



SNS COLLEGE OF ALLIED HEALTH SCIENCES
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DEPARTMENT OF CARDIOPULMONARY PERFUSION CARE
TECHNOLOGY

COURSE NAME: CPB & PERFUSION TECHNOLOGY II

**TOPIC: INTRA AORTIC BALLOON PUMP – INSERTION AND
PREPARATIONS**



Insertion of Intra-Aortic Balloon



- Insertion must be performed under sterile technique.
- When deciding to use IAB we must use a suitable size which is provided by the manufacture.
- It depends on the height of the patient to prevent occlusion of the renal arteries



Clavicle

Methods for IABP insertion

Percutaneous Insertion:

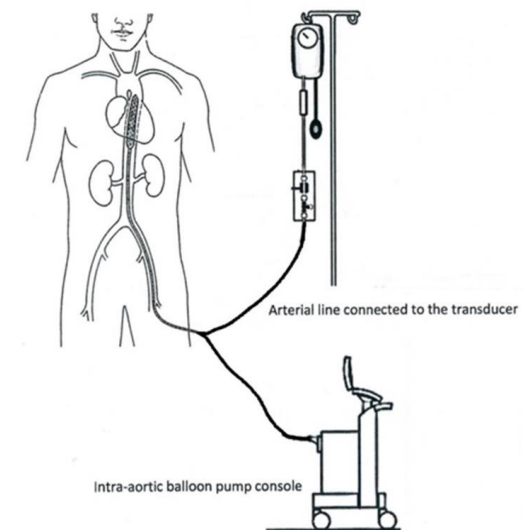
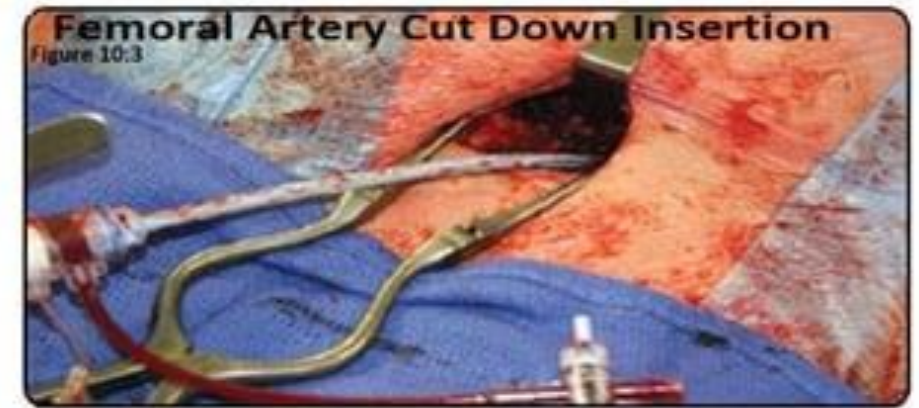
- The technique starts by inserting a **puncture needle in the picked artery.**
- Insert a guide wire then removing the needle and followed by a vessel dilator then using a sheath or not but using a sheath is better in obese patients.
- Insert the balloon which must be deflated using a syringe that comes with the insertion kit upon to the manufacture instructions.



Methods for IABP insertion

Femoral artery cut down insertion:

