Cardiogenic brain embolism diagnosis

General information

No specific neurologic features can distinguish these patients. The diagnosis is suggested in imaging studies showing multiple intracranial ischemic strokes in different arterial distributions, the differential diagnosis includes vasculitis, intracranial atherosclerosis (focal plaques, more common in Asian populations that consume Western diets), and intravascular lymphomatosis.

The diagnosis of cardiogenic brain embolism (CBE) as a cause of a stroke relies on demonstrating a potential cardiac source, the absence of cerebrovascular disease, and non-lacunar stroke. Large areas of hemorrhagic transformation within an ischemic infarct may be more indicative of CBE due to thrombolysis of the clot and reperfusion of the infarcted brain with a subsequent hemorrhagic conversion. Hemorrhagic transformation most often occurs within 48 hrs of a CBE stroke and is more common with larger strokes.

Detection of cardiac source

Most centers rely on echocardiography (without transesophageal ability). Using restricted criteria (i.e., excluding mitral valve prolapse), about 10% of patients with ischemic stroke will have potential cardiac source detected by echo, and most of these patients have other manifestations of cardiac disease. In stroke patients without clinical heart disease, only 1.5% will have a positive echo; the yield is higher in younger patients without cerebrovascular disease [1)].

EKG may detect atrial fibrillation, which may be seen in 6–24% of ischemic strokes and may be associated with a 5-fold increased risk of stroke.

1)
Cerebral Embolism Task Force. Cardiogenic Brain Embolism. Arch Neurol. 1989; 46:727–743