



What Is A Patent Foramen Ovale?

The foramen ovale is a small hole located in the atrial septum, used during fetal circulation to pass the oxygenated blood from the placenta directly to the left side circulation. Normally the foramen ovale closes at birth, when the increased blood pressure on the left side of the heart forces the opening to close. In about 25 percent of the population, however, the atrial septum does not close properly. In this case it is called a patent foramen ovale, or PFO.

A PFO functions like a flap valve, only opening when there is increased pressure inside the chest, most often as people strain while having a bowel movement, coughing, or sneezing.

If the pressure is great enough, blood may travel from the right atrium to the left atrium; if a clot or particles are present in the blood, these can cross the PFO, enter the left atrium and travel out of the heart, causing a stroke or heart attack.

What Are The Symptoms Of A PFO?

Though most patients with PFO experience no symptoms of the condition, there may be a link between PFO and both cryptogenic stroke and migraine with aura.

The prevalence of PFO in the general population is about 25 percent. However, according to the American Heart Association, in patients who've experienced a cryptogenic stroke the prevalence of PFO increases to about 40 percent; the percentage is even greater in the population who have had strokes at 55 years of age or younger. This suggests that a PFO, because it allows clots to bypass the lungs and travel through the PFO to the brain, may be a cause of some strokes.

There is also some evidence of a link between PFO and migraine with aura. Studies have shown a reduction in the number (or elimination) of migraines with aura suffered by patients who had undergone PFO closure for decompression illness or secondary prevention of cryptogenic stroke. Researchers speculate that some migraines might be caused by microemboli or chemicals normally filtered out in the lungs traveling via the PFO to the brain. A recent randomized trial (MIST) evaluated the effect of PFO closure in 147 patients with migraine headache and aura. Forty-two percent of those treated with PFO closure had a greater than 50 percent reduction in headaches compared with 23 percent of controls. While these findings are significant, a direct link between PFO and migraine with aura has not been proven.

Patients who've had a cryptogenic stroke or experience migraine with aura may benefit from testing that could diagnose PFO.

Diagnosing PFO

- Most people with PFOs have no symptoms or signs of the defect
- A PFO cannot be detected by physical exam alone
- Transthoracic echocardiogram with agitated saline injection could point to the existence of a PFO but is not enough for definitive diagnosis
- A transesophageal echocardiogram is the preferred method for diagnosing PFO. A PFO cannot be diagnosed using a stethoscope, or with an electrocardiogram, stress test or blood work

Treatment

PFOs and cryptogenic strokes are often treated with anticoagulants or platelet inhibitors, but because of the complications associated with the long-term use of these drugs, many cardiologists have recommended that PFOs be closed. Closure may eliminate the need to continue the use of anticoagulants and/or platelet inhibitors and reduce the risk of recurrent stroke or transient ischemic attack (TIA).

Surgical closure of a PFO is not often advocated because of the risks associated with open-heart procedures; transcatheter closure is the preferred method.

If a cardiac catheterization shows that the PFO is an appropriate size and in an appropriate location, closure is done using a device inserted via catheter into a vein in the leg and advanced into the heart and through the hole. When the device is in proper position, it is released from the catheter. Over time, heart tissue grows over the implant, becoming part of the heart.

The cardiologists of Appleton Heart Institute are currently part of a multi-national trial to test the long-term benefits of percutaneous PFO closure.

Conclusion

The physicians of Appleton Cardiology Associates believe PFO may be a cause of some cryptogenic strokes; some patients with migraine with aura may also have a PFO. For patients who are experiencing symptoms of either, or who have unexplained fatigue, shortness of breath, atrial fibrillation or arrhythmias, an evaluation to detect the presence of a PFO may be warranted. If a PFO is detected, the patient may benefit from closure.

If you have questions about PFO or PFO closure, please don't hesitate to call Appleton Cardiology Associates and talk with one of our physicians: 731-8900.