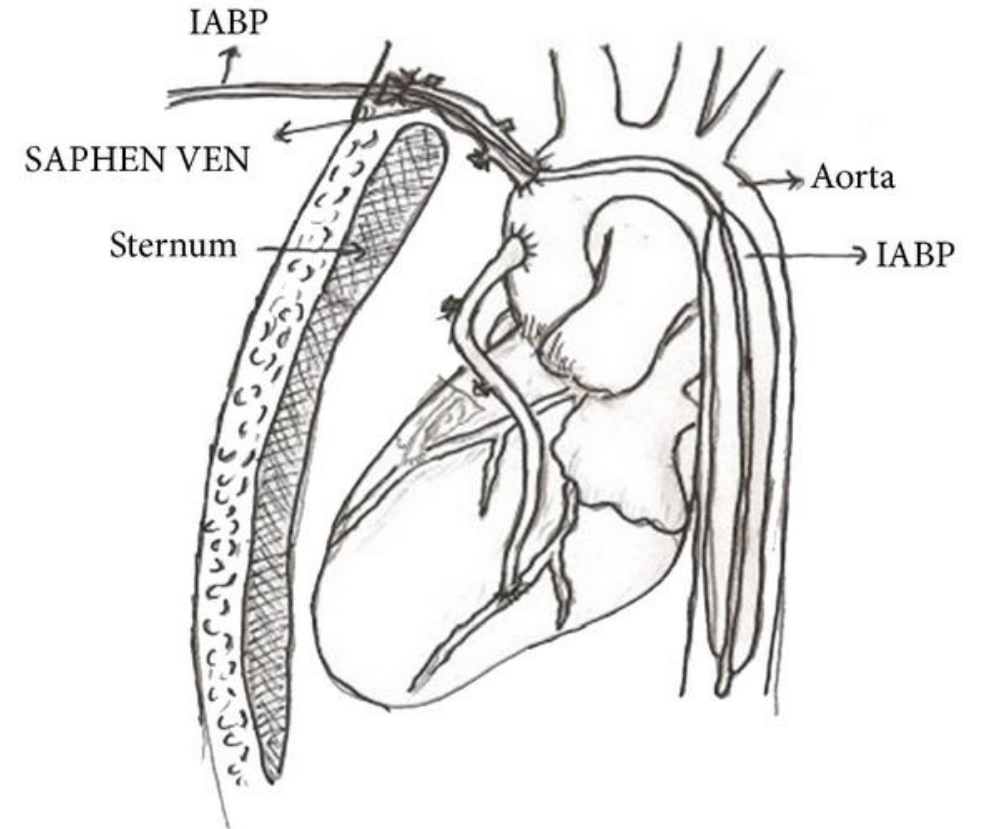
- This technique can be used in patients where femoral pulse is not palpable or where difficulty of insertion is anticipated as in patients suffering from peripheral vascular disease(PVD).
- The common femoral artery is isolated through a vertical groin incision and a femoral artery can be dissected.



Methods for IABP insertion

Intra-operatively insertion through Ascending Aorta (Transthoracic Insertion):

Due to severe peripheral vascular disease (PVD), the IAB catheter can be introduced down the aorta in operative room situations.





Preparations

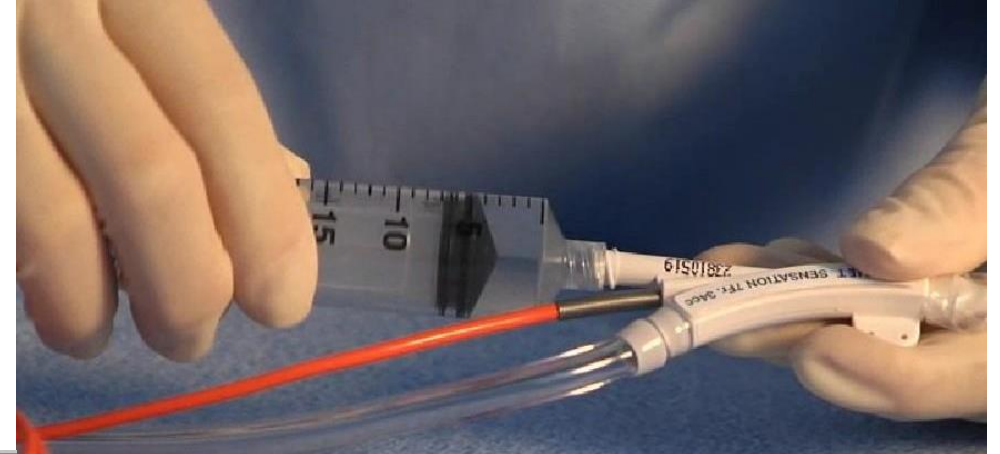


- After the decision to use a IABP is made the first step is to prepare the patient.
- The next step is to **prepare the balloon**.
- First ensure that the balloon has **negative pressure** applied with one way valve in place. **(to ensure IABP is collapsed)**
- Flush the inner lumen of Y Connector with **saline**
- The IABP must be prepared for operation before connecting the IAB
- The first item is **power plug** the pump into electrical outlet
- Turn the **helium** on & ensure that the tank has adequate supply



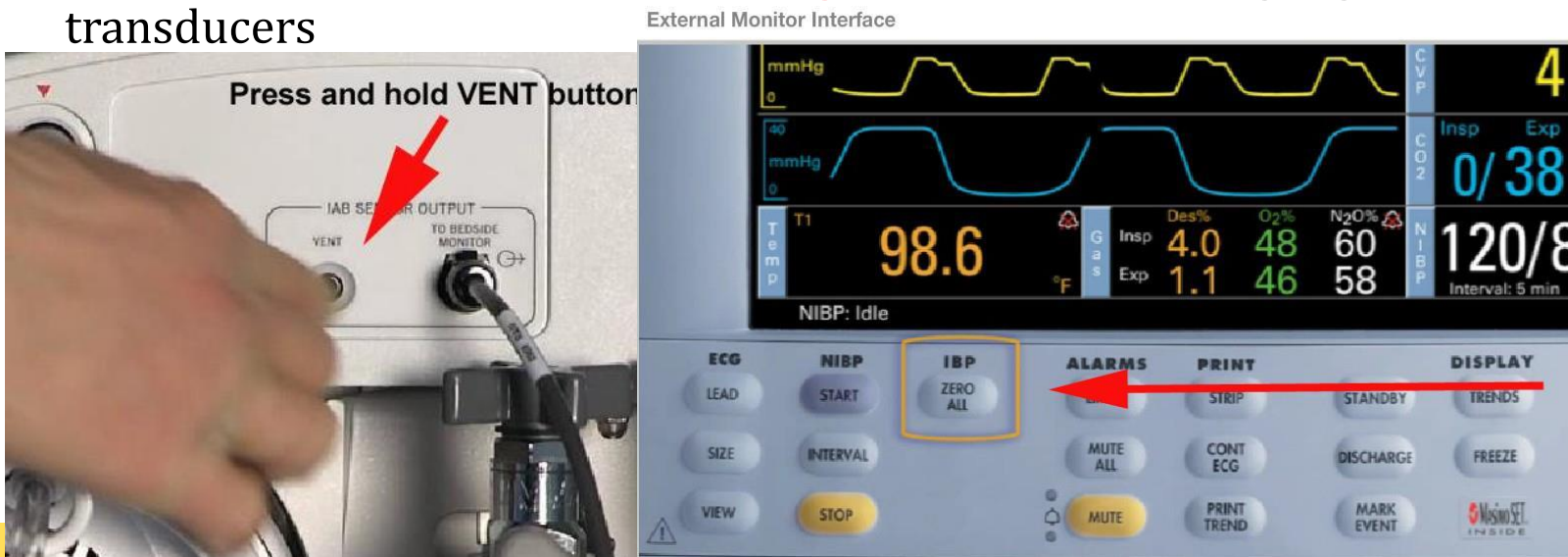
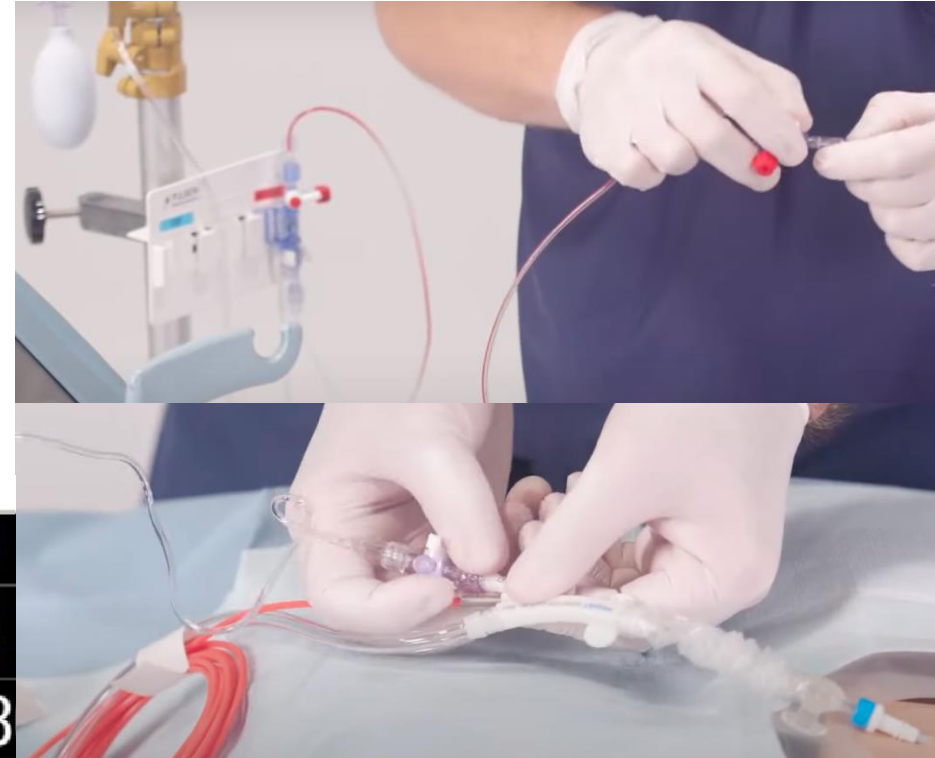
Preparations

- Attach the **fiber optic cable** of the balloon
- It provide accurate and fast, high quality measurements of the arterial waveform and **optimise left ventricular support**
- Remove **stylette** from inner lumen
- Place **stopcock on luer port** and flush with 3-5 cc NSS



Preparations

- The next step is to obtain **ECG signal**.
- This can be done by either attaching leads to the patient or slaving a signal from monitor
- **Next setup and prime the transducer.**
- The transducer and one end of the monitoring line are passed off the field while the end that attaches the IAB is kept on the field and sterile
- This is the same concept as **“opening to air”** when zeroing regular transducers

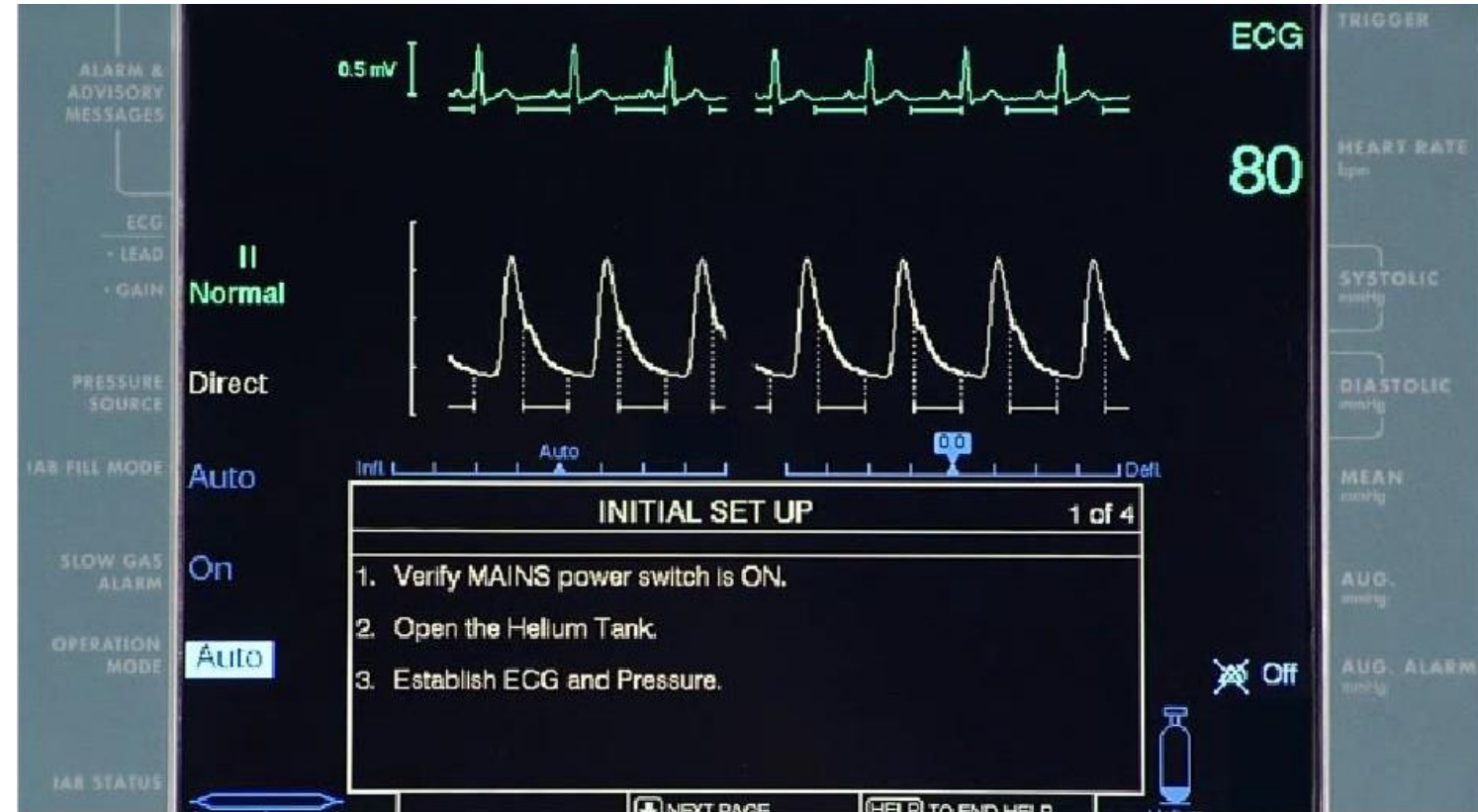




Preparations

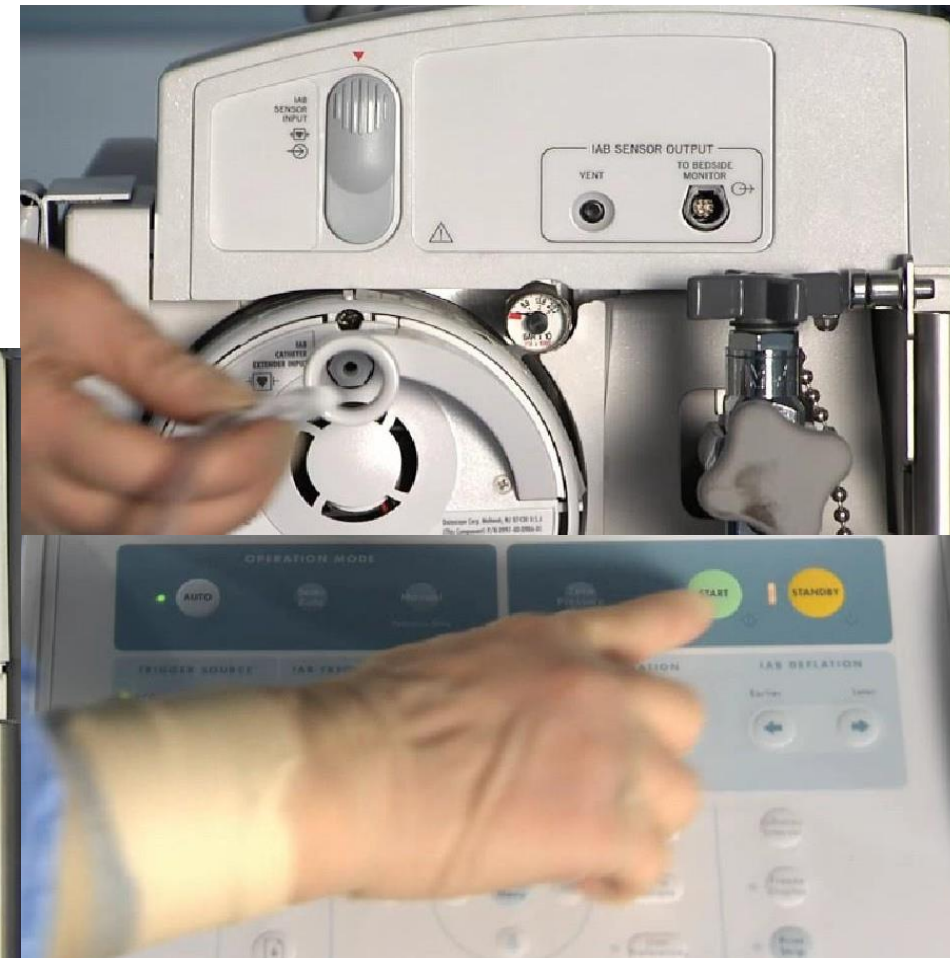


- Now it is attached to **IABP ,primed and zeroed**, while the end attached to IAB remains sterile on operative field.
- Once **the EKG signal is acquired** and transducer is connected, zeroed and the monitor line flushed, the IABP is ready to connect to IAB that has been placed in patient
- The **gas line** is connected to the balloon and other end to the IABP



Preparations

- Hook up IABP extension tubing to helium outlet
- Press **START** to auto fill, zero, and self time the IABP





Augmentation of Intra-Aortic Balloon



- The balloon augmentation is the amount of helium in the balloon catheter.
- It can be controlled via the balloon pump console.
- Make sure that the **balloon is fully augmented** (inflated by a full amount of helium), this will assure that the balloon is shifting the right amount of blood volume.
- **Prevent formation of clots which may occurs by the sides of the balloon if not fully inflated.**





THANK YOU



References:

- Manual of Cardiopulmonary Bypass
- Cardio Pulmonary Bypass , Sunit Ghosh Florian Falter Albert C. Perrino
- <https://rk.md/2017/intra-aortic-balloon-pump-arterial-line-ekg-waveforms/>
- <https://www.thieme-connect.com/products/ejournals/pdf/10.1055/s-0039-1688727.pdf>
- <http://www.files.sulli.us/IABP/Train the Trainer Manual.pdf>
- https://static1.squarespace.com/static/5e6d5df1ff954d5b7b139463/t/6274aabde60f847b920c632d/1651813053455/ICU_One_pager_IABP.pdf