

Alternating Medical Dispatch Support Provided by the Japanese Red Cross Society after the Great East Japan Earthquake

Büyük Doğu Japonya Depreminden Sonra Japon Kızıl Haç Cemiyeti Tarafından Sağlanan Nöbetleşe Tıbbi Sevk Desteği

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Abstract

Objective: After the Great East Japan earthquake of March 2011, Ishinomaki City suffered substantial damage as a result of the tsunami and medical services were disrupted. Fortunately, the Ishinomaki Red Cross Hospital (IRCH) was not affected because it had been relocated some distance away from the coast three years before the disaster.

Material and Methods: This report identifies the strategies adopted by the IRCH to cope with the enormous medical demand following the tsunami. The Japanese Red Cross Society (JRCS) dispatched additional medical staff to the IRCH to boost medical services in Ishinomaki City.

Results: From April to August 2011, a total of 113 doctors, 372 nurses, 105 pharmacists, 25 technicians, and 113 clerks, operating in shifts without a break, treated the victims of the tsunami. I was a member of the first medical dispatch team (4 to 9 April 2011) and the fourth medical dispatch team (19 to 24 April 2011) to IRCH by JRCS.

Conclusion: This medical support was helpful in terms of human resources and encouragement, not only to the Ishinomaki Red Cross Hospital, but also to medical systems around the disaster area. (*JAEM* 2013; 12: 54-6)

Key words: Great East Japan earthquake, alternating medical dispatch support, Japanese Red Cross Society

Özet

Amaç: Mart 2011'deki Büyük Doğu Japonya depreminden sonra, Ishinomaki şehri devasa tsunami tarafından büyük bir tahribata uğradı ve tıbbi işlev bozukluğuna düştü. Neyse ki, Ishinomaki Kızıl Haç Hastanesi (IRCH) tsunamiden etkilenmedi, çünkü felaketten üç yıl önce Pasifik Okyanusundan uzak bir yere nakledilmişti.

Gereç ve Yöntemler: Bu rapor, bu felaketten sonraki büyük tıbbi talebin üstesinden gelmek için IRCH tarafından benimsenen stratejileri tanımlamaktadır. Japon Kızıl Haç Cemiyeti (JRCS) Ishinomaki şehrinin tıbbi sistemini desteklemek için Ishinomaki Kızıl Haç Hastanesine ek tıbbi personel gönderdi.

Bulgular: 2011 Nisan'dan Ağustos'a kadar tsunami kurbanları tedavi etmek için toplam 113 doktor, 372 hemşire, 105 eczacı, 25 teknisyen ve 113 büro elemanı, ara vermeksizin vardiyalı çalıştı. JRCS tarafından IRCH'ye gönderilen ilk tıbbi sevk ekibinin (4-9 Nisan, 2011) ve dördüncü tıbbi sevk ekibinin (19-24 Nisan, 2011) bir üyesiyim.

Sonuç: Bu tıbbi destek sadece Ishinomaki Kızıl Haç Hastanesi için değil aynı zamanda afet alanı çevresindeki sağlık sistemi için insan kaynakları ve insan zihniyeti açısından yararlı oldu, çünkü Ishinomaki Kızıl Haç Hastanesi üç yıl önce Pasifik Okyanusundan ayrı bir yere taşınmıştı ve böylece bu felaketten kurtuldu. (*JAEM* 2013; 12: 54-6)

Anahtar kelimeler: Büyük Doğu Japonya Depremi, nöbetleşe tıbbi sevk desteği, Japon Kızıl Haç Cemiyeti

Introduction

On 11 March 2011, the Great East Japan earthquake with a magnitude of 9.0 occurred off the north-east coast of Japan (1). This earthquake was the world's fourth strongest since 1900, the damage inflicted by the tsunami was enormous, and, consequently, accidents occurred at the nuclear power plants in Fukushima (Table 1). This information was disseminated in Japan as well as across the world (2).

The unprecedented destruction was mostly caused by the enormous tsunami, leaving about 20,000 people dead or missing. The sympathy of other countries helped Japan, which had experienced atomic bomb attacks (in Hiroshima and Nagasaki), to cope with the latest tragedy (3).

Because Ishinomaki City was only 130 kilometres from the epicentre of the earthquake, it was one of the areas most devastated by the tsunami, which left about 4000 people dead or missing (Figure 1). Ishinomaki Red Cross Hospital (IRCH), one of the two major



