CMScript
Issue 3 of 2016
Member of a medical scheme? Know your guaranteed benefits!

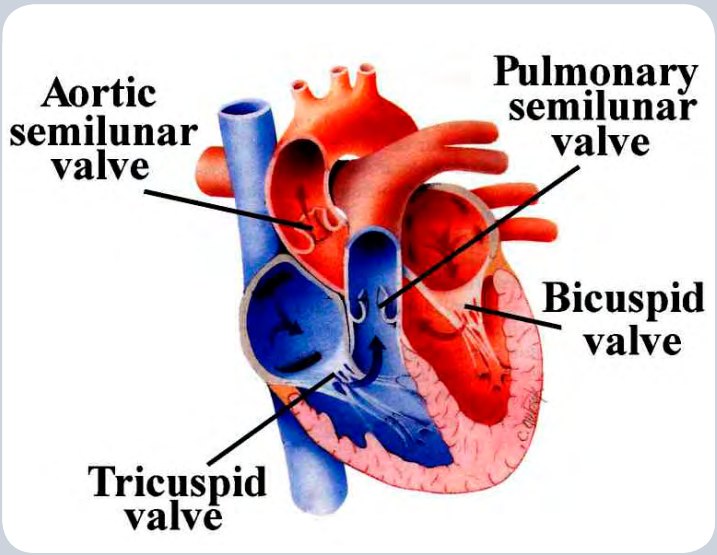
CMS
Council for Medical Schemes

Valvular Heart Diseases

Valvular heart disease (VHD) is characterised by/or a defect in one of the four valves controlling the direction of blood flow through the heart namely - mitral, aortic, tricuspid and pulmonary valves.

Background

The mitral and tricuspid valves control the flow of blood between the atria and the ventricles (the upper and lower chambers of the heart). The pulmonary valve controls the flow of blood from the heart to the lungs, and the aortic valve governs blood flow between the heart and the aorta, and thereby the blood vessels to the rest of the body. The mitral and aortic valves are the ones most frequently affected by valvular heart disease.



A diagram of the heart's valves

What are the types of valvular heart diseases?

Valvular heart diseases are generally divided into congenital (present at birth) and acquired (occurring later in life).

What causes valvular heart disease?

- A heart valve may have missing cusps and may be leaky at birth.
- Heart valve tissue may degenerate with age.
- Rheumatic fever may cause valvular heart disease.
- Bacterial endocarditis, which is an infection of the inner lining of the heart muscle and heart valves (endocardium)
- High blood pressure and atherosclerosis may damage the aortic valve.
- A heart attack may damage the muscles that control the heart valves.
- Other disorders such as carcinoid tumors, rheumatoid arthritis, systemic lupus erythematous, or syphilis may damage one or more heart valves.
- Methysergide, a medication used to treat migraine headaches, and some diet drugs may promote valvular heart disease.
- Radiation therapy (used to treat cancer) may be associated with valvular heart disease.

Pathogenesis (manner of disease development)

Normally functioning valves ensure that blood flows with the proper force, in the proper direction, at the right time. In valvular heart disease, the valves become too narrow and hardened (stenotic) to open fully, or are unable to close completely (incompetent).

A stenotic valve forces blood to back up in the adjacent heart chamber, while an incompetent valve allows blood to leak back into the chamber it previously exited. To compensate for poor pumping action, the heart muscle enlarges and thickens, thereby losing elasticity and efficiency. In addition, in some cases, blood pooling in the chambers of the heart has a greater tendency to clot, increasing the risk of stroke or pulmonary embolism.

What are the symptoms?

Valve disease symptoms can occur suddenly, depending upon how quickly the disease develops. If it advances slowly, then the heart may adjust and the onset of any symptoms easily be unnoticeable. Additionally, the severity of the symptoms does not necessarily correlate to the severity of the valve disease. That is, you could have no symptoms at all, but have severe valve disease. Conversely, severe symptoms could arise also from even a small valve leak.

- Palpitations (irregular heartbeats), chest pain (may be mild)
- Feeling of pressure or weight on the chest
- Shortness of breath
- Swelling of the ankles and feet
- Fatigue
- Dizziness or fainting (with aortic stenosis)
- Fever (with bacterial endocarditis)
- Rapid weight gain

How is valvular heart disease diagnosed?

During the examination, the doctor listens for distinctive heart sounds, known as heart murmurs, which indicate valvular heart disease. As part of the diagnosis, one may undergo a few of the following tests:

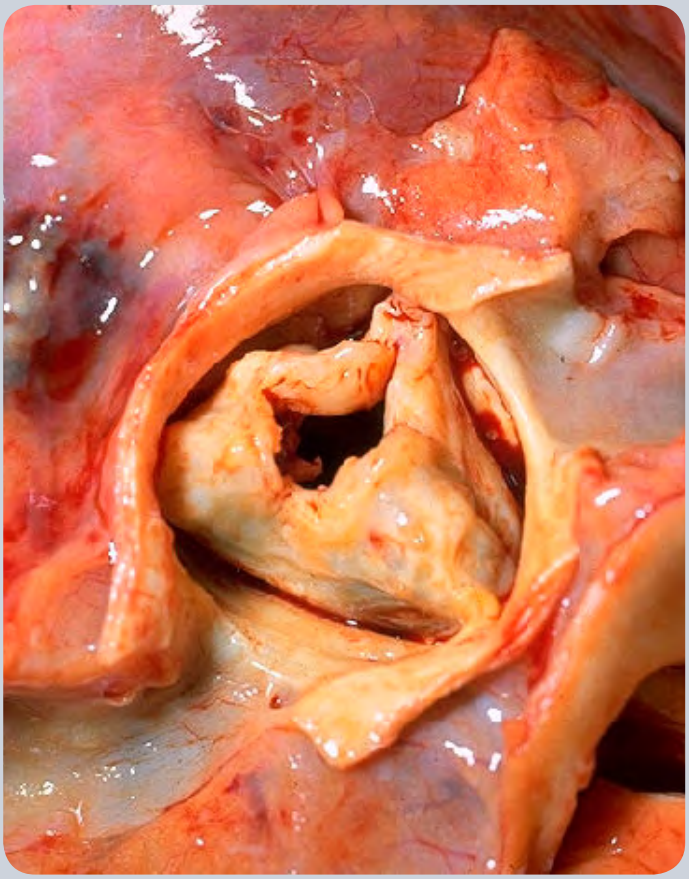
- An electrocardiogram, also called an ECG or EKG, to measure the electrical activity of the heart, regularity of heartbeats, thickening of heart muscle (hypertrophy) and heart-muscle damage from coronary artery disease.
- Stress testing, also known as treadmill tests, to measure blood pressure, heart rate, ECG changes and breathing rates during exercise. During this test, the heart's electrical activity is monitored through small metal sensors applied to the skin while the patient is exercising on a treadmill.
- Chest x-rays
- Echo-cardiogram (a type of ultrasound test) to evaluate heart function. During this test, sound waves bounced off the heart are recorded and translated into images. The pictures can reveal an abnormal heart size, shape and movement. Echocardiography also can be used to calculate the ejection fraction, or volume of blood pumped out to the body when the heart contracts.
- Cardiac (heart) catheterization, which is the threading of a catheter into the heart chambers to measure pressure irregularities across the valves (to detect stenosis) or to observe backflow of an injected dye on an X-ray (to detect incompetence).

Treatment of valvular heart disease

- Lifestyle modification: smoking cessation, follow prevention tips for a heart-healthy lifestyle, avoid excessive alcohol consumption, excessive salt intake and diet pills—all of which may raise blood pressure.
- Adoption of a "watch and wait" policy for mild or asymptomatic cases.
- A course of antibiotics is prescribed prior to surgery or dental work for those with valvular heart disease, to prevent bacterial endocarditis.
- Long-term antibiotic therapy is recommended to prevent a recurrence of streptococcal (bacterial) infection in those who have had rheumatic fever.
- Antithrombotic (clot-preventing) medications such as aspirin may be prescribed for those with valvular heart disease who have experienced unexplained transient ischemic attacks, also known as TIAs.
- More potent anticoagulants (blood thinners), such as warfarin can be prescribed aiming to keep your INR between 2.5 to 3.5, may be prescribed for those who have atrial fibrillation (a common complication of mitral valve disease) or who continue to experience TIAs despite initial treatment. Long-term administration of anticoagulants may be necessary following valve replacement surgery, because prosthetic valves are associated with a higher risk of blood clots.
- Balloon dilatation (a surgical technique involving insertion into a blood vessel of a small balloon that is led via catheter to the narrowed site and then inflated) may be done to widen a stenotic valve.
- Valve Surgery to repair or replace a damaged valve may be necessary. Replacement valves may be artificial (prosthetic valves) and require lifelong anticoagulants but these last long. Those from animal tissue (bio prosthetic valves) do not require anticoagulants but last for a shorter time. The type of replacement valve selected depends on the patient's age, condition, and the specific valve affected. In one study, most surgeries were done on the mitral valve, and over 60% were due to RHD related damage.

Pregnancy and valvular heart disease

Pregnancy is challenging in patients with valvular heart disease. It has a significant impact on the outcome of the pregnancy, and in the long term, on the course of the disease.



A picture of the heart's valves

Improvement in the treatment of congenital heart disease now enables more women to reach child bearing age. A study of 599 pregnancies reported congenital heart disease in 74% and acquired heart disease in 22% of women.

The decision to get pregnant should be discussed with the treating doctor who will assess and advise accordingly prior to conceiving.

Prevention

Prevention of valvular heart disease is possible. Chances of valvular disease can be lowered through:

- Prompt treatment for a sore throat that lasts longer than 48 hours, especially if accompanied by a fever. Timely administration of antibiotics may prevent the development of rheumatic fever which can cause valvular heart disease.
- A heart-healthy lifestyle modification to reduce the risks of high blood pressure, atherosclerosis and heart attack.

Other interventions include:

- Avoiding smoking.
- Consuming no more than two alcoholic beverages a day.
- Eating a healthy, balanced diet low in salt and fat.

- Regular exercise for those who are overweight.
- Adhering to a prescribed treatment program for other forms of heart disease.
- Maintaining a careful control of blood sugar levels in diabetics

What must be funded under PMB level of care?

- All valvular heart diseases are covered as a PMB.
- Acute Rheumatic fever is covered as a PMB.
- Inflammatory diseases of the heart such as pericarditis, myocarditis and endocarditis are covered as PMB conditions.
- Cardiomyopathies and heart failure are PMB conditions.

The treatments options covered for valvular heart disease include medical and surgical managements of these conditions. Therefore the diagnosis, treatment and care costs of valvular should be paid according to the PMB regulations. The interpretation of the PMBs should follow the predominant public hospital practice. PMB treatment and care cover includes:

- All consultations for diagnosis and follow-up of valvular diseases;
- In and out of hospital care;
- Pathology (such as blood tests), radiology and other investigative and monitoring services;
- Acute and chronic, pre and post-operative medication which may include anti-coagulants and antibiotics;
- Valvular prosthesis; and
- Surgery.

Managed Care arrangements that the Scheme has with Designated Service Providers (DSPs) for the diagnosis, treatment and care of the condition should be communicated with the member and the provider.

References

- Cupido, B.J., Peters, F. and Ntusi, N.A., 2016. *An approach to the diagnosis and management of valvular heart disease*. South African Medical Journal,106(1), pp.39-42.
- Guilherme, L., Köhler, K. and Kalil, J., 2012. *Rheumatic heart disease: genes, inflammation and autoimmunity.* Rheumatol Curr Res. doi, 10(4172), pp.2161-1149.
- Maganti, K., Rigolin, V.H., Sarano, M.E. and Bonow, R.O., 2010, May. *Valvular heart disease: diagnosis and management.* In Mayo Clinic Proceedings (Vol. 85, No. 5, pp. 483-500). Elsevier.
- Kaleschke, G. and Baumgartner, H., 2011. *Pregnancy in congenital and valvular heart disease*. Heart, 97(21), pp.1803-1809.
- Image one, pg1. Available from http://www.nycva.org/wp-content/uploads/2012/09/Valvular-Heart-Disease.jpg
- Image two, pg2. Available from: https://upload.wikimedia.org/wikipedia/commons/thumb/b/b4/Aortic_stenosis_rheumatic%2C_gross_pathology_20G0014_lores.jpg/230px-Aortic_stenosis_rheumatic%2C_gross_pathology_20G0014_lores.jpg

WHAT ARE PRESCRIBED MINIMUM BENEFITS?

Prescribed Minimum Benefits (PMBs) are defined by law. They are the minimum level of diagnosis,treatment, and care that your medical scheme must cover – and it must pay for your PMB condition/s from its risk pool and in full. There are medical interventions available over and above those prescribed for PMB conditions but your scheme may choose not to pay for them. A designated service provider (DSP) is a healthcare provider (e.g. doctor, pharmacist, hospital) that is your medical scheme's first choice when you need treatment or care for a PMB condition. You can use a non-DSP voluntarily or involuntarily but be aware that when you choose to use a non-DSP, you may have to pay a portion of the bill as a co-payment. PMBs include 270 serious health conditions, any emergency condition, and 25 chronic diseases; they can be found on our website

The Communications Unit would like to to thank **Dr Olurotimi Modupe** for assisting with this edition of CMScript

information@medicalschemes.com
Hotline: 0861 123 267
Fax: 012 430 7644