

Percutaneous Balloon Mitral Valvuloplasty

Introduction

Mitral stenosis is one type of chronic rheumatic heart disease. It is due to narrowing of the mitral valve opening resulting from fusion of the mitral commissures. In severe cases, it can cause heart failure, acute pulmonary edema, arrhythmias and stroke. Percutaneous balloon mitral valvuloplasty (PBMV) is used to expand narrowed mitral valve by special devices. It is performed under the guidance of X-ray, through percutaneous method.

Importance of Procedure

PBMV is an alternative treatment method to the conventional mitral valve replacement by open heart surgery. In selected cases, PBMV offers good short- and median-term results. Patients who refuse this method can select either mitral valve replacement (with either metallic or tissue prosthesis) or medical therapy.

Pre-Procedure Preparation

- An echocardiogram (ultrasound imaging of your heart) will be performed to assess and confirm the anatomy and functional significance of the mitral stenosis. Special attention will be taken on the feasibility of the percutaneous approach.
- You will be invited to a ward or a clinic for some preliminary tests including electrocardiogram, chest X-ray, and blood tests. We will also check your allergy history.
- Our medical staff will explain to you and your relatives the procedure and its risks, and present to you this information leaflet. You have to sign an informed consent.
- Blood thinning drugs or metformin (for diabetes) may have to be stopped several days before the procedure. Steroid will be given if there is history of allergy.
- Fasting for 4-6 hours is required prior to the procedure. An intravenous drip will be set up. Shaving may be required over the puncture site.
- If you are a female, please provide your last menstrual period (LMP) and avoid pregnancy before the procedure as this procedure involves exposure to radiation.

The Procedure

- This is an invasive procedure that is performed in a cardiac catheterization centre, usually under local anesthesia.
- Electrodes are adhered to the chest to monitor the heart rate and rhythm. Blood oxygen monitor through your finger tip will be set up. Measurement of blood pressure from your arm will be taken during the examination.
- A small wound is made at the groin for access to arteries or veins. Both groins may be used together.

- The septum separating the left and right atrium is punctured by a special needle under X-ray or echocardiographic guidance. Contrast injection may be required for the procedure.
- A specially designed device (balloon catheter) is then passed through the septum and positioned across the mitral valve. This is followed by inflation to expand the valve. This maneuver may be repeated for few more times.
- Echocardiogram (transthoracic, transeosophal or intracardiac) is performed during the procedure to confirm the procedural result.

Post-Procedure Care

- After the procedure, catheters will be removed. The wound site will be compressed to stop bleeding.
- Nursing staff will check your blood pressure, pulse and wound regularly.
- Bed rest may be necessary for 4 hours. In particular, please do not move or bend the affected limb. Whenever you cough or sneeze, please apply pressure on the wound with your hand.
- You should inform your nurse if you have any discomfort in particularly chest discomfort or find blood oozing from the wound site.
- Diet can usually be resumed.
- Please follow instruction for the use of medications.

Post-Procedure Follow Up

- Usually, you can be discharged 1-3 days after the procedure.
- The wound will be inspected and covered with light dressing. Please keep the wound site clean and change dressing if wet. In general, showers are allowed after 2 days.
- Please avoid vigorous activities (household or exercise) in the first 3 days after the procedure. Bruising around the wound site is common and usually subsides 2-3 weeks later. If you notice any signs of infection, increase in swelling or pain over the wound, please come back to the hospital or visit a nearby Accident and Emergency Department immediately.
- Usually, your doctor has explained to you the results of the procedure before discharge. Should you have further questions, you and your close relatives can discuss with your doctor during subsequent follow-up.

Risks and Complications

- The procedure carries certain risks.
- Major complications include cardiac perforation and tamponade (0.5-4%), severe mitral regurgitation (1-4%), emergency mitral valve surgery (0.3-3.3%), stroke (1-2.8%), death (0.5-1.7%).

- Minor complications include contrast reaction, nausea and wound complications (<5%). Bruising around the wound site is common.
- Other potential risks include air embolism resulting in death or neurological damage, retained foreign body such as guide wires.
- Device deployment complications include device dislodgement, device entrapment and wire fracture

Fees and Charges

- This procedure involves the use of consumables which are 'Privately Purchased Medical Items'. Please make financial arrangement before the procedure.
- You need to pay an estimated deposit. The final charge, however, depends on the complexity of the procedure and range of consumables required.
- After the procedure, you may need to pay the balance to or collect refund from the account office.
- Please note that the procedure may need to be staged or repeated for various reasons. Separate charging is required for each procedure.
- If you have financial difficulty, you can apply for assistance through our medical social worker.

Remarks

- It is hard to mention all the possible consequences if this procedure is refused.
- The list of complications is not exhaustive and other unforeseen complications may occasionally occur. The risk quoted is in general terms.
- Should a complication occur, another life-saving procedure or treatment may be required immediately.
- If there is further query concerning this procedure, please feel free to contact your nurse or your doctor.

Reference

1. Complications and mortality of percutaneous balloon mitral commissurotomy. A report from the National Heart, Lung, and Blood Institute Balloon Valvuloplasty Registry. Circulation. 1992 Jun;85(6):2014-24.
2. Balloon mitral valvuloplasty in the United States: a 13-year perspective. Am J Med 2014 Nov;127(11):1126.e1-1126.e12.