Chequers Academy

Cannulation and IV Infusion Management

Procedures

Updated Nov 24 - JM

Procedure to Site a Cannula

- Prior to any procedure, you should have checked:
    - ID of the patient,
    - Allergies
    - They are aware of the reason for the cannula/medication being given.
    - They have all relevant information to give informed consent.
    - They are in a comfortable position to have the procedure done; consider using a pillow to support.
- Wash hand, apply PPE and gather the equipment.
    - Clean procedure tray
    - Non-sterile gloves
    - Disposable apron
    - Tourniquet
    - Cannula – size appropriate to the indication for cannulation
    - Sterile dressing pack – to provide a sterile field
    - Cannula dressing
    - Luer-lock cannula cap or extension set (bung)
    - Gauze swabs
    - Alcohol swab (2% chlorhexidine gluconate in 70% isopropyl)
    - Sharp's container
    - Preloaded 0.9% normal saline flush in 10ml syringe.
- Prepare equipment using ANTT.
- Consider an inco pad/blue pad below the arm to catch any blood spill (this is quite common).
- Identify a suitable vein, preferably on non-dominant arm or hand and apply a tourniquet 4-5 cm above the planned puncture site.
- Clean the site with a 2% alcohol swab for 30 seconds working from the site outwards and then allow to dry completely over 30 seconds. DO NOT touch the cleaned site afterwards at any point, otherwise the cleaning procedure will need to be repeated prior to cannulation.

- The cannula:
  - Open the cannula wings
  - Remove the needle sheath. Lightly withdraw and replace the needle – this will make it glide easier when cannulating. You may hear it click.
  - Unscrew the cap at the back of the cannula and place upright in the tray (if the cannula is ported)
- Secure the vein with your non-dominant hand from below by gently pulling on the skin distal to the insertion site.
- Warn the client prior to the puncture to prevent them from moving.
- Insert the cannula directly above the vein, through the skin at an angle of approximately 30 degrees with the bevel facing upwards (This is to get through the vein wall prior to lowering angle – be careful not to pierce right through the vein).
- Observe for flashback in the cannula chamber.
- Decrease an angle between the needle and the skin, then advance the needle a further 2mm after flashback to ensure it is within the vein's lumen.
- Partially withdraw the introducer needle (ensuring the needle end remains within the plastic tubing of the cannula). This will give a further flashback in to the
- Carefully advance the cannula into the vein fully while concurrently bringing the needle back without removing it fully.
- Release the tourniquet.
- Place some sterile gauze directly underneath the cannula hub to catch any leaking.
- Apply pressure to the proximal vein close to the tip of the cannula to reduce bleeding.
- Gently pull the introducer needle backwards whilst holding the cannula in position until it is completely removed.
- Connect a luer-lock cap or primed extension set to the cannula hub.
- Dispose of the introducer needle immediately into sharps container.
- Apply adhesive strips to secure the cannula wings to the skin – (do not obscure the insertion site with these, as this needs to remain clearly visible to allow early detection of phlebitis).
- Document the details of the cannula and ensure the management plan is updated to reflect any observations indicated as a result of the cannula or IV medications.

Removal of the Cannula

- Prior to commencing procedure, wash hands and apply PPE.
- Carefully remove the dressings securing the peripheral intravenous cannula in place.
- Hold a piece of dry sterile gauze over the insertion site as you remove the cannula.
- Immediately apply firm pressure to the site for approximately 2-3 minutes or long enough to ensure that there is no subcutaneous leakage of blood. (This process may take longer if the client is on any anticoagulation or aspirin therapy).
- Apply a suitable dressing to the site where the cannula has been removed (before applying any dressings check that client does not have any known allergies to any of the materials to be used).
- Inspect the removed intravenous cannula and check that it is complete and undamaged.
- At the end of the procedure, dispose of all equipment safely in the appropriate sharps bin and disposable clinical waste bags.
- Make a record of the procedure in all relevant documentation.

Managing an IV Line

- Do the appropriate checks on the medication you wish to administer; this may include additives or reconstitution in line with your company medicines management guidance/professional regulator guidance.
- Check the expiry date and the line/packaging for damage. The expiry of the IV line once connected is determined by the fluid that is used (relevant for long term use).
- Open the IV line packaging ensuring no key parts are touched in line with ANTT.
- Close the roller.
- Keeping the cap end clean (either hold it or remove the protective cap from the sharp end and insert it in to the bag (upside down so that the contents don't spill). Ensure the point is well fitted and secure.
- Place the fluid bag on the drip stand and squeeze the reservoir filling it approximately halfway – you need to be able to see the drops of fluid.
- Holding the capped end of the line (it may leak so ensure you are over a sink/tissue) release the roller slowly and watch the fluid progress to the capped end of the tube. Where there is a bubble, stop the roller and flick the line to release the bubble. You should have the line as clear of bubbles as possible. There should be no cloud/haze or precipitate noted.
- Once at the end, close the roller. It is now ready to use. The capped end should be kept in a clean area/not touching anything until it is connected.
- The cannula must be working and clear – the cannula should be prepared and checked prior to trying to connect fluid. This may involve a flush or in some cases replacing the cannula if tissued. Be aware that once you remove the cap of the cannula, it will bleed so you must occlude the vessel while you clