Electrocardiographic and Echocardiographic Changes in Subarachnoid Hemorrhage and Their Final Impact on Early Outcome: A Prospective Study before and After the Treatment

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Abstract

**Background:** We aimed to prospectively investigate the changes in the electrocardiography (ECG) and the echocardiography of the patients with subarachnoid hemorrhage (SAH) before and after treatment, and to evaluate the overall role of the findings on early patients’ outcome.

**Methods:** All consecutive patients with SAH were evaluated with on-admission ECG and echocardiography. For those with an abnormal result, a second evaluation was performed after the therapeutic interventions. All of the participants were followed until discharged or possibly expired in the hospital. Proper statistical methods were used to compare the changes between the two groups of the patients: the “expired” group, and the “discharged” group.

**Results:** Of the total of 60 subjects, 25 (41.6%) and three (5%) had an abnormal ECG and echocardiography that were dropped to four (6.7%) and one (1.7%) after treatment, respectively. The most frequent ECG finding was T-wave inversion. Six subjects (10%) were expired in the hospital. Abnormal primary ECG was found in five out of the six dead subjects (83.3%) and 20 out of the 54 discharged ones (37%) (P=0.029). None of the three patients with abnormal primary echocardiograms were expired during the hospitalization.

**Conclusion:** Most SAH-induced changes in the ECG and the echocardiography are transient and reversible. Abnormal ECG is a good predictor of inpatient mortality, but abnormal echocardiography is not.