Undetermined Stroke Genesis and Hidden Cardiomyopathies Determined by Cardiac Magnetic Resonance

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Abstract

Objective: To determine whether cardiac magnetic resonance imaging (CMR) could be useful in identifying previously undiagnosed cardiomyopathies in a cohort of patients with ischemic stroke who underwent standard etiologic investigation and to describe the type and frequency of these cardiomyopathies.

Methods: We performed a subanalysis of a previously collected prospective cohort of patients with ischemic stroke. Patients with structural changes on echocardiography that are considered causal for stroke in the Trial of Org 10172 in Acute Stroke Treatment (TOAST) classification were excluded. A 3T CMR was performed. We compared the frequency of the cardiomyopathies that we found with reference values for the general population.

Results: One hundred thirty-two patients with a mean age of 68.4 years were included. In 7 patients (5.3%, 95% confidence interval 2.59%-10.54%) CMR identified cardiomyopathy. Four patients had hypertrophic cardiomyopathy, 2 had restrictive cardiomyopathy, and 1 had noncompaction cardiomyopathy. Six of these patients had been classified after standard evaluation as having undetermined stroke and 1 patient as having cardioembolic stroke (atrial fibrillation). We found a higher frequency of hypertrophic cardiomyopathy in the entire cohort and in the undetermined cause group compared to the general population (3.03% and 5.81% vs 0.2%, respectively, $p = 0.001$ and $p < 0.001$). The frequency of noncompaction cardiomyopathy was also higher in our cohort (0.76% vs 0.05%, respectively, $p < 0.001$).

Conclusions: Although rare, cardiomyopathies should be considered as a possible cause of ischemic stroke classified as of undetermined etiology after standard evaluation.