

Arterial Blood Gas sampling

Indications

- To determine level of O₂
- To determine level of CO₂
- To determine acid-base balance

E.g. pneumonia leading to hypoxia
 E.g. CO₂ retainers (care with O₂ R_x)
 CO₂ Low in hyperventilation – eg PE
 E.g. Salicilate Overdose etc

Cautions/Contraindications

- Radial:** Buerger's Disease
 Raynaud's
 AV Dialysis Shunt
 Absent Ulnar Collateral Circulation
- Femoral:** Severe peripheral Vascular dse
 Aoutofemoral bypass surgery
 Beware venous sample

(Severe early small vessel atheroma)
 Risks of infection, inaccurate result
 Check **ALLEN'S TEST** (mixed evidence)

Preparation

- Alert laboratory & portering staff and have ice on hand
- Check the patient has been receiving steady amounts of O₂ for > 15 mins, document the % on request form
- Explain procedure to patient.
- Gloves
- Heparinised Syringe
- Clean skin
- Position Patient
- ?Lignocaine/Emla for skin
- Have Gauze/cotton wool available

Preparation is essential

Blood gas results decay with time

It is often uncomfortable and patient co-operation is essential

1000u/mL, draw up (or pre-packed) then expel all but dead space.
 Alco-wipe (wait to evaporate) or betadine.
 For radial wrist hyper extended
 NOT adrenaline!

Action

- Palpate Artery and fix with a finger
- Pass needle (23G), bevel up, through skin first and rest on artery. Gently insert into artery and look for flash back (or automatic filling in a blood gas syringe). Take about 2mls of blood

With 3 fingers
 4 things hurt: 1> needle through skin (sharp), 2> needle trough arterial wall (blunt) 3> miss and catch nerve (shooting) 4> Miss and head toward periosteum

Puncture Site	Positioning of patient	Angle of needle to skin	Puncure site	Anatomical relations
Femoral	Supine	60-90 °	Mid Ing point, 2cm below inguinal Ligament	Fem Vein Medial Fem N Lateral
Radial	Arm extended, wrist hyper-extended	30°	Proximal to proximal transverse crease. Lateral wrist	Median N Medial

- Carefully withdrawn needle and apply pressure
- Remove needle and Air Bubbles and cap off
- Send on ice to be analysed ASAP

Pressure for **5** minutes. Don't look!
 Assistant/briefed patient may be used

Often easier to take it yourself to lab

Complications

- Pain
- Failure
- Venous sampling
- Haematoma
- Ischaemia
- Infection

Local anaesthetic/Emla.

Look at colour and flow of sample.
 Compare sats on sample to oxymeter
 Pressure is very important
 See contraindications. Thrombosis, embolism, spasm.
 Aseptic technique