IV Cannulation
Aim & Objectives

Aim:
- The student will be competent and confident in the assessment and performance of peripheral intravenous cannulation.

Objectives:
TSSBAT
- Identify the principals of IV line insertion using aseptic technique.
- Identify indications, contraindications and complications of IV cannulation.
- Demonstrate the correct technique of IV line insertion.
INTRODUCTION

- Venepuncture is the most commonly performed invasive procedure in hospitals.

- IV cannulation is the second most invasive procedure for patients in hospital.

- Today -85% - 95% of all hospitalised patients receive IV’s in one form or another
Indications

- Administration of fluids.
- Administration of medications.
- Administration of blood or blood products.
- Radiological imaging using IV contrast
CONTRAINDICATIONS

- Sites close to infection
- Veins of fractured limbs
- Where there is an AV fistula present
- Oedema
- Affected side of CVA
- Side of Mastectomy

Extra care to be taken on patients with bleeding, clotting disorders & on warfarin.
POTENTIAL COMPLICATIONS

- Haematoma
- Haemorrhage
- Infection
- Phlebitis
- Thrombophlebitis
- Puncturing an artery
- Puncturing a nerve
- Infiltration
- Extravasation

(Dehn and Asprey, 2007)
VEINS vs. ARTERIES

- Bluish & superficial
- No pulsation
- Thin muscular wall
- Valves

- Not seen
- Pulsation
- Thick muscular wall
- No valves
VEIN SELECTION

Where:
- Back of hand
- Forearm
- Antecubital fossa

What:
- Patent
- Palpable
- Distal
- Straight
- Avoid bifurcations
Areas to Avoid

- Areas of joint flexion
- Hardened/sclerosed veins
- Veins near arteries
- Veins in lower extremities
- Areas of surgery
- Small veins
- Previously cannulated veins

(Dehn & Asprey, 2007)
LOCATION OF VEINS IN ARM & FOREARM

Veins of the Hand
1. Digital Dorsal veins
2. Dorsal Metacarpal veins
3. Dorsal venous network
4. Cephalic vein
5. Basilic vein

Veins of the Forearm
1. Cephalic vein
2. Basilic vein
3. Median Cubital
4. Medial Cutaneous nerve
5. Lateral Cutaneous nerve
### Advantages
- Easy to access
- More prominent in obese patients.

**Note**
- Site most frequently chosen for IV cannulation.
- Use non-dominant hand if possible.

### Disadvantages
- Small veins - small volumes.
- Difficult to secure
- Increased risk of thrombo-phlebitis.
- Limits wrist mobility
- Insertion painful – large number of nerve endings.
<table>
<thead>
<tr>
<th>FOREARM</th>
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<tr>
<td><strong>Advantages</strong></td>
<td><strong>Disadvantages</strong></td>
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<tr>
<td>- Hand can be freely used</td>
<td>- If cannula is placed near the wrist, can restrict wrist movement</td>
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<td>- Larger and straighter veins - more rapid infusion</td>
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<td>- Easier to secure</td>
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# ANTECUBITAL FOSSA

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
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<tbody>
<tr>
<td>▪ Easy to access</td>
<td>▪ Site most frequently chosen to carry out venepuncture</td>
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<tr>
<td>▪ The median cubital is preferred as it most</td>
<td>▪ Flexion</td>
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<tr>
<td>stable, close to surface and overlying skin</td>
<td>▪ Movement Limited</td>
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<tr>
<td>less sensitive</td>
<td>▪ Brachial artery</td>
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<td>▪ Often not visible</td>
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COMMON ISSUES

- Anxiety
- Needle phobia
- History of fainting
- Obesity
- Allergies
- Aggressive & confused
Learning Points

- Hypovolaemia - use larger veins as small veins collapse.
- In difficult cases - ensure maximum venous dilation before inspection.
- Large vein - high infusion rate.
- Use veins of non-dominant side - consult with patient.
- If in doubt – consult.
- Terminate after two attempts and seek assistance.
Refernces


Recommended Reading