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ALTERED SERUM LEVELS OF PROTEINS INVOLVED IN Aβ CLEARANCE IN THE AFTERMATH OF THE 2016 KUMAMOTO EARTHQUAKE

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Abstract body

Objectives: Post-traumatic stress disorder (PTSD) is suggested to be linked to an increased risk of Alzheimer's disease (AD). Increased risk of dementia was observed in the aftermath of disaster. The 2016 Kumamoto Earthquake, which was featured twice strong earthquakes of seismic intensity 7 and aftershock activities in the long period, produced not only house damaging but persistent and strong stress in people. Our previous studies revealed that a combination of apoA-I, transthyretin, and complement component 3 (C3) in serum, which are involved in Aβ clearance, could distinguish MCI from non-demented control[1,2)]. We investigated the changes serum levels of these biomarkers before and after the Kumamoto Earthquake. Methods: We analyzed triple marker-test results at every 6 months during 2 years, in which 111 results in total were obtained from 6 months before to 18 months after the earthquake. Results: Serum apoA-I, transthyretin and C3 levels were decreased at 6 month after the earthquake, and continue lower levels during following 6 month. We calculated values of composite makers of these 3 proteins and determined cut-off level which discriminated MCI from non-demented control. The positive rate using cut-off value before the earthquake was 30%, and it significantly increased to 83% in 6 months from the earthquake and 80% in the next 6 months. Conclusions: Blood-based biomarkers related to Aβ clearance might be useful to grasp rising of MCI risk after disaster.

1. Uchida K, *et al*. Alzheimers Dement (Amst) 1:270-280 (2015).
2. Lui S, *et al*. Alzheimers Dement (Amst), published online Dec 18 (2018).

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