Dear Editor

**The Impact of the Chuetsu Earthquake on Asthma Control**

The Chuetsu Earthquake occurred on 23 October 2004 in Niigata Prefecture. A maximum earthquake intensity of 6 on the Japanese [shindo] scale was recorded in Minamiuonuma City, to which the Prefectural Muikamachi Hospital belonged. At 6 on the Japanese [shindo] scale, landslides, cracks in the ground and destruction of lifelines typically occur. According to Japan Fire and Disaster Management, there were 51 deaths, 4,510 injuries and 11,188 evacuees, and more than 10,000 houses were completely or partially destroyed.

It is well known that potent exacerbating factors of asthmatic symptoms, including respiratory infection, weather, and mental stress, usually increase when a major disaster such as an earthquake occurs. Therefore, we analyzed the impact of the Chuetsu Earthquake on the symptoms and management of asthma patients. About 3 months after the earthquake, between 2 and 11 February 2005, a questionnaire survey was administered under the Ethical Principles for Medical Research Involving Human Subjects, Declaration of Helsinki, to patients with asthma who had experienced the Chuetsu Earthquake and who were attended to at the Prefectural Muikamachi Hospital. The questionnaire consisted of four sections: evacuation from the earthquake, asthma management during the evacuation period, any unscheduled visits, and any changes of asthmatic symptoms.

Complete data were received for 27 patients (collection rate: 100%). There were 14 men and 13 women, aged 59.3 ± 17.7 years (mean ± SD). There were 19 atopic- and 7 nonatopic-type patients and the mean duration was 12.5 ± 9.5 years (mean ± SD). As for the disease severity, there were 7 in step 1, 6 in step 2, 12 in step 3 and 2 in step 4 in accordance with the Japanese Society of Allergology guideline for the diagnosis and management of bronchial asthma. Twenty-five patients (93%) were using inhaled corticosteroids (ICS) and had been adequately educated about asthma management. There were 8 users of leukotriene receptor antagonist, 6 users of long acting beta2 agonist and 2 users of oral steroid. Twenty-six patients (96%) continued their asthma management after the earthquake. No patients experienced exacerbations provoked by the earthquake. Three months after the earthquake, 24 patients (88%) reported no exacerbations of asthma, with no decrease in peak flow (PEF) values in 15 of 21 patients (78%) who used PEF meters. These findings show that there were fewer exacerbations of asthma than predicted in spite of the expected potent worsening factors of asthma control, mental stress or respiratory infections.

In fact, Ishihara *et al.* reported that there were fewer exacerbations of asthma than predicted in the Hanshin-Awaji Earthquake, although worsening of asthma control, mental stress or respiratory infections after the earthquake was documented. They showed that there were fewer hospitalizations when asthma patients were managed by ICS therapy, indicating that the use of ICS can suppress asthma exacerbations. Maeda *et al.* reported that many patients kept their medicines after this earthquake, and that patients with mild or moderate asthma knew how to use their medicines. Tomita *et al.* also reported in the West Tottori Prefecture Earthquake that the daily management of asthma and the use of a PEF meter were important to prevent asthma attacks associated with earthquakes.

In our study, more than 90% of the patients were ICS users. Their physicians, pharmacists, and nurses had adequately educated them regarding asthma management, in particular ICS use. These factors may have contributed to the few exacerbations of asthma, indicating that adequate treatment and education may play an important role in the prevention of asthma exacerbation following severe disasters such as earthquakes.

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