International Report: Local response following the Great East Japan Earthquake 2011

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The aim of our laboratory is to study the neuroscience of dementia and contribute to the welfare of elderly people. Our work in the northern area of Miyagi prefecture has always been our priority. However, we never expected to experience such an extreme challenge as that of the March 2011 earthquake. This earthquake had been predicted based on a scientific consensus; unfortunately, the warning was too late.

PRIMARY EMERGENCY STAGE I was seeing outpatients at our research clinic in Kurihara City when the earthquake struck. We immediately ensured the safety of the patients by evacuating the building. All 790 houses and discovered 54 people needing help.

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the staff knew how to act, perhaps partly because of their experience of the 2008 Iwate-Miyagi Inland Earthquake, which hit this city only 3 years ago. Our initial goals were to protect ourselves and our patients from objects by moving ourselves under furniture, and then evacuating the building.

After ensuring that everything was in order at the clinic in Kurihara City, I went to the Tajiri Clinic, which is one of our most important research centers. At the clinic, I found that a large number of refugees had gathered. However, the doctor in charge was off-duty that day. An otolaryngologist was the only available doctor, and he had sustained a bone fracture in the earthquake. While one of our graduate students transported the injured doctor to an emergency hospital, I took on the duties of the clinic, confronting a series of challenges caused by the disaster.

I was pleased to find that most of the 80 refugees had carried their own medications with them, which enabled us to make up a list of their doctors and medications. Some patients did not have their medications and had angina or worsening of diabetes mellitus, but all these were successfully managed. There were no patients without their antipsychotic or anti-parkinsonian drugs, the absence of which might have been troublesome. An important lesson in disaster preparedness is to repeatedly teach everybody, including the members of the Social Welfare Council, about the critical importance of medications.

After restoring our satellite office at Tajiri, I confirmed that my family was safe and traveled to the university laboratory in Sendai City. There was misunderstanding about the location of the University—the central part of Sendai City where the university is located is far from the coast, and it was completely safe. All the members of our laboratory and their families were fortunately confirmed safe within 1 week. After restoring our laboratory office, we were soon able to resume our usual duties.

At a meeting of the headquarters for emergency disaster control of our Graduate School of Medicine, Prof. Yamamoto, Dean of the Graduate School of Medicine, was encouraging: “Conducting your daily business—that is restoration!” Our team members worked day and night at our collaborative facilities. After getting permission for use of 3 cars as emergency vehicles, made available by 2 staff members and a graduate student, we discussed possible support for refugee shelters that might ask for our help. As a preparation for a disaster, we should know how to make our cars serve as emergency vehicles.

SECONDARY SUPPORT STAGE Ten days after the earthquake, the “primary emergency stage,” in which the activities of rescue and emergency teams play the most critical role, was followed by the “secondary support stage.” At this time, refugees from the most damaged areas began to arrive in less damaged areas, including our own research areas of Kurihara City, Tome City, and Osaki City.

Our policies were as follows. 1) Ensure the safety of the destination area. Some refugee shelters were situated near the coast, with a risk of secondary incidents. 2) Identify the probable demands on the destination area so that preparations could be made before people arrive. (As it happened, 40 volunteer medical doctors were waiting at a shelter with noth-
ing to do, having rushed to the site to help refugees, without any plan.) 3) Understand the goals of volunteers and try to match their goals with needs, taking into account potential dangers, including psychological trauma. Some volunteers or students may be so eager to help that they may not be mindful of danger.

Following establishment of these policies, I contacted our research centers and received 2 requests: Osaki City requested help confirming the safety of people in the community and Tome City requested help with mental care for people with psychological trauma. Both locations needed help supporting the shelters.

**ACTIVITIES OF THE SUPPORT TEAM FOR OSAKI CITY**

Seven members, including 3 graduate students, 2 former members, and 2 staff members, joined a team that worked from March 20–25. Following our request for more help to the Committee for Disaster Restoration of the university, 4 additional team members were dispatched (figure 1).

Our team visited 790 houses and discovered 54 people needing help. Our visits accounted for 10.4% of the 7,604 houses that were visited in Osaki City. We discovered various cases of “weakness due to the disaster.” Most of the people who needed help were elderly, including some who had become sick. A shortage of fuel had prevented some people from consulting their doctor. Others were confused because they did not have the information that they needed to obtain medicines from a doctor other than their usual consulting doctor. Some elderly people who lived alone were found deceased in their house. Most of the weakness due to the disaster was previously assessed as Clinical Dementia Rating (CDR) 0.5 in the Tajiri Project, which is the borderline condition between healthy aged and dementia. It is important to routinely screen CDR 0.5 residents in a community. Our contributions may help in planning of future health policies.

A psychiatrist, one of the former members of our research team, visited shelters in Matsuyama Town and in Osaki City. In contrast to the primary emergency stage, the situation seemed to be moving to the next stage of restoration, in which many refugees were beginning to go back to their homes. Some people stayed at the refugee centers, including many elderly people who had been living alone, or had psychiatric disorders, dementia, or other kinds of aging-related illness. Although some refugees were not directly damaged by the earthquake, the system of Long-Term Care Insurance was important, especially for elderly persons. The efforts of care managers of the Social Welfare Council enabled elderly refugees to be sheltered efficiently in the facilities, to receive home help services, and to receive delivery of medications. Some psychiatric patients may not have received proper treatment, with worsening symptoms in the face of such a disaster.

We should consider that acute traumatic stress may be a normative response to life threat which tends to subside once conditions of safety are established. However, in the “secondary support stage,” there is a residual minority of survivors who will...
come to experience chronic posttraumatic stress disorder and their deeds can be easily overlooked.8

ACTIVITIES OF THE SUPPORT TEAM FOR TOME CITY Since March 27, the shelters in Tome City have accommodated 2,500 refugees. We dispatched a team from our laboratory comprising a psychiatrist and a psychotherapist. The activity base was Tome City Sanuma Hospital (figure 2), at which one of our research fellows is based (figure 3). He had been working with us in a collaboration among hospitals and administrations, and this served us well for efficient action after the earthquake. Some refugees with psychotic symptoms were admitted to the hospital. A psychiatrist, one of our research fellows, took on regular consultations for the psychiatric patients, and this work is likely to continue as part of the long-term support for refugees.

At the shelters, each refugee had need of advice about health-related concerns (figures 4–6). In order to answer this demand, a psychotherapist, a former member of our research team, served as a volunteer in providing health advice and help with sorting of medications. Most of the refugees in Tome City had lost their houses. Although they benefited from spending time with their neighbors, many had great stress, possibly related to a lack of privacy. In the Tome City shelters, the situation seemed to remain at the primary emergency stage, rather than moving on to the next stage of restoration.

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REFERENCES
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