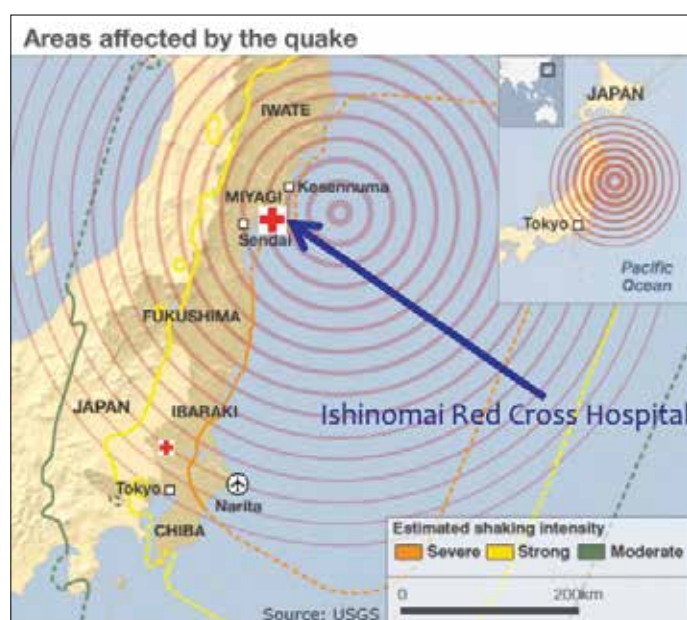
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Table 1. Largest earthquakes in the world since 1900

Location	Date UTC	Magnitude	Lat.	Long.	Reference
1. Chile	22.05.1960	9.5	-38.29	-73.05	Kanamori, 1977
2. Prince William Sound, Alaska	28.03.1964	9.2	61.02	-147.65	Kanamori, 1977
3. Off the West Coast of Northern Sumatra	26.12.2004	9.1	3.30	95.78	Park et al., 2005
4. Near the East Coast of Honshu, Japan	11.03.2011	9.0	38.322	142.369	PDE
5. Kamchatka	04.11.1952	9.0	52.76	160.06	Kanamori, 1977
6. Offshore Maule, Chile	27.02.2010	8.8	-35.846	-72.719	PDE
7. Off the Coast of Ecuador	31.01.1906	8.8	1.0	-81.5	Kanamori, 1977
8. Rat Islands, Alaska	04.02.1965	8.7	51.21	178.50	Kanamori, 1977
9. Northern Sumatra, Indonesia	28.03.2005	8.6	2.08	97.01	PDE
10. Assam - Tibet	15.08.1950	8.6	28.5	96.5	Kanamori, 1977

**Figure 1.** Area affected by the East Japan earthquake

hospitals in Ishinomaki City, had been relocated away from the coast three years before, so it escaped the disaster (Figure 2). Ishinomaki Municipal Hospital, however, which was on the coast of the Pacific Ocean, was directly hit by the tsunami and was completely helpless. The extent of the damage to clinics and hospitals in the vicinity varied depending on the elevation of their location above sea level and distance from the Pacific Ocean.

Material and Methods

The Japanese Red Cross Society (JRCS) enlisted volunteers from those who worked at Red Cross hospitals throughout the country, and dispatched doctors, nurses, pharmacists, technicians, and clerks to Ishinomaki Red Cross Hospital. At the time of the earthquake, all means of transportation were shut down, but by April the Tohoku Expressway was restored, so the members of the team took an aeroplane or other transportation and met at the headquarters in Tokyo. From there they took a bus, arriving at IRCH more than six hours later (Figure 3). Initially, every staff member stayed at IRCH for one or two weeks, sleeping in a temporary bed.

Results

The JRCS sent 113 medical doctors, 372 nurses, 105 pharmacists, 25 technicians, and 113 clerks to IRCH in shifts, from April to August 2011 without a break. The teams for emergency medical care, consisting of internists (38), trainee doctors (15), emergency specialists (12), surgeons (6), orthopaedists (3), paediatricians (3), gynaecologists (2), and anaesthesiologists (2), took care of outpatients (Figure 4). The team's mission was to support the provision of emergency medical care in the disaster area and to assist the Accident & Emergency Department of IRCH. Eighty-one doctors set up a temporary clinic for emergency medical care inside the IRCH with dispatch nurses and clerks, and engaged in autonomous emergency triage. At the end of the shift, each reported what they had done to their replacement to maintain continuity.

The rubble and debris in the disaster area meant that we saw a lot of patients with respiratory tract infections and bronchial asthma. Cases in the field of internal medicine included gastrointestinal bleeding, hypertension, hepatitis, cerebral vascular disease, ischaemic heart disease, arrhythmia, anaphylaxis, acute kidney injury, and so on. The majority of orthopaedic cases consisted of injured extremities and broken bones caused by walking over or clearing the debris in the disaster area and traffic accidents. Mental health was an important issue and there were suicides in the aftermath of the disaster and the nuclear accidents. The remaining 32 dispatched doctors were physicians and gynaecologists who took charge of the wards and psychiatrists who treated post-traumatic stress syndrome (4). Supporters included those from medical associations, university hospitals, general and private hospitals, and academic associations, foreign associations, and volunteers, all working in improvised teams (5, 6).

