかったことを覚えている。

I drove my car to Sakanamachi (a suburb in Kesennuma) with anxiety, at about 100m left to get to my home is when I saw a huge wave from the side road, so I dumped my car and embraced my son and ran up to the second floor of a house in the neighborhood. The water rose in no time at all, and we saw everything being washed away and prepared for death. As one of the pillars of the house was lost, we made an attempt to evacuate to the higher ground, but a path to the higher ground was blocked with houses that had been washed away and had surrounded us. I shouldered my son with my hand, crept up on the rubble with the other hand, and moved to another house.

Fire soon broke out, it smelled petroleum outside, and now I was bracing the prospect of being burnt to death. We were able to evacuate to the 4th floor of the Minami Machi Shinkin Building (see the arrow in the photo below, a building of a credit union) in the middle of the night, I could not confirm the safety of my family, nor could I inform them that I was alive, which I still remember made me very frustrated.



南町信金ビル <森田潔氏提供>

Minami Machi Shinkin Building

<Offered by Dr. Kiyoshi Morita >

翌日になって夫と父と対面し、祖父母が亡くなったと伝えられた。その後ワン・テンビルへ避難し、この日から避難所生活が約 2 週間続いた。避難所の床は冷たく、固いため眠れない。当初は2〜3人でおにぎり1個であったり、インスタント焼きそばが一口ずつ。飲み水は内服時とミルク調乳時のみ。ストーブも 1 つで寒く、断水のためトイレ後はため水で手をゆすぐだけで不衛生だった。私の他にも避難所から通っていたスタッフがいたが、同じ様な状況の中で働かなければならなかった。3月13日に母の無事がわかりその後徒歩で出勤。久しぶりに病院で温かいものを口にし、また布団で休むことができ、さらにテレビを見られたことにすごく幸せを感じた。職場にいと外を見ない限り震災のことを忘れられ、またスタッフからの励ましもあり精神的に支えられた。震災から1週間位は命が助かって良かったとそれだけ思っていたが、避難所生活の大変さ、今後の生活の再建など徐々に現実と向き合うようになった。

The following day, I ran into my husband and father and was told that my grandparents had died. After that, we evacuated to the One-Ten Building, and our lives at the shelter lasted for about two weeks since that day. The floor of the shelter was so cold and hard that we could not sleep well. At the beginning of our lives at the shelter, we were given one rice ball per 2 to 3 evacuees or only a mouthful of instant yakisoba (stir-fried soba noodles). Drinking water was used only for when medicine was taken and when preparing milk formulas. It was cold with only an oil-heater, and due to water outages, hand washing after using the toilet was unsanitary as we could only rinse our hands with stored water. There were also other staff members besides me who were commuting from their shelter, and we had to work in similar situations. I was able to confirm the safety of my mother on March 13 and then went to work on foot. I ate something warm for first time in a while at the hospital, I could also rest on futons and, what was more, watch TV, which made me feel really happy. When I was at work, I could forget about the earthquake disaster as long as I didn't look outside. Other staff members also gave me some encouragement, which supported me

mentally. Though, for about a week after the earthquake, I was only thinking about how glad I was to have survived, I was gradually having to face the reality about the difficulties of living at the shelter and our livelihood recovering in the future.

当病棟ではスタッフ全員無事ではあったが、家族を失ったスタッフは 4 名、自宅に被害を受けたスタッフは 9 名いた。震災時本来ならば病院に駆けつけなければならないが、来られなかった。被災した私が来院できない間の病棟の状況と患者への対応を知りたく、また記録に残すことで今後の震災時の対策につながると考え、スタッフと共に当時を振り返った。

Though the members in our ward were all safe, four members lost their family members, and the houses of nine members were damaged. In case of an earthquake disaster, we must promptly make our way to the hospital, but I could not do so. I wanted to know the situation of the ward and how the hospital was coping with the patients while I - one of the disaster victims – was away from the hospital. And, I also thought that leaving facts on record would lead to future earthquake disaster measures, so I looked back on those days together with the staff members.

被災の状況と対応

1) 直後の状況

震災当日の当病棟の日勤スタッフは看護師 8 名、看護助手 2 名で勤務していた。患者数は 39 名(定床 40 床)、担送患者 22 名、護送患者 6 名、独歩 11 名、うち人工呼吸器装着患者 1 名、輸液ポンプ 16 台、エアーマット 8 台使用、ECG モニター管理を要する患者は 24 名だった。

The disaster situation and our responses

1) The situation immediately after the earthquake

The day shift staff members working in our ward on the day of the earthquake disaster were 8 nurses and 2 nursing assistants. The number of our patients were 39 (the fixed number of hospital beds 40): 22 stretcher patients, 6 escort patients and 11 ambulatory patients, including a ventilated patient, 16 on a infusion pump and 8 on an air mattress and 24 patients having need of ECG (Electric cardiogram) monitoring management.

2) 地震直後の日勤スタッフの行動

地震発生時、病棟外にいた患者は心臓カテーテル室(心カテ室)に 2 名、CT 室 1 名、リハビリ室 1 名、透析室 1 名だった。当日心臓カテーテル検査は 2 件あったが地震の前に終了していた。地震発生時のスタッフの所在として看護師 3 名は各病室でケアを施行、2 名が CT 室で患者に付き添い、1 名が心カテ室で検査介助、1 名がナースステーションにいた。看護助手 1 名は ME 室に、もう 1 名は患者をリハビリ室から車いす移送



中で西側エレベーター内にいた。スタッフは地震が発生し揺れがおさまると、最寄りの患者の安全確認を第一に行った。患者は不安な表情を浮かべており「病院は大丈夫ですから、指示があるまで動かないで下さいね。」などと声がけをし、その後一旦ナースステーションに戻り、師長へ状況報告後再度病棟内の安全確認、患者の状態観察に廻った。その後は医師、師長指示のもと停電対策や安全対策へ動き始めた。地震直後にスタッフがとった行動をマニュアルと照らし合わせ振り返ると十分に対応できていたと思われる。

2) The actions that our day shift staff took immediately after the earthquake

At the earthquake occurrence, the patients who were staying outside of ward were two patients in the cardiac catheterization room, one in a CT room, another in the rehabilitation room and the other in the Dialysis Center. Two cardiac catheterizations were carried out on the day, which had already been completed before the earthquake. The whereabouts of our staff at the time of the earthquake were as follows: three nurses caring for patients at each hospital room, two others tending to a patient in the CT room, another assisting an examination in the cardiac catheterization room, another in the nurse station, one nursing assistant in the ME room, the other assistant in the elevator of the west side on the way from the rehabilitation room transferring a patients with a wheelchair. After the earthquake occurred and subsided, the staff prioritized the confirmation of the safety of our patients nearest to them. Patients were uneasy, so we said things like, “the hospital is all right, so would you be able to please stay put until instructions are issued?” Then, once we returned to the nursing station and reported the situations to our head nurse, we went around again to confirm the safety in the ward and to observe the state of our patients. We then started taking blackout measures and safety measures under our doctors’ and the head nurse’s instructions. Comparing the actions that our staff took immediately after the earthquake with the manual and looking back at them, it can be said that we were sufficiently responding to the situation.

