Post-trauma stress linked to brain changes

DOI:10.1038/mp.2012.51

Grey matter volume in two regions of the brain may play a role in the development of post-traumatic stress disorder (PTSD) in people who experienced the Great East Japan Earthquake on 11 March 2011, according to a study published this week in Molecular Psychiatry. The research provides a better understanding of post-traumatic responses in the early stage of trauma, and may contribute to the development of effective methods to prevent PTSD.

Although the neurological underpinnings of PTSD have been well characterized, it has been difficult to discern which brain structures are involved in the predisposition to develop the disorder, and which structures are altered as a result of a traumatic event.

Prior to the March 2011 earthquake in Japan, Atsushi Sekiguchi and colleagues had obtained structural brain scans from 42 healthy adolescents using magnetic resonance imaging (MRI) as part of several other studies. After the earthquake, the scientists asked participants to return for a follow up MRI to compare before and after brain scans to see how the traumatic event affected brain regions.

The results suggest that participants who had a smaller right ventral anterior cingulate cortex before the earthquake occurred and those whose left orbitofrontal cortex decreased in volume after the earthquake were more likely to have symptoms of PTSD. These structural changes represent a vulnerability factor and an acquired sign of PTSD, respectively.

Author Contact:
Atsushi Sekiguchi (Tohoku University, Sendai, Japan)
Tel: +81 22 717 7988; E-mail: asekiguchi@idac.tohoku.ac.jp

Editorial Contact at Molecular Psychiatry:
Julio Licinio (Australian National University, Canberra, Australia)
Tel: +61 2 6125 2550; E-mail: julio.licinio@anu.edu.au

Press contacts:
For media inquiries relating to embargo policy for the journal, Molecular Psychiatry:

Neda Afsarmanesh (Nature New York)
Tel: +1 212 726 9231; E-mail: n.afsarmanesh@us.nature.com

Ruth Francis (Nature London)
Tel: +44 20 7843 4562; E-mail: r.francis@nature.com