University Hospitals Bristol NHS
NHS Foundation Trust

Patient information service
Bristol Heart Institute

Catheter delivered pulmonary valve

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How the heart works

A normal heart has four chambers. The upper two chambers are the right and left atria. The lower two chambers are the right and left ventricles. The heart's job is to supply the body with oxygen-rich blood. Blood is pumped through the four chambers with the help of four heart valves – the tricuspid, pulmonary, mitral and aortic valves.

What the valves do

Heart valves open when the heart pumps to allow blood to flow forward, and close quickly between heartbeats to make sure blood does not flow backward. Any disruption in this normal flow will make it difficult for the heart to effectively pump the blood where it needs to go.

Types of valves

There are two types of valve:

- Melody valve
- Sapien valve.

Melody valve

The new valve is taken from a bovine (cow) vein.

It is stitched inside a platinum stent, which acts as the scaffold on which the new valve is mounted.

Sapien valve

This valve is made from bovine (cow) pericardium (the fibrous sac that surrounds the heart), which is attached to a stainless steel stent.

Who gets the valve?

The new valve is suitable for patients with congenital disease who have had a new valve placed surgically that is now leaky or narrowed. Sometimes they are placed in a patient's own valve that is leaky or narrowed.

How will I be assessed for the new valve?

You will see the congenital cardiologist in the clinic to determine if a new valve is needed.

You may then have an echocardiogram (ultrasound of the heart), an MRI scan or CT scan to assess your pulmonary valve.

You may need a heart catheterisation to determine whether you would be suitable for the catheter delivered pulmonary valve.

The information will then be discussed by the cardiologist, cardiac surgeons and the radiologists. If it is appropriate, you will be offered a valve replacement or assessment for further heart surgery.

One of the specialist nurses will then see you in a pre-admission clinic for blood tests, chest X ray and electrocardiogram (ECG) to ensure that you can go ahead with the procedure.

What will happen in the hospital?

The cardiologists will perform the catheter procedure in the catheter laboratory (on level 6).

One of the senior doctors will explain the procedure and ask you to sign a consent form.

You will also meet the anaesthetist who will anaesthetise you.

The cardiologists (Dr Turner and Dr Martin) will perform the catheter procedure.

Pulmonary valve implantation – during the procedure

This will entail the placement of catheters in the top of your leg (or occasionally on the side of your neck), which can be passed into the heart.

Once the cardiologists are sure that it is correct to go ahead, they will place the new valve into a delivery system and position it in your existing heart valve.

The stent/frame of the valve will then be stretched into place using a balloon of the correct size.

Once the balloon is removed, the new valve will immediately start to function.

Further X ray pictures will be taken to confirm correct placement of the valve.

After the procedure

Most patients can go home after a night in hospital. You will be started on aspirin after the procedure.

The following day, you will have chest X rays and an echocardiogram to confirm that it is safe for you to go home.

Urgent heart surgery may be required if there is bleeding into the chest due to damage to the heart, dislodgement of the valve, or if the valve blocks one of the coronary arteries.

Follow-up care

Your cardiologist will see you in the clinic after one month and then again where necessary.

Possible adverse events

The risk of a major or life threatening complication is around one per cent.

The risk of not surviving the procedure is around 0.3 per cent.

Bleeding into the chest due to damage to the heart or dislodgement of the valve is rare. In the event that this occurs, it may require urgent heart surgery.

The overall chance of needing emergency heart surgery is around one per cent.

During follow-up, some patients have had breaks in their stents and have required no treatment. However, some patients have needed a further catheter procedure, and a small number have needed an operation at a later date.

A few patients have had infections in the valves; however, these can also occur in surgically placed valves.

Resources

Online resources

For more information visit the following website:

www.medtronic.com/melody/patient/therapy.html

Contact information

Any queries about your admission, contact cardiology waiting list co-ordinator on **0117 342 6557**.

Adult congenital heart nurse specialists

Sheena Vernon
Email: sheena.vernon@uhbristol.nhs.uk
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Wendy Visser
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Caryl Evans
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Please note that if for any reason you would value a second opinion concerning your diagnosis or treatment, you are entirely within your rights to request this.

The first step would usually be to discuss this with the doctor or other lead clinician who is responsible for your care.

Smoking is the primary cause of preventable illness and premature death. For support in stopping smoking contact **Smokefree Bristol** on **0117 922 2255**.

As well as providing clinical care, our Trust has an important role in research. This allows us to discover new and improved ways of treating patients.

While under our care, you may be invited to take part in research. To find out more please visit: **www.uhbristol.nhs.uk/research-innovation** or call the research and innovation team on **0117 342 0233**.

For access to other patient leaflets and information please go to the following address:

www.uhbristol.nhs.uk/patients-and-visitors/information-for-patients/

Hospital switchboard: 0117 923 0000

Minicom: 0117 934 9869

www.uhbristol.nhs.uk

For an interpreter or signer please contact the telephone number on your appointment letter.

For this leaflet in large print, audio or PDF format, please email patientleaflets@uhbristol.nhs.uk.

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