

WORLD HEART CONGRESS

May 22- 24, 2017 Osaka, Japan

The insular cortex and takotsubo cardiomyopathy

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Transient left ventricular dysfunction in patients under emotional stress, also known as takotsubo cardiomyopathy, has been recognized as a distinct clinical entity. Recent studies have supported a notion that the cardiovascular system is regulated by cortical modulation. A network consisting of the insular cortex (Ic), anterior cingulate gyrus, and amygdala plays a crucial role in the regulation of central autonomic nervous system in relation to emotional stress such as anxiety, fear and sadness. Because, Ic is located in the region of the middle cerebral arteries, its structure tends to be exposed to a higher risk of cerebrovascular disease. And Ic damage has been associated with myocardial injury, increased brain natriuretic peptide and incidence of takotsubo cardiomyopathy. Because, Ic damage has been associated with increased sympathetic nervous system activity, Ic damage is suggested to have a pivotal role in the pathophysiology of takotsubo cardiomyopathy. We focus on the role of Ic as a mediator for the cardiovascular system in relation to emotional stress, and summarizes current knowledge on the relationships between Ic and takotsubo cardiomyopathy.

Biography

Michiaki Nagai has completed his graduation from the Jichi Medical University School of Medicine and has been engaged in the Cardiovascular Medicine. Using volumetric analysis in MR SPGR imaging, he has been investigating the fields for target hypertensive organ damages including the relationships among hypertension, blood pressure variability, brain atrophy, cognitive impairment and central autonomic nervous system including the insular cortex. He was engaged in the Interventional Cardiology at Hiroshima City Asa Hospital as the Vice Director. He won the Japanese Society of Hypertension Award in the International Society of Hypertension 2006, the Young Investigator's Award in the 8th Japanese Neurocardiology Workshop 2007 and Young Scientist Award in the second annual scientific forum of clinical hypertension of the Japanese Society of Hypertension 2013.

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