

Hole-in-the-Heart Self Repair Kit

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Experts have found a way to employ the body's natural healing power to treat a common heart defect linked with stroke and migraine.

One in four people has a valve-like hole in the heart, known as a patent foramen ovale (PFO).

The defect can be closed surgically using a graft, but this can cause damage to surrounding tissue.

A team at London's Royal Brompton Hospital has used a "bioabsorbable" patch to solve the problem.

The patch acts as a temporary plug until the body replaces it with healthy normal tissue, usually within 30 days.

The healing is very similar to how the body would heal itself normally

Dr Michael Mullen

Consultant cardiologist

PFO, an opening in the wall between the two upper chambers of the heart, usually produces no symptoms, but in some people it significantly increases the risk of stroke and migraine.

In the womb, the opening is necessary to allow efficient circulation of blood and oxygen before the lungs start working.

After birth, the hole should close to separate the two chambers. Sometimes, however, this does not occur correctly.

And when pressure is created inside the chest - for instance by coughing - a flap can open, allowing blood to flow in either direction.

In turn, this means blood can bypass the filtering system of the lungs and if debris are present in the blood, such as small blood clots, these can travel to and lodge in the brain, causing a stroke.

Inflammatory reaction

Dr Michael Mullen, the consultant cardiologist who has been using the device to treat his patients, said: "Traditional grafts are permanent and so can cause an inflammatory reaction, which can lead to problems.

"Instead, this treatment does the repair job and then disappears in a natural way.

The healing is very similar to how the body would heal itself normally."

So far he has treated about 70 patients with the BioSTAR device, all who were deemed to be at high risk of stroke because of their PFO.

He said some of his patients have reported relief from their migraines since having the treatment.

But Dr Mullen stressed that larger studies were needed to confirm this finding. The device is only licensed for minimising stroke risk at present.

Susan Hayden of the Migraine Trust said: "At the moment this treatment is not indicated purely for alleviating migraine, whereas for stroke it is clear that the benefits outweigh the risks.

"Also, PFO is only linked with certain types of migraine - migraine with aura, where the person experiences symptoms such as visual disturbances, numbness or dizziness.

"These are not the most common type, and only account for about 10-15% of all migraine cases."

Some 6 million - around one in 10 - people in the UK get migraines.

Paul Jansen of the Migraine Action Association said the findings offered some hope to migraine sufferers.

"Hole-in-the-heart is reported to be implicated in stroke and there is more and more research that identifies that this could also be linked to the incidence of migraine, particularly migraine with aura.

"As such we actively encourage the development of on-going research in this field."

1. Implant soaked in anti-clotting solution and inserted via catheter
2. Patch opened out like umbrella
3. Device retracted until umbrella covers valve-like hole
4. Second patch deployed on other side; patch dissolves and completely covered by natural tissue within about a month