

Should closure of PFO be recommended treatment and standard of care in patients with ESUS?

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Patent foramen ovale (PFO) is very common (~25% of the population), so among patients with stroke who have a PFO, ~ 80% of PFOs are incidental. Even among patients with cryptogenic stroke and a PFO, only ~ half are causally related. This created a major problem for the clinical trials of PFO closure: if most patients with stroke and PFO have an incidental PFO, it is very difficult to show the benefit of closure. A paradoxical embolus is by definition a pulmonary embolus. This is why the studies have shown a greater benefit of PFO closure vs. antiplatelet agents, than vs. therapies that included anticoagulation. Clinical clues to paradoxical embolism include dyspnea or a Valsalva maneuver at the onset of stroke, waking up with stroke, a previous history of deep vein thrombosis, varicose veins, prolonged sitting (such as a long airplane ride), migraine, and sleep apnea. Among patients with paradoxical embolism, Transcranial Doppler (TCD) saline studies are more sensitive and predictive than trans-esophageal echocardiography. TEE missed 15% of right-left shunts seen on TCD, and of these 47% were large shunts. Patients with a larger right-left shunt on TCD were more likely to have recurrent TIA/stroke. Before embarking on PFO closure it is crucial to evaluate whether the PFO is incidental, or probably causal. A careful history and a TCD saline study will refine the decision for PFO closure. Patients with paradoxical embolism should probably be anticoagulated so closure (which requires antiplatelet agents) may increase the risk of pulmonary embolism.