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What the Largest Earthquake in 100 Years Has Taught Us: Real-Life Data from a JACIE-Accredited Bone Marrow Transplant Center

Son 100 Yılın En Büyük Depremi Bize Ne Öğretti? JACIE Akredite bir Kemik İliği Nakli Merkezinden Gerçek Yaşam Verileri

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To the Editor,

Designing a scientific study starts with the establishment of a hypothesis after making observations and reviewing the literature. However, no prospective study can be planned for abrupt natural disasters. Health institutions in the impacted region must respond to the sudden flow of patients. That said, health institutions can also be seriously affected by earthquakes and many hospitals in the earthquake area may be destroyed. Although there are numerous useful guidelines to be used by healthcare organizations in conjunction with good management plans, their application has always been difficult.

On February 6, 2023, two very destructive earthquakes occurred in the Eastern Mediterranean region of Türkiye and over 45,000 people lost their lives. The earthquakes were also felt in the Turkish provinces of Adana and Kayseri, which have bone marrow transplant centers with full JACIE (Joint Accreditation Committee of International Society for Cell and Gene Therapy and European Society for Blood and Marrow Transplantation) accreditation, with Adana being more severely affected by the earthquakes. In Adana, 13 buildings collapsed and over 500 people died under the rubble. Many other buildings were so damaged that they could not be used. According to some geologists, after the two earthquakes, the energy accumulation on the Adana fault line increased, increasing the risk of a new earthquake. Consequently, Türkiye declared a countrywide level 4 alarm, while the World Health Organization declared a level 3 emergency [1].

European Union Directives 2004/23/EC, 2006/17/EC, and 2006/86/EC [2,3,4] and other international standards contain rules that govern the use of human tissues and cells and related treatment institutions for patient/donor and cellular product safety. The Başkent University Adult Bone Marrow Transplantation Center (EBMT CIC.589) has been JACIE-accredited since 2012, which requires compliance with European Union Directives. Our center has reference documents related to natural disasters in critical areas of the clinic as well as cell collection and processing areas, and personnel are regularly trained in relation to these issues [5,6].

After the earthquakes, the buildings housing the clinic, collection, and processing units at the transplantation center were not damaged. There were no disruptions that might have endangered the safety of cellular products, especially in the storage areas. Computer systems and critical devices were not affected by the earthquakes. Although bone marrow transplant activity was limited, it was able to continue. The most important factor affecting the transplant activity was that donor and patient safety was threatened by the earthquakes and the rubble.

In addition, the following serious problems were encountered:

- Inter-unit communication broke down.

- Some critical workflows were disrupted.

- All training and inspection activities were suspended.

- The personnel were very distracted and suffered physical and psychological fatigue.

- Patients who had been transferred or were about to be discharged had accommodation problems.

- The hospitals in the surrounding provinces were demolished and the patient density in our hospital increased accordingly, redirecting the attention of all our personnel.

Our aim in writing this quick letter to the editor is to share the early effects of the earthquakes. In a larger project, we will be preparing an article addressing post-earthquake transplant

activity and other clinical outcomes. We have a disaster plan that is separate from the general hospital disaster plan, and the bone marrow transplant center's disaster plan was reviewed and extensively rewritten accordingly. Our real-life experiences with the earthquake disaster that occurred in our country showed that the implementation of written disaster management plans in accredited bone marrow transplantation centers is difficult to perform when disaster strikes, and there are lessons to be learned for all centers. We believe that it is important to develop scientific recommendations and guidelines for developing emergency disaster plans for human tissue and cell transplantation centers.

Keywords: Disaster plan, JACIE, Stem cell transplantation, Earthquake

Anahtar Sözcükler: Afet planı, JACIE, Kök hücre nakli, Deprem

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