Intra-Aortic Balloon Counterpulsation

Introduction

Intra-aortic balloon counterpulsation (IABP) is an invasive procedure. It is a big balloon (of 30-50 cc) placed in aorta by percutaneous approach through X-ray guidance. It inflates and deflates according to heart rhythm. The aim is to raise blood pressure during diastolic phase. This can increase coronary blood flow and cardiac output.

Importance of Procedure

IABP is indicated in patients having cardiogenic shock, refractory angina, severe aortic stenosis, or critical coronary artery disease requiring urgent treatment. It is usually done in emergency situation. It may be done in connection with other procedures such as percutaneous coronary intervention or when emergent transfer to another institute is necessary. If this procedure is refused, the condition of patients can deteriorate rapidly, or other life-saving procedures cannot be performed. Alternative treatment methods include medical treatment or other circulatory assist devices.

Before the Procedure

- Your doctor will explain to you and your relatives the benefit and risk of this procedure. You need to sign an informed consent.
- Your blood pressure, heart rate, blood oxygen and electrocardiogram will be monitored closely. An intravenous drip site will be set up.
- Shaving may be required over the puncture site.
- If you are a female, please provide your last menstrual period (LMP) as this procedure may involve exposure to radiation.

The Procedure

- This is an invasive procedure that is performed under local anesthesia in a cardiac catheterization centre, X-ray room or ward.
- A small wound is made from the groin for access to the aorta. A sheath is placed in the groin.
- A balloon of size 30-50 cc is placed in the aorta under X-ray guidance.
- The balloon is connected through a catheter to a portable machine with a console showing parameters.
- The balloon can be inflated with helium gas. The inflation and deflation is synchronized with the heartbeat.
- The sheath and the catheter are secured with stitches on the thigh.
- Concomitant procedures may be performed after IABP insertion, or immediate transfer to another institute may be necessary.

Post-Procedure Care

- After you return to ward, nursing staff will check your blood pressure, pulse and wound regularly.
- Blood thinning drug has to be given to avoid clot formation on the device.
- Please do not move or bend the affected limb. It is also important to keep lying flat

as far as possible in order to avoid catheter kinking.
- You should inform your nurse if you feel discomfort or find blood oozing from the wound site.
- IABP will be gradually weaned off and the balloon catheter withdrawn once your condition is stable and the underlying cause treated. It may take days but very occasionally more than 1 week.
- After balloon removal, the groin wound will then be compressed or sutured to stop bleeding. Whenever you cough or sneeze, please apply pressure on the wound with your hand.

Post-Procedure Follow Up
- If you have been discharged, the wound will be 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 7 days after IABP is removed. 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.
- Your doctor would have explained to you the results of the procedure and subsequent management plan.

Risks and Complications
- The procedure carries certain risks. The risk is higher if arteries are diseased or tortuous.
- Major complications include death, arterial dissection, leg ischaemia, valvular injury, stroke and severe bleeding. Very occasionally, leg amputation is required if leg ischaemia cannot be treated.
- Other complications include infection, bleeding and balloon rupture.
- Minor complications include allergy to contrast reaction, and groin wound complications. 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.

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. In special patient group (e.g. diabetics), the actual risk may be higher.
- 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.