Discussion

The magnitude of the earthquake was the fourth highest in the world after the Great East Japan Earthquake of 1900 (Table 1). There were about 20,000 deaths owing to the tsunami, an almost unprecedented number. Japan suffered great damage and the danger of exposure to radiation from the Fukushima Dai-ichi power plant remains. The coast of the Sanriku region in East Japan is well known for its susceptibility to earthquakes. That of 1896 claimed more than 20,000 lives, and in 1933 a tsunami accounted for more than 3,000 lives. In the Sanriku earthquake occur frequently handed down by the character of the ruins and the oral has continued to live at a distance from the sea, who live close to the sea from economic problems



Figure 2. The area Ishinomaki Red Cross Hospital

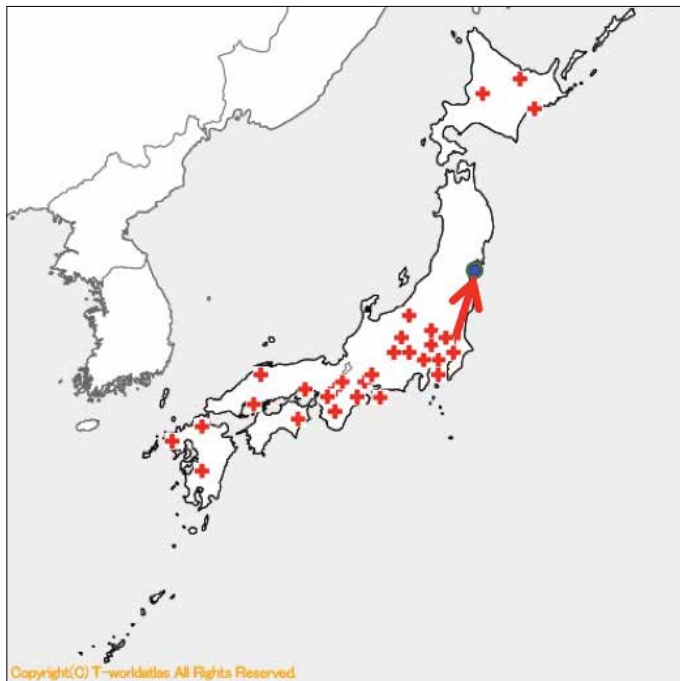


Figure 3. IRCH More Than Six Hours by Bus From the Aeroplane

and convenience of transportation and high population density we it is at present often. (Figure 1), maintaining the function without the damage caused by the Great East Japan earthquake in Ishinomaki for this reason will be relocated away from the Pacific Ocean three years ago in preparation for the earthquake and tsunami that may happen in the future Ishinomakisekijujibyoin I could. Medical institutions in many areas close to the Pacific Ocean in Ishinomaki received a devastating blow. Thanks to the doctors, nurses, pharmacists, technicians, and clerks who were sent to IRCH by the Japanese Red Cross the reconstruction of Ishinomaki's medical services was facilitated. This strategy continued until April and August 2011 when the functional recovery of Ishinomaki medical area was complete.

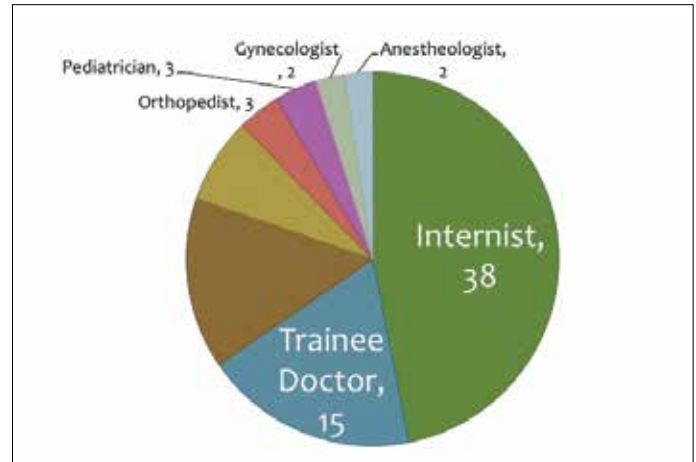


Figure 4. 81 Dispatch Medical Doctors for the A&E Department in the IRCH

Conclusion

Japan is a country with frequent earthquakes. Three years before the latest earthquake, Ishinomaki Red Cross Hospital had been moved away from the coast, and escaped the disaster. This was the result of good foresight (*Senken no mei*, in Japanese). Since Japan remains vulnerable to earthquakes, medical institutions should be relocated away from the sea as much as possible. If a major earthquake does occur, it is essential to provide support to surviving medical institutions.

JRC's hospital support played a useful and important role in supporting IRCH with the restoration of the medical systems around the disaster area. Various other forms of support may be needed in the future as well. Hospitals in disaster-prone areas should be moved further from the sea in order to avoid tsunamis.

Conflict of Interest / Çıkar Çatışması

No conflict of interest was declared by the authors.
Yazarlar herhangi bir çıkar çatışması bildirmemişlerdir.

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