3) 地震直後から 2 週間の患者の状況と動向

地震発生後、人工呼吸器を装着していた患者は呼吸状態が安定していたため、離脱し酸素マスクでの管理とした。病室にいた患者は地震による怪我はなく、CT室の患者はレントゲン技師に患者の観察を依頼し、その後担架で帰室。心カテ室の患者 2 名は独歩で病室に帰室。リハビリの帰りでスタッフと共にエレベーターに乗っていた患者は、地震直後 2 階でエレベーターを降り、その後担架で帰室した。透析をしていた患者は終了後、3 北病棟に転室を依頼した。

3) The status and trend of patients within two weeks after the earthquake

As the respiratory status of all the ventilated patients was stable after the earthquake, we took patients off ventilators and decided to manage their respiration with oxygen masks. Patients in hospital rooms had no injuries by the earthquake, and we asked an X-ray technician to observe a patient in the CT room, who was subsequently brought

back to a hospital room by stretcher. Two patients in the cardiac catheterization room came back to their hospital room on foot. A patient with a staff member in an elevator on the way from rehabilitation training got off on the second floor immediately after the earthquake and was later brought back by stretcher. We requested for a patient who had undergone dialysis to move to the 3 North Ward after the completion.

震災当日から2週間の在院患者数は30名前後で、担送、護送患者が2/3を占めていた。震災翌日から2〜3日中に退院の許可があり、なおかつ家族と連絡が取れ、帰る場所のある患者が19名退院した。家族と連絡が取れない、自宅が津波で流出したなどのケースから病状が安定していても退院できない患者もいた。入院は毎日2〜3名ずつあった。寒さや栄養状態の悪化による高齢者の心不全や肺炎が主で、津波による溺水・切創、内服薬や在宅酸素が津波で流出し療養困難となり入院となったケースもあった。3月15日未明に自家発電が停止する可能性が高くなり、重症な不整脈や心不全、心筋梗塞の患者が東北大学病院へヘリコプター搬送となった。

The number of hospitalized patients in our ward within 2 weeks after the day of the earthquake was 30 or so, with stretcher patients and escort patients accounting for two thirds. 19 patients, who had permission to be discharged within 2 to 3 days after the next day of the earthquake, were also able to get in touch with their family and had a home to return to, left the hospital. There were other cases in which patients could not communicate with their family or lost their home to the tsunami, which kept some of them leaving the hospital in spite of their stable condition. We had 2 to 3 hospitalizations every day. Most cases were heart failure or pneumonia in the elderly due to cold or the deterioration of their nutritional status. There were also some cases of patients who were admitted due to drowning and/or were cut by the tsunami or had difficulties with their therapy because of their oral medications or home oxygen bombs had been carried off in the tsunami. The in-house power generation was thought to have a higher risk of shutoff before the dawn of March 15, so it was determined that some patients with severe arrhythmia, heart failure or myocardial infarction should be transferred to Tohoku University Hospital by helicopter.

ここである患者の思い出深いエピソードを紹介する。2月22日にペースメーカー植え込み術目的で入院し、震災時に術後第4病日であった。停電のためテレビからの情報がなく、電話も通じず自宅、家族の安否を気にかけていた。徐々にラジオや面会ホールの人の話で居住していた陸前高田市が壊滅的な被害を受けていることを知り、絶望感を抱いていた。私の夫の実家も陸前高田市にあり、テレビで空からの映像を見た時は変わり果てた光景を信じるが出来ず、夫の家族が皆流されたと泣き崩れてしまった。何も残っていないあの光景は本当に衝撃的であり、それを伝えるのはショックを与えかねないと考え、スタッフ間で情報がない、分からないと統一した対応を取った。患者は被害の状況も家族の安否も分からない、私の被災時の気持ちと全く同じであったが、より長期間だったため本当に辛かったと思う。患者は何とかして家族の安否を知ろうと必死だった。

希望を持つよう「避難していてきっと無事です。ガソリンがなかったり道路が悪かったりで来られないのかもしれないですよ。」と前向きな声掛けを行った。また、自宅が流出した同室者からも状況を察して患者の話に傾聴し、声掛けを行ってくれ、良い関係を保っていた。3月18日に突然患者の家族が訪れ、居合わせた全員で再会を喜んだ。

Here, let us introduce a memorable story of a patient. Having been hospitalized for pacemaker implantation on February 22, it was the fourth postoperative day on the day of the earthquake. He had no information from the television due to power outage, and the telephone did not work. He was worrying about the safety of his family and home. He gradually knew that Rikuzentakata, where he had lived, was devastated as he heard the radio and people talking in the meeting hall, and was feeling hopeless. As my husband's parents' home was also located in Rikuzentakata, I could not believe the completely changed landscape of Rikuzentakata when I saw aerial footage on TV, and collapsed in tears thinking that my in-laws had been swept away by the tsunami. A sight in which nothing remained was extremely shocking; we thought that telling him about it could lead him to a state of shock, and took unified actions among the staff, such as by answering that we had no information or that we knew nothing. The patient had exactly the same feeling as I had at the earthquake disaster, knowing neither the damage situations nor the safety of his family; he must have had a harder time than me, because it was a longer period of time. The patient was desperate to get information on the safety of his family in some way or another. To make him have some hope, we said to him in a positive way, "They must be safe after evacuation. They might not come here, as they have no gasoline or the roads are blocked." Another patient in the same room whose home had been washed away, listened to his story, spoke to him and maintained good relations with him. However, suddenly on March 18, the patient's family came, and everyone present were overjoyed about their reunion.

人は不安からマイナスに物事を考えてしまう傾向にある。しかし、希望を持つことで気持ちの沈み方も変わってくると実感した。今振り返ると、前向きな声掛けがあったからこそ患者は情報がない中、家族を待ち続けることができたのだと思う。

People tend to think about things negatively due to anxiety. However, I realized that sadness varies with hope. As I look back now, I think that it was because we spoke to him with optimism that he was able to keep waiting for his family in a situation without information.

4) 病棟内の被害状況と対応

特室は天井が一部落下し、壁がはがれ、壁と床に亀裂が発生した。ベランダ、外壁にも亀裂が生じ、外壁がずれている状況である。各病室の床には以前からあった亀裂の拡大、延長が認めら

れた。損傷がひどい所は使用不可となっている。

4) The damage situation in our ward and our response to it

In a special hospital room, a part of the ceiling fell, the wall partially came down, and some fissures occurred on the floor and wall. Cracks also occurred on the veranda and the outer wall, and a part of the outer wall had shifted. On the floor of each hospital room, we noticed that the cracks that had already existed enlarged or extended. Some places with extensive damage are not allowed to be used.

ME 機器については、機器類の転倒等による破損はなかった。作動中だった人工呼吸器が自家発電切り替え後、一時的にコンプレッサーが不調で作動しなかった。

As for our ME equipment, there was no damage. A ventilator in use did not work after switching to the in-house power generation because its compressor was temporarily out of order.

5) 停電対応

停電後、電気機器は自家発電で稼動していたが燃料にも限りがあり、極力節電をしなければならなかった。輸液ポンプは医師指示により点滴内容を変更し、小児用セットで滴下調節または点滴抜針の指示があり、ECG モニターは重症患者のみに使用した。そのため滴下確認や患者の状態観察を頻回に行い、安全性を確保することに努めた。エアマットは除圧マットに変更し、定期的体位変換は通常通り行い褥瘡予防に努めた。またナースコールが使用できないことを想定してナースステーション付近の病室へ患者を転室させた。夜間の転倒防止のため、各病室に自家発電から電源を取りフットライトを設置した。患者へ転倒注意の声かけと巡回を行い、さらに高齢患者には夜間のトイレ歩行が危険であることから排泄は尿取りパットで対応し、また処置室に設置したポータブルトイレへ誘導して排泄させた。数回、自家発電器用のブレーカーが作動してしまい配線を調節しなければならなかった。自家発電コンセントとその使用機器の整理が必要である。

5) Our response to power failure

Electrical equipment was working due to in-house power generation after a power failure, but we had little chance of getting fuel, so we had to reduce our use of electricity to as little as possible. In regard to infusion pumps, we changed the infusion solution under the instructions of our doctors, who also told us to carry out infusion by dripping with pediatric infusion sets being adjusted or remove infusion needles [to give them no infusion]. We used ECG monitors only for severe patients so we frequently confirmed the dripping infusions and monitored the patient's state to ensure their safety. We switched from air to decompressing mattresses, and regular repositioning was carried out to try to prevent pressure ulcers. Assuming that we would not be able to use our nurse call system, we brought our patients to the hospital rooms near the nurse station. To prevent falls at night, each hospital room was equipped with a footlight, powered by its own power source. We went around telling

our patients to take care not to fall. Furthermore, as it was dangerous for the elderly to walk to the toilet at night, we responded with incontinence pads, and we guided them to a portable toilet that had been installed in our treatment room. The circuit breaker of the in-house power generation unfortunately tripped several times, so we had to adjust wiring. I think it is necessary to better arrange the outlets of in-house power generation and our electrical equipment.

6) 断水・節水対応

断水に備え、震災直後各容器に水を汲んでおいた。

6) Our response to water-supply-suspension and water saving

In preparation for the suspension of water supply, we kept water in reserve in each container since immediately after the earthquake.

7) 内服・食事対応 2

震災後は治療食が提供できず摂取カロリー不足が考えられることから、インスリンや糖尿病内服薬は医師の指示で中止した。付き添いの家族にはスタッフ用の買い置き菓子を配布した。スタッフも菓子やカップ麺で代用したが、不足を感じた。今後、スタッフや付き添い家族のための備蓄食糧を病院で整備する必要があるのではないだろうか。

7) Our response to providing oral medications and meals

Since we could not provide their therapeutic diets after the earthquake, it lead to deficits in calorie intake, which lead to the stoppage of therapy with insulin or oral antidiabetics by the instructions of our doctors. We distributed sweets kept in reserve for our staff to attendant family members. Although our staff members also had cup noodles and confectionery instead of ordinary meals, there wasn't enough. In future, it might be necessary for the hospital to reserve stockpiles of foods for both our staff members and attendant family members.

8) 防寒対策

カイロや厚着をして対応した。

8) Cold protection measures

We were responding to the cold by carrying pocket body warmers or wearing many layers of clothing.

9) 避難対策

氏名と病室をガムテープに記載し名札を作成し病衣へ貼付した。避難に備え安静度、酸素の有無、全身状態、活動範囲から誘導順を決め、車いすの配置や誘導スタッフを決めた。4 南の目印として清拭用の新しい青いタオルを患者とスタッフの首に巻いた。



また入院患者名を一覧表示した紙に担送・護送・独歩の区別や食事・付添者なども表示した。避難は緊急を要し、また人手不足も考えられたことから今後は容易に患者確認のできるリストバンド等の導入を望む声も多かった。

9) Evacuation measures

After making nametags by writing names and room numbers of patients on packaging tape, we attached them on the hospital gown of each patient. We decided the guiding order of patients depending on the bed rest level, the oxygen-necessity and their general condition in preparation for evacuation. We also decided the arrangement of wheelchairs, our guiding staff members and so on. We tied a new blue cleaning towel around the neck of our patients and staff members to indicate those of the 4th Floor South Ward. In addition, we displayed the list of names of the inpatients on a sheet of paper, on which we also indicated their transferring group (stretcher-patients, escort-patients or ambulatory patients), diet contents, each attendant, etc. As our evacuation was considered urgent and as we were shorthanded, there was a growing demand for tools like wristbands, which would make patient-identification easier in the future.

10) 業務内容の変更

ルーチン業務は簡素化しベッドサイドへ行く時間を今まで以上に増やし、少しでも患者の不安が軽減できるようコミュニケーションを図ることに重点を置いた。病棟ミーティングは日に2回行い情報の伝達・共有の時間に充てた。バイタルサイン測定は医師指示のもと日勤2検から1検とし、夜間は必要時のみとした。清拭は汚れた場合のみウエットティッシュで行った。物資の供給不足から点滴刺し替えは点滴が漏れた時に、フォーレは月1回の交換とした。看護記録はSOAPでの記載から経時記録とした。

10) The alteration of our nursing service

Our routine service was simplified, and the time available for bedside visits of the patients was increased; we focused on having communication with them to reduce their anxieties, even if it was just a little. We were meeting two times a day, allowing ourselves time for communicating and sharing information. By the instructions of our doctors, cleaning was carried out with wet tissue papers only when things were dirty. As we lacked supplies, we decided to exchange the needles of infusions only when infusion leaked, and Foley catheters (a kind of urine guide tube) once a month. Our nursing records were switched from a SOAP-format to chronological order.

11) スタッフの勤務状況

震災当日から2週間までの職員の勤務状況であるが、連絡の取れないスタッフが当初4名おり、また数日は携帯電話も不通だったため、師長は震災時に院内にいたスタッフで勤務シフトを変更し、2～3日毎の予定を調整して口頭で伝えた。また、家族と連絡が取れない者や自宅が津波で流

出した者への休日を配慮しながらの勤務編成であり、日勤は平均6～7名で行った。通勤困難なスタッフのために透析センターを休憩室として解放してもらえたことや体調不良のスタッフのために内科受診時間を設けてもらったことは「大変助かった」との声が聞かれ、大きな不安を抱えることなく勤務できた要因となった。

11) The work situation of our staff

The staff had been working for two weeks from the day of the earthquake, but initially there were four staff members who could not be contacted. As mobile phones did not work for a few days, our head nurse was modifying our work shift with the members in the hospital at the earthquake, adjusting the schedule of every 2-3 days and orally relaying the information. In addition, the schedule was adjusted to prioritize days off for the members who had not been able to get in touch with their family or those whose home had been destroyed by the tsunami, which meant day shift were carried out by 6-7 members on average. The Dialysis Center was thankfully made available as a resting room for staff members that had difficulties commuting to work, and the internal medicine department set up some opportunities to give medical consultations for the staff with poor health, both were valued as very helpful and became one of the key factors to aid us in continuing our work without anxieties.

12) 支援

各団体から支援物資として米、毛布、マスク、手指消毒剤、化粧品、弾性ストッキングなどを頂いた。女性の職場であるため、スタッフからは特に化粧品の支援がうれしかったとの声が聞かれた。また埼玉の病院から看護師の派遣があり、震災時にマンパワーを必要とする病棟にとって非常に有効であった。同時に励ましの言葉も頂きスタッフの力となった。

12) Support

We gratefully accepted things such as rice, blankets, flu masks, hand disinfectants, cosmetics and elastic stockings as relief supplies from many organizations. As a lot of women were working in the hospital, we heard some comments from the staff particularly in favor of supplied cosmetics. Furthermore, we also accepted the dispatch of nurses from the hospitals of Saitama Prefecture, which was very effective for wards requiring manpower during the earthquake disaster. We also received words of encouragement at the same time, which boosted morale

まとめと今後の課題

スタッフは自宅や家族が津波の被害にあっていても、その時々で患者の安全のためできる限りの対応を気丈に行っていた。患者の安全を第一に考慮し、できる範囲で看護の質を落とすことなく発案実施していく姿勢は、循環器科病棟という緊急性の高い臨床現場で得られた能力であることを実感した。物的、人的資源の限られた状況下で看護の基本に戻り、臨機応変に柔軟な対応と創意工夫を行い、可能な限り通常の看護サービスを提供できるかが重要な点だと思われた。

Summary and our future challenges

Our staff members were trying to carry out as much care as possible to secure the safety of our patients at any given time, even though their families and homes had been affected by the tsunami. The staff's actions prioritized the safety of the patients, who'd also suggest and practice what could be done without decreasing the quality of nursing. I felt this ability was obtained in the clinical setting of the high urgency cardiovascular ward. Returning to the basics of nursing under limited condition of both materials and manpower, it was important for us to give as much regular nursing services as possible by flexibly responding as the occasion may demand and thinking out of the box.

停電・節電のため夜間は暗く、さらに余震の恐怖感もあり皆不安だったと思う。人は誰かのそばにいる、声を掛けてもらえる、それだけですごく安心感を得る。患者に寄り添うことも大切な看護なのだと学んだ。今回当病棟でも災害看護の特殊性は充分発揮され、状態悪化や急変する患者がいなかったことから安全性を維持できていたが、今後も常に問題意識を持ち自らが判断し行動できるように定期的な訓練が必要である。

It was dark at night due to power failure and trying to save power, furthermore, we also had the fear of aftershocks, which I think made everyone anxious. People gain a peace of mind when someone is always close by, when someone greets you. I have learned that reaching out to patients is also important nursing. In our ward, the special characteristics of disaster nursing were well demonstrated. We did not have any patients whose condition worsened or changed suddenly, ensuring the safety of our ward. However, periodical training will be required so that we will always bear in mind the problems, judge and take action by ourselves going forward into the future.

今回、我々の地震発生直後の行動は適切に行われたと思うが、避難が必要な場合の行動・手順として現在のところ確立したものはない。患者の安全確保を効率良く行うためには、避難経路や方法、治療中断の目安など病棟内で具体的にマニュアル化していく必要があると感じた。看護師の行動などチャート方式に明示し誰が見てもわかりやすいように整備することを今後の課題として作成に取り組んでいる。今回の震災では循環器科病棟に対する具体的な避難や待機の指示はなく、医師と相談して患者を他病棟に移動せずに現病棟にとどまることにしたが、病院全体を把握したうえでの避難指示系統の確立も必要であると思われた。

This time, I think that we took appropriate action immediately after the earthquake, but we do not have a guideline of our action and procedures currently established in the event of evacuation. I feel that, in order to efficiently ensure the safety of patients, evacuation routes and methods, and some guides to stop therapy should be specifically standardized in our ward. We making it our aim for the future to clearly indicate plans including the actions of nurses in a chart-format and to put them in

order so that anyone can understand them. In this earthquake disaster, we had no specific instructions of evacuating and were waiting on our cardiology ward, so we spoke with the doctors and decided to stay in the present ward without transferring patients to other wards. It would be necessary to establish the instruction-system of evacuation after grasping the entire situation of the hospital.

おわりに

現在私は陸前高田市の夫の実家で暮らしている。震災後は人生の中で一番辛く、そして悲しい月日だった。元の生活に戻りたいと心の底から思ったこと、生きることが辛いと感じたことが多々あった。夫から地震後職場に駆けつける際、夫の姿が見えなくなるまで祖母が見送ったという話を聞いた時は涙が止まらなかった。夫はなぜあの時避難するよう強く言わなかったのかと自分を責めていた。この震災で家族を失った人の中で同じような葛藤で苦しんでいる人は多いと思う。心の傷はたとえ小さくはなっても癒えることはない。けれども私は祖父母に「生きなさい」と言われたと思い一生懸命生きようと思っている。そして今回震災を経験したことで、より患者の気持ちに近づいて関わられたようにも感じた。

Conclusion

I am now living in my husband's parents' home in Rikuzentakata. The period after the earthquake disaster was the most painful and sorrowful of my life. From the bottom of my heart, I was eager to go back to my original life, and I often felt continuing to live was difficult. I heard that, when my husband had rushed to his office, his grandmother had seen him off until he was out of her sight; I could not stop crying. My husband was blaming himself for not pushing her to evacuate at that time. I think many victims who lost their family members in this disaster have been suffering from similar conflicts as him. Even if the emotional scars become smaller over time, they will never be healed. However, I believe my grandparents would say, "You should live on", so I want to live my life the best I can. Having experienced this earthquake disaster, I also felt as if I had come closer to our patients' hearts.

先日息子の生活発表会があり、1年前と比べて大きく成長した姿を見て、この子を守ることができて本当に良かった、生きていて本当に良かったと思った。慣れ親しんだ町で今までと同じ生活はできないが、家族という大きな宝を持てる幸せを忘れずに、一步一步前を向いて生きていこうと思う。また震災後、日本中世界中からたくさんの支援を受け「助け合い」を強く感じた。大震災という状況下で病棟スタッフがこれまで以上に一丸となって医療を行った経験から災害時、病院、患者の安全が守られる体制を整えていきたいと思う。

We went to our son's presentation the other day, and we could see he had grown a lot compared to a year ago; I thought how truly glad I was for us to have been able protect our child and to have survived. Though we cannot live in the same way that we have been living up until now in our familiar town, I would like to live

step-by-step looking ahead without forgetting the happiness of having the greatest treasure, our family. Also, after the earthquake disaster, we have received a lot of support from Japan as well as all over the world and strongly felt “Mutual Aid.” Our ward staff strived more than ever to provide medical care under the difficult conditions of the great disaster. From the experience, we would like to establish a system to protect the safety of the hospital and our patients at the time of disaster.

災害の教訓から初動時対応の基準を図る

4 階北病棟

Planning the standard of the initial response from the lessons of the disaster

The 4th Floor North Ward

はじめに

近年、地震災害が各地で発生しており、気仙沼市では宮城県沖地震を想定した災害訓練の実施や、当院においても市立病院トリアージ訓練や集団災害に関する研修などにより、危機意識とともに災害時への関心は高まっていた。しかし今回発生した東日本大震災は国内観測史上最大の巨大地震で、想像を絶するものであった。

Introduction

In recent years, earthquakes were occurring in various places. In Kesennuma City, some disaster drills assuming the Miyagi-Oki Earthquake were carried out. At our hospital, triage drills of Kesennuma City Hospital and workshops on a massive disaster were held, fostering alertness toward a disaster together with the sense of impending crisis. However, the Great East Japan Earthquake that occurred was the greatest earthquake ever recorded domestically and was beyond the scope of our imagination.

災害拠点病院と位置付けられている当院で、看護に従事している我々が、災害発生時直ちにすべきことは、入院患者の安全確保と状況の把握である。当時あの混乱し緊迫した状況下に果たして各々の役割を自覚し、効率的な初動ができていたのだろうか？

We are in charge of nursing at one of the disaster base hospitals. After the occurrence of the disaster, we need to immediately ensure the safety of our inpatients and grasp the situation. At that time when we were in a confused and urgent state, were we fully aware of each role and able to carry out efficient initial action?

看護師自らも被災し直面した現状に動揺や不安を抱えつつ、日々浮上する問題に手探り状態で対応しながら過ごした当時を振り返り、今後の備えについて考えた。

We were disturbed and unsettled by the state of affairs we faced, in which the nurses themselves were affected and were spending days dealing with problems occurring every day through trial and error. Looking back, we reflect on future preparation.

発生時の状況

1) 3月11日地震発生時

入院患者数・・・52名（担送21名、護送11名、独歩20名）、重症者7名

日勤勤務者・・・看護師9名、看護助手3名

*発生当日～2週間の基礎データ一覧（資料1）

The situation at the disaster occurrence

1) At the time of the earthquake occurrence on March 11

The number of inpatients: 52 (stretcher-patients: 21 patients, escort-patients: 11, ambulatory patients: 20) including 7 seriously ill patients

Day shift workers: 9 nurses and 3 nursing assistants

* The Basic data list for two weeks since the day of the earthquake occurrence (Document 1)

資料1 当日～2週間の基礎データ一覧

3月		11	12	13	14	15	16	17	18	19	20	21	22	23	24
患者数 病床定数 (57床)		55+2 (2西)	59+2 (4西)	57	47	46	46	45	48	48	49	49	53	54	45
救護区分	担送	26	28	27	25	33	35	34	38	39	41	40	44	46	38
	護送	11	12	11	8	3	5	7	4	4	4	4	4	3	3
	独歩	20	21	19	14	10	6	4	6	5	4	5	5	5	4
重症者 (モニター装着含む)		7	6	7	4	6	6	5	5	5	5	5	5	5	6
入院		3	6	1	3	5	3	2	3	2	2	1	4	2	2
退院		3	2	5	13	6	3	3		2	1	1		1	11
転院		2	3		6	2	2	1			1				
日勤Ns (看護助手)		9 (3)	5 (3)	8 (1.5)	9 (3)	6 (2)	6 (2)	8 (1)	7 (1)	7 (1)	6 (1)	6 (1)	8 (1)	8 (2)	6 (1)

Document 1

The Basic Data List two weeks from the day of the earthquake occurrence

March		11	12	13	14	15	16	17	18	19	20	21	22	23	24
The Number of Patients The Number of Hospital Beds (57 beds)		55+2 (The 2nd Floor West)	59+2 (The 4th Floor West)	57	47	46	46	45	48	48	49	49	53	54	45
Aid Category	Stretcher	26	28	27	25	33	35	34	38	39	41	40	44	46	38
	Escort	11	12	11	8	3	5	7	4	4	4	4	4	3	3
	Ambulatory	20	21	19	14	10	6	4	6	5	4	5	5	5	4
Critically Ill Patients (Including Patients Under Monitoring)		7	6	7	4	6	6	5	5	5	5	5	5	5	6
Hospitalization		3	6	1	3	5	3	2	3	2	2	1	4	2	2
Hospital discharge		3	2	5	13	6	3	3		2	1	1		1	11
Hospital transfer		2	3		6	2	2	1			1				
Day shift nurses (Assistant Nurses)		9 (3)	5 (3)	8 (1.5)	9 (3)	6 (2)	6 (2)	8 (1)	7 (1)	7 (1)	6 (1)	6 (1)	8 (1)	8 (2)	6 (1)

2) 病棟被害状況

壁の亀裂・・・廊下 2 か所 (463 号室入り口付近 3～4m、477 号室入り口付近 1m)

病室 1 か所 (482 号室内 2～3m)

西側男子トイレ内タイル (10cm×10cm) 3 枚剥がれ落下

2) The situation of the damage in our ward

Cracks of the walls: 2 on the hallway walls (a 3-4m crack near the entrance of Room 463, a 1m crack near the entrance of Room 477)

One in a hospital room (a 2-3m crack in Room 482)

3 tiles fell off (10 cm × 10 cm) in the men's lavatory of the west

当日の状況

地震発生時は病室巡回中であり、個室の患者が嘔吐、けいれん発作後意識消失している状態で発見され、看護師 4 名で蘇生中であつた。他の看護師は洗面所で洗髪介助やオムツ交換中であり、看護助手 3 名もそれぞれリハビリ後の患者の車イス移送や入浴介助、オムツ交換を行っていた。

The situation of the day

At the occurrence of the earthquake, we were going around hospital rooms. A patient in a private room had been found unconscious after vomiting and a having a convulsive seizure, and was being resuscitated by 4 nurses. Other nurses were assisting patients in shampooing in the washroom or changing diapers, and 3 nursing assistants were transferring a patient by wheelchair after his/her rehabilitation training, assisting the bathing of a patient or exchanging a diaper.

詰所内は本棚から本やファイル等が崩れて机上や床に散乱した状態であったが、物品棚からは物の落下はなく、薬品棚や点滴類の破損はなかった。病棟内の被害は大きなものはなく、壁の亀裂が3か所と西側男子トイレ内のタイルが剥がれ落ちた程度であった（詳細は発生時の病棟被害状況参照）。

Though our nurse center was in such a state where books, files among other things were scattered on the desks and the floor after they fell down from bookshelves, nothing fell down from article racks, and there was no damage to medications and infusion bags on shelves. There was no heavy damage in the ward, only 3 cracks on the walls and the peeling-off of tiles on a wall in the men's lavatory in the west (for details, see "The situation of the ward damage at the time of the disaster occurrence").

地震発生直後、直ちに火元確認をし、スタッフはそれぞれ受け持ち患者のもとに走り、人工呼吸器装着患者や重症患者をはじめ入院患者の状態観察や安全確認をした。その後、師長指示のもと自家発電に切り替えの準備を開始。まずモルヒネ塩酸塩持続点滴中の輸液ポンプを自家発電に切り替え、他の輸液ポンプは手動とした。エアマットはこの時点では全て電源をオフとした。集中治療室の人工呼吸器に関しては、当初から自家発電に接続しており、呼吸器の点検と患者の状態に異常がないことを確認した。また蘇生後の患者を集中治療室へ転室した。持続点滴に関しては点滴スタンド転倒の危険があるため、天井からのつり下げへと変更し、点滴の持続は最小限とし、できるだけヘパリンロック対応とした。

Immediately after the earthquake, we soon confirmed a fire breakout. Each staff member rushed to the patients they were in charge of, observed their condition and confirmed their safety including the mechanically ventilated patients and critically ill patients. Then, we started to prepare switching to in-house power generation based on the instructions of our chief nurse. First, the infusion pump during continuous infusion of morphine hydrochloride was switched to private power generation, and the other infusion pumps were manual. All air mats were turned off at this point. In regards to some ventilators in our intensive care unit, they had always been connected to the in-house power generation. We checked their function and confirmed that there was no abnormality in the condition of those patients. The patient who had been resuscitated was taken to the intensive care unit. In regards to continuous drip

infusions, because of the risk of infusion stands falling, we switched them to have them hang from the ceiling, minimized the duration of infusion and carried out as many heparin locks as possible.

その後、駆けつけた看護師 4 名も加わり、病室の収納棚から物が落下しないよう扉をガムテープで固定し、また病棟通路が気仙沼高校へ向かう避難経路に使用され、大勢の人が往来しており、在院者の確認のため、患者と付き添いの家族全員に部屋番号と氏名を明記したテープを貼付した。

After that, four nurses rushed to join us, and we fixed the small doors of the storage shelves of the hospital rooms with tape so that things would not fall out. In addition, the corridor in the ward was used as an escape route toward Kesennuma Senior High School. For that reason, a large number of people were coming and going. To confirm who were staying in the hospital, we attached tape with their room number and name clearly written on it for every patient and family attendant.

面会ホールには、エレベーターが使用できなくなり自分の病棟へ戻れなくなった入院患者 2 名がそのまま待機しており、また他病棟からは病室水漏れのため患者 2 名が避難してきた。患者はどちらも 2L/分と 10L/分の酸素吸入をしており、酸素吸入ができる 4 人部屋に 6 人を収容し対応した。また市内幼稚園からは保育士含め園児数十名が避難し、6 人部屋一室に入院患者とともに在院していた。夕方には当病棟に電力を供給している第 2 自家発電の残量が 16 時間位であるとの情報が入り、人工呼吸器装着患者の転室を迫られたが、その後も数回残量情報は錯綜し、その都度対応を迫られた。

In the meeting hall, two patients were waiting around as they were unable to return to their ward because the elevators could not be used. In addition, other two patients had evacuated from another ward due to water leakage in their hospital room. Both the two patients were on oxygen inhalation of 2 L, 10 L/min, respectively. We managed to accommodate 6 patients in a four-bed room with oxygen inhalation available. Furthermore, dozens of kindergartners and childcare workers had evacuated from a kindergarten in the city and were staying together with our inpatients in a six-bed room. In the evening, we received some information that the second in-house power generator, which had been providing power for our ward had only about a 16-hour amount of fuel left. We were forced to change the room of ventilated patients, but the information of the remaining amount of fuel was often conflicting, and we were forced to respond to the situation every time.

病棟内にある第 5 駐車場出口にトリアージ受け入れが準備され、16 時 30 分、災害発生後最初の入院を受け入れた。66 歳の女性で津波に巻き込まれ悪寒が強く、全身油や泥まみれの状態であった。その後も日勤者は次々と搬入されてくるトリアージ患者への対応に迫わ

れた。夕食は非常食となり、摂取カロリーが不安定であり、食前に血糖スライディングスケールをしていた糖尿病患者には、低血糖の危険を考え血糖測定を食後とし、値が 300 以上の場合インシュリン 6U の皮下注指示となった。経管栄養は、栄養科配膳であるアイソカル®・プラス（Nestle Nutrition）から病室保管であったラコール配合経腸用液（株式会社大塚製薬工場）へと変更。また停電への対応として廊下 3 か所に投光器が設置され、頻回に余震があるなか、そのつど病室の巡回をし、入院患者の安全確認を行った。そんな中でも 88 歳の男性が喘息悪化にて入院、一方で重症患者 1 名が死亡退院し、また 76 歳の男性（寝たきりで胃ろうから経管栄養注入中）が自宅停電のため痰の吸引ができなくなり入院となった。この日、日勤者含め駆けつけた看護師は深夜勤や翌日の日勤に備え、病棟内での仮眠や 21 時頃に帰宅となった。

A triage support desk was prepared at the exit of our ward leading to the 5th parking lot, and we accepted the first patient to be hospitalized after the disaster at 16:30. The patient was a 66-year-old woman, feeling severe chills after having been swallowed up by the tsunami and her whole body was covered with oil and mud. Since then, our day shift workers were forced to respond to triage patients being transferred one after another. Evening meals were switched to emergency food, which made the calorie intake unstable. Among diabetic patients who were under the blood glucose sliding scale before meals, the measuring time of their blood glucose level was switched from before meals to after meals considering the risk of hypoglycemia. Our doctors determined the subcutaneous injection of insulin 6 U to be administered in case of the value of blood glucose level of 300 mg/dL or more. In regards to tube feeding, Isocal Plus® (Nestle Nutrition, [a kind of enteric nutrition]), which had been served by the nutrition department of our hospital, was switched to Racol Enteral Compound Formula for Tube Feeding® (Otsuka Pharmaceutical Factory). Floodlight projectors were also set at three places in the corridor to respond to power failures. While aftershocks were occurring frequently, we went around the hospital rooms every time an aftershock occurred and confirmed the safety of the inpatients. Meanwhile, an 88-year-old man was hospitalized due to worsening asthma, a seriously ill patient that had died was discharged, and a 76-year-old man, who had been bedridden and receiving tube feeding from his gastrostomy, was hospitalized because the suction of his sputum could not be performed at his home due to a power failure. On this day, our nurses who had rushed to the ward, including the day shift nurses, prepared for the midnight shift and the day shift of the following day, and ending up napping in the ward or returning home late at about 21:00.

3 月 12 日

職員の被災状況が明らかになってきた。当病棟スタッフは看護師 24 名（うち 2 名は産休中）、看護助手 3 名。12 日現在で連絡が取れないスタッフが 3 名おり、今後の夜勤を含めた

勤務の調整が急務となった。また自宅全壊が 3 名、大規模半壊が 3 名で帰宅困難のため院内泊や、避難した親戚宅、またそれぞれの避難先から出勤している。通勤手段である自家用車が津波被害で使用できないスタッフやガソリンが少ないスタッフも多く、数名は 40 分～1 時間の徒歩で出勤となった。

March 12

The effects of the tsunami on our staff were becoming clear. The staff of our ward consisted of 24 nurses (two of whom were on maternity leave) and three nursing assistants. There were three staff members we were unable to make contact with as of March 12, so the adjustment of work shifts including future night shifts was urgent. We had three members who had their home completely destroyed and another three with their home greatly destroyed. Those who were unable to return home were staying at night in the hospital or commuting from their place of evacuation such as their relatives place or each evacuation shelter. Many staff members could not make their regular commute, as their private car was damaged by the tsunami, many others had little gasoline, so some were forced to commute for 40 minutes to 1 hour on foot.

入院対応に関してはオーダーリング不能のため入院登録ができず、急遽リストを作成し（資料 2）対応。病室前やナースコールの氏名表示には災害後の入院と分かるようにピンクテープの使用と、受け入れ時のデータベース聴取も住所と生年月日だけは確実に聴取するなど、簡素化し対応した。また担送や護送などの救護内容の把握にも用紙を作成し（資料 3）、勤務帯毎にチーム間で確認をした。

In regards to our response to the hospitalization of patients, we could not carry out registrations because the ordering system was unavailable, so we rushed to make a list and responded to the situation (Document 2). To display their names in front of their hospital rooms and on the nurse call apparatus, we used pink tape so that we were able to understand that they were hospitalized after the disaster, and made sure to gather their address and date of birth for the database at the time of their hospitalization; we responded to the situation by simplifying things in this manner. We also made a form to check up on details of their need of aid such as with stretcher-patients and escort-patients (Document 3) and confirmed the information among our teams in every working shift.

注射箋コピーに関しては、自家発電の使用を控えるため 11 日にコピーしたものを継続して使用することにし、点滴も病棟在庫から準備した。点滴への患者名記載もラベルの使用を控え点滴に直書きとし、ヘパフラッシュや輸液セットなどの在庫不足が懸念され、抗生剤は 1 日分が終了した時点でセットをはずし節約した。医師の院内 PHS は使用困難のため必要時院内放送で呼び出した。

In regard to making copies of injection prescriptions, we decided to repeatedly use

what we had copied on March 11 to save the use of in-house power generation, and were preparing infusions from the stock in our ward. When we wrote the names of patients, we also avoided the use of patient name labels and wrote directly on infusion bags. We were concerned about the stock shortage including infusion sets and heparin solution kits used for injection-route flushing. In regards to antibiotic infusions, we took off an infusion set at the time when all the infusions of one day had been completed, and saved those sets. The doctors could not use their PHS for in-hospital use, so we called the doctors by the in-hospital broadcast when needed.

栄養科へも食事毎に粥・飯の人数を内線電話で連絡することになり、ナースコールと病室前のネームに食事内容をビニールテープで表示した。

We had to tell the nutrition department the number of patients of rice porridge and rice for each meal by in-hospital telephone. We displayed their food contents on plastic tape, and stuck the names on the nurse call apparatus and in front of their hospital rooms.

資料2 入院リスト

病棟	氏名	ID
	生年月日	入院月日
	性別	
	住所	
	連絡先 (TEL)	
	(旧姓)	
病棟	氏名	ID
	生年月日	入院月日
	性別	
	住所	
	連絡先 (TEL)	
	(旧姓)	
病棟	氏名	ID
	生年月日	入院月日
	性別	
	住所	
	連絡先 (TEL)	
	(旧姓)	

Document 2 Hospitalization List

Ward	Name	ID
	Date of Birth	Date of Hospitalization
	Gender	
	Address	
	Contact (TEL)	
	(Former Name)	
Ward	Name	ID
	Date of Birth	Date of Hospitalization
	Gender	
	Address	
	Contact (TEL)	
	(Former Name)	
Ward	Name	ID
	Date of Birth	Date of Hospitalization
	Gender	
	Address	
	Contact (TEL)	
	(Former Name)	

資料 3 救護区分用紙

A 担送(ストレッチャー)	B 担送 (車イス)	護送 (介助歩行)
		(名)
		独歩
		(名)

A+B 担送
家族付添い

名
名

護送

名

独歩
患者数

名
名

Document 3 Form for Aid Category

A: Stretcher-Patient (Stretcher)	B: Stretcher-Patient (Wheelchair)	Escort-Patient (Walking Assistance)
		(The Number of Patients:)
		Ambulatory Patient
(The Number of Patients:)	(The Number of Patients:)	(The Number of Patients:)

The number of stretcher-patients (A+B) :

The number of escort-patients :

The number of ambulatory patients :

The total number of patients :

The number of attendant family members :

病棟の人の往来は増える一方で、廊下や病室内全体に泥やほこりによる汚れが目立つようになり、スタッフで頻回に清掃を行った。また水の節約のため洗面所やトイレ内に節水の表示をし、患者の洗面は使い捨てのおしぼりを使用した。院内泊のスタッフが朝食の配膳を手伝い、また深夜勤のまま日勤帯の点滴準備をするなど、少ない勤務者のカバーをした。まず 80 歳男性が在宅酸素の酸素切れで入院、視力障害があり ADL 全介助の状態であった。その後、第 2 自家発電が停止する可能性が生じたため、4 階西病棟へ人工呼吸器装着患者 1 名を転室させた。また 74 歳の女性が低体温、84 歳の慢性閉塞性肺疾患の男性が肺炎、77 歳の女性が脳梗塞にて入院し、満床となったが、さらに 2 人部屋に 3 人を収容するなどして超過ベッドを作成、2 名の収容を行った。各チームの患者の状態観察やルーチン業務は日替わりリーダー 1 名で行い、準夜勤に入っても、24 歳肺癌の男性がフェントステープの禁断症状、73 歳女性が気管支喘息の発作で入院した。また午前中入院した患者が不穏状態を呈しベッドから転落したためマット敷き対応とするなど、昼夜を問わない業務量で夜勤者 3 名では対応しきれず、院内泊のスタッフが手伝った。この日患者数は準夜帯 2 名の入院を含め定数を 1 床超え 61 名となった。

The flow of people in the ward went on to increase. The uncleanness due to mud

and dust which was all over the corridor and the inside of hospital rooms began to stand out, so our staff were cleaning frequently. In order to save water, we displayed “Water-Saving” in washrooms and a bathroom, and used small disposable damp towels to wipe the patients’ faces. The staff members who continued to stay in the hospital helped with serving breakfast, and those of the midnight shift worked late and prepared infusions to be administered during the day shift of the next day; with such efforts, we compensated for the lack of staff. First, an 80-year-old man was admitted to the hospital due to his home oxygen being out, and he also had a visual defect and was in need of assistance for all his ADL (Activities of Daily Life). Thereafter, since the failure of the second in-house power generator became probable, we moved a mechanically ventilated patient to the 4th West Ward. A 74-year-old woman with hypothermia, an 84-year-old man with chronic obstructive pulmonary disease, who had developed into pneumonia, and a 77-year-old woman with cerebral infarction were admitted to the ward, which maxed out the ward’s capacity. We supplied excess beds by having three patients in two-bed rooms and admitted other two patients. Our daily leader observed the condition of patients in each team and did the routine work by herself. Even after the beginning of the late shift, a 24-year-old man with lung cancer was admitted to the hospital because of withdrawal symptoms of Fentos Tape® (a narcotic preparation for cancer pain), and a 73-year-old woman was hospitalized because of bronchial asthma attacks. In addition, we had a patient who had been admitted in the morning become restless and he fell from his bed. We responded by laying the patient on floor mats. We had such a large quantity of work throughout day and night, to which we could no longer respond to with the three nurses of a night shift, so the staff staying in the hospital helped them. This day, the number of patients including two hospitalized patients in the late shift became 61, which exceeded the fixed bed number of our ward by one.

3月13日～15日

13日朝には連絡が取れなかった看護師1名が出勤し無事が確認された。

March 13 to 15

In the morning on March 13, a nurse whom we could not yet make connect with came to the office and we confirmed her safety.

この日以降、経過がいくらか安定している患者に退院をすすめ、13日には5名、14日には13名の患者が退院したが、避難所への退院も多く、なぜ今？という不満や不安、また家族も同様に被災しており、退院連絡が十分に取れなかったことでトラブルも発生した。

Since this day, we had recommended discharge of some patients whose course of disease had somewhat stabilized; 5 patients on March 13 and 13 patients on March 14

were discharged from the hospital, and many of them went back to their own shelter. They wondered, “Why do I have to be discharged now?”, making them frustrated and anxious. Their families were also affected in the same way, and we could not communicate with them sufficiently, which caused some troubles.

また 14 日夜から翌深夜にかけ、市内で大火災が発生し、当院へも延焼の恐れがあると連絡が入り、準夜勤深夜勤 6 名に院内泊のスタッフ 3 名を加え、9 名で入院患者の避難誘導の準備を行った。当病棟はこの時患者数 47 名（担送 25 名、護送 8 名、独歩 14 名）、重症者は 4 名であった。いつ避難誘導の指示がだされるか、不安と緊張を抱え一夜を過ごした。その中、今度は他病棟で第 1 自家発電機のオーバーヒートによるトラブルが発生、人工呼吸器装着患者 1 名とバイパップ装着患者 1 名が当病棟へ転入となった。

On the other hand, from at night on March 14 until late at night the next day, a disastrous fire occurred in the city, and we received information that the hospital was also in danger of catching fire; 6 members of the late and the midnight shift and 3 members staying in the hospital, 9 in total, prepared for evacuation guidance for the hospitalized patients. At this time, our ward had 47 patients (25 stretcher-patients, 8 escort-patients and 14 ambulatory patients) including 4 seriously ill patients. Not knowing when the instructions of evacuation would be



写真 リネン室

Our linen room

issued, we spent the night feeling anxious and nervous. Subsequently during this time, problems occurred as the 1st in-house power generator in another ward overheated, so one ventilated patient and one patient on BIPAP in that ward were transferred to our ward.

日々起こる緊急事態に対応しながら、スタッフは休んでいるか勤務しているか分からない状態で疲労も蓄積されていた。特に院内泊の者は、病棟内に仮眠室はなく、リネン室や詰所内の少しのスペースを利用し休息をとっていた（写真）。

While responding to everyday-emergencies, our staff members were in a state in which they weren't sure whether they were resting or working, and their fatigue was accumulating. The staff staying in the hospital who had no napping room in the ward were especially fatigued, so they used a small space in the linen room or the nurse station and took rests there (see Photo).

15 日時点で 2 名の看護師と連絡が取れていなかったが、16 日には 1 名と連絡が取れた。

As of March 15, we could not get in touch with 2 nurses, but we got in touch with one of them by March 16.

3 月 19 日、23 日～24 日

19 日には 59 歳女性が当病棟から東北大学病院へ最初のヘリ搬送となり、またこの日連絡が取れていなかった看護師と連絡が取れ、全スタッフの無事が確認された。

March 19, 23 to 24

On March 19, a 59-year-old woman was transferred from our hospital to Tohoku University Hospital; the first transport by helicopter. This day, we were also able to get in touch with a nurse whom we had not yet been able to contact, which completed the safety confirmation of our staff.

23 日、地震発生後はじめて入院患者全員の清拭をすることができた。少しずつ以前の業務形態に戻りつつあったが、翌日には東北大学病院へ 9 名と施設へ 1 名のヘリ搬送を控えており、サマリー記載などの書類準備の他にも、家族との連絡が円滑にできず、患者一人一人の荷物整理まで行わなければならなかった。搬送準備に万全を期すためチェックリストも作成（資料 4）し、日勤者 8 名全員で準備したが、深夜勤に入る看護師も 21 時頃まで勤務した。

On March 23, we were able to wipe the body of every hospitalized patient for the first time after the earthquake. We were gradually returning to the previous form of our service. We were preparing for transport by helicopter for the next day. In addition to arranging documents such as their summaries, we had to organize the luggage of each patient. We had problems smoothly communicating with their families. In order to make doubly sure of the preparation for their transport, we also made a checklist (Document 4), all the eight nurses of the day shift prepared for the transport, but some nurses entering the midnight shift of the next day also had to continue to work until 21 o'clock.

翌 24 日には 10 名の患者を無事搬送することができた。

On the next day, March 24, we were able to transport 10 patients safely.

資料 4 搬送チェックリスト

<u>様</u>		チェックリスト
BD	(	) サマリー
	(	) Dr 紹介状
BT	(	) レントゲン写真
	(	) 内服薬
P	(	) ID カード
	(	) 荷物
SPO ₂	(	) 名札
	(	) その他
<div style="border: 1px solid black; padding: 5px; height: 50px;"> 注意事項 </div>		

Document 4 Transfer Check List

<u>Mr. / Ms.</u>		Check List
BD	(	) Summary
	(	) Letter of introduction to Dr
BT	(	) X ray photographs
	(	) Oral Medications
P	(	) ID Card
	(	) Baggage
SPO ₂	(	) Name Card
	(	) Other Notes
<div style="border: 1px solid black; padding: 5px; height: 50px;"> Precautions </div>		

問題点と課題

今まで当病棟では自家発電への切り替え時の取り決めはなく、全スタッフに手順が浸透されておらず、切り替え時の優先順位も明確にされていなかった。

Our problems and challenges

So far in our ward, we had not agreed upon the time of switching to in-house power

generation; all the staff had not understood the procedure; the priority of the switching had not been made clear.

災害時における看護師の役割として挙げられることは、まず自身や他のスタッフの安全を確認すること。リーダーやスタッフとの役割確認を瞬時に行い、入院患者の安全確保と設備の点検を行うこと。入院患者の状況確認の際は重症患者から巡回し、あわせて ME 機器の作動状況を確認後、必要時手動に切り替え、巡回時には患者に状況を説明し、不安の軽減を図るということ。これらは、今回振り返ると皆それぞれ実践できていたように思われる。しかし、今後どのような状況下でも、特に夜間や休日等の限られたスタッフでも同様に効率的に実践できるよう、それぞれの役割や動き、行うべきことなどを一目瞭然に見ることができる初動時の対応マニュアルが必要と感じた。緊急時マニュアルは役に立たないという意見もあるが、災害発生時の混乱の最中、それぞれの持ち場、駆けつけたスタッフの役割分担等の明示は十分意義があると考ええる。

What is listed as the roles of nurses in a disaster is, first of all, to confirm one's own safety as well as the staff members' safety. The other roles are as follows: to confirm our roles among leaders and staff members as soon as possible, to confirm the safety of inpatients and inspect the equipment of the ward, to go around starting from critically ill patients when confirming the situation of inpatients, to confirm the operating status of ME equipment, to switch the equipment to manual operation when necessary, to explain the situation to patients while making rounds and to try to relieve their anxiety. Looking back on the disaster, I suppose that each of us had carried out those roles. However, we felt that an initial response manual which would enable us to understand each role and action at a glance so that we can carry out those roles similarly and efficiently in any situation in the future, especially with our limited staff at night, on holidays, would be necessary. Some have an opinion that the manual does not help in emergencies, but I think that, amid the chaos of disaster, it plays a meaningful role in clarifying the respective positions and the division of roles of staff who arrive to the scene.

また、オーダーリングが使用できず、入院登録や食事への対応、内服薬処方に関してなど不都合が多数発生した。災害時の入院取り扱い等は、病棟毎にそれぞれの対応となったが、当病棟では今回急遽作成したリストを含め、今後も活用できるよう整理するとともにスタッフへの周知を図っていきたい。

In addition, the ordering system was not available. This led to a lot of inconveniences in terms of responses to hospitalization registration, meal correspondence, and oral prescription. In regards to the management of hospitalization at the time of the disaster, responses depended on each ward's situation; In our ward, we would like to summarize what we did including this rushed

list we made, and try to make it known to the staff so it can be utilized in the future.

災害発生後の1～2週間の混乱した時期は、入院患者の保護が優先であり、さらに多数の新規入院患者への対応が求められた。今回のように医療材料を含め限られた医療資源を有効に使用することが重要であるし、また医療者側も少ない人員の中でシフトを組み、スタッフは普段よりも疲弊している状況にあったことから、看護ケアの優先順位や業務形態の検討も必要と思われた。加えて、休息場所の確保は必須であると痛感した。

In this chaotic period from the occurrence of the earthquake through 1-2 weeks later, the protection of our inpatients were prioritized, and we are further required to respond to a large number of newly hospitalized patients. It is important to use limited medical resources including medical materials effectively. As we were creating shifts in the understaffed conditions, making our medical staff more exhausted than usual, it would be necessary to consider the priority and our service form of nursing care. In addition, we greatly felt it essential to secure resting areas and resting time.

ライフラインの途絶によってさまざまな問題が生じたが、特に通信に関しては職員の安否確認の手段にもなっており、今後連絡システムの整備など対策が必要であろう。また当院の緊急時参集基準である“震度5強時”の確認と周知の重要性を改めて感じた。

Various problems arose due to the disruption of lifelines; especially with regard to communications, as it's a means of confirming the safety of staff. It will be necessary to take measures such as establishing a communication system in the future. I also felt the importance of reassessing and disseminating the emergency congregation at our hospital at a seismic intensity of upper 5, which is the standard.

おわりに

今回さまざまな問題を目の当たりにしたが、遭遇した問題に対しては、比較的柔軟に対応できていたと思われる。とにかく、現状を受け入れながら日々を過ごすことだけで精一杯だったと振り返る。当科では挙げられた問題点の中から、初動時の対応マニュアルと、合わせて自家発電への切り替え時マニュアルの作成整備を行った。その後机上シミュレーションを実施、新たな対策も挙げられた。今後も各々の役割とマニュアルの十分な理解が得られ、より実践的なものとして活用していけるよう、模擬訓練等により危機管理意識の継続を図りながら、さらに機器類の整備点検を日常化する体制も整備していきたいと考える。

In conclusion

Although we faced a multitude of problems this time, I believe that we were able to flexibly respond to the problems that we encountered. I recall that we were barely surviving to cope with our day to day situation. Among the problems reported from our department, we made and developed not only our initial response manual but also a manual for the when to switch to in-house power generation. We practiced a

desk-simulation, and new measures were also mentioned. While trying to keep risk management in our conscious by simulated training and so forth, we would like to further develop our system by making it a daily routine to check and maintain the equipment so that we will be able to have thorough understanding of roles and manuals and to utilize them more practically.