

# Closure of patent foramen ovale may benefit migraine sufferers

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Reducing the frequency and severity of disabling migraines is crucial for quality of life. A new study, published in the February 2009 issue of *JACC: Cardiovascular Interventions*, finds significant improvement of migraine following catheter-based closure of patent foramen ovale (PFO)—a slight opening in the wall between the right and left atria.

These findings confirm those of previous observational studies, which consistently show that when a PFO is closed—whether it's following a stroke or decompression illness—migraine also tends to improve in the majority of cases (approximately 75 percent). However, the present study was the first to enroll patients with severe migraine, a large PFO and no history of stroke or transient ischemic attacks, but with silent brain lesions on magnetic resonance imaging.

"The study suggests closure of a large PFO may improve migraine in patients with subclinical brain lesions, as well as those with prior stroke," says Carlo Vigna, M.D., of Casa Sollievo della Sofferenza IRCCS Hospital, San Giovanni Rotondo, Italy. "In the past, the beneficial effect on migraine was occasionally seen after PFO closure was performed for other reasons, for example, unexplained stroke. Conversely, the recently published MIST trial did not show significant improvement of symptoms in 'pure migraineurs' in the absence of symptomatic or subclinical cerebral ischemia. As compared with these two extremes, we enrolled patients with an intermediate subset of characteristics."

Patients were divided into either the closure (n=53) or control (n=29)

group based on their consent to undergo percutaneous PFO closure, and prospectively examined for 6 months. Compared with the medically treated control group, closure of a PFO resulted in greater numbers of patients who had cessation of migraine attacks, cessation of disabling attacks and over 50 percent reduction in migraine attacks.

While this may be good news for certain migraine sufferers, researchers say a larger randomized trial focusing on this patient population is needed. In addition, the relationship between PFO and migraine must be further examined and understood.

"We don't really know what's going on. A stroke could be caused if a blood clot passes across a PFO and travels to the brain, but with migraine we don't yet know what the trigger substance is that crosses the shunt," says Dr. Peter Wilmschurst, Royal Shrewsbury Hospital, United Kingdom. "Not everyone with migraine has a PFO, and not everyone with a PFO has migraine; there are other causes that we don't yet understand."

**Background:** It is widely accepted that migraine is associated with higher rates of stroke. Research also suggests that people with migraine also have a higher prevalence of right-to-left shunts on contrast echocardiograms, which are, by and large, due to PFO—something each of us has while in the womb to divert blood away from the lungs. However, for one in four people, a hole remains after birth.

Source: American College of Cardiology

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