Troponin Elevation in Stroke Patients

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Cardio-vascular diseases including hypertension and cardiac arrhythmia are established risk factors for the development of ischemic stroke. However, vice versa, acute coronary syndromes and myocardial infarction are also major causes of death in patients with acute ischemic stroke. Cardiac troponins serve as biomarkers of myocardial damage and are frequently elevated in patients suffering from acute ischemic stroke. We and others have demonstrated that patients with elevated troponin levels after stroke have a poor prognosis and show a high rate of cardiac death. Approximately half of these patients show evidence of coronary artery disease and 25% a so-called culprit lesion, ie, unstable coronary artery disease. However, a relevant portion of stroke patients with elevated troponin levels show no detectable cardiac abnormalities. There is some evidence that troponin increase after stroke is associated with damage to specific brain regions, especially in those patients who had sustained an infarction of the right insular cortex. Therefore, it has been debated whether right insular infarction results in central perturbations of autonomic function with an increase in sympathetic tone and accompanied by release of catecholamines, changes in heart rate variability and focal damage to cardiac myocytes. Furthermore, brain ischemia may also lead to an activation of the hypothalamic-pituitary-adrenal (HPA) axis.