

Effects of heavy elements in the sludge conveyed by the 2011 tsunami on health of victims of the disaster

K. Sera¹, S. Goto², C. Takahashi², Y. Saitoh² and K. Yamauchi³

¹Cyclotron Research Center, Iwate Medical University
Tomegamori, Takizawa, Iwate 020-0173, Japan

²Nishina Memorial Cyclotron Center, Japan Radioisotope Association
348-58 Tomegamori, Takizawa, Iwate 020-0173, Japan

³ Division of Pulmonary Medicine, Department of Internal Medicine,
Iwate Medical University,
19-1 Uchimaru, Morioka, Iwate 020-8505, Japan

Abstract

The 2011 tsunami not only caused significant damage, but also drew a large amount of sludge from the bottom of the sea up to the land. This may have exerted negative effects on human health through inhalation of dried sludge. In order to evaluate changes in elemental concentrations in the body before and after the tsunami, we collected long hairs from victims of the disaster. As a result, no clear changes have been observed in heavy element concentrations before and after the tsunami. However, the concentration of some essential elements, such as Cu, Ca and Mg, showed a decreasing tendency after the tsunami. These observations may be due to drastic changes in living environment among the victims of the tsunami. In particular, the fact that eating habits of the affected people changed considerably after the tsunami has an effect on the elemental concentration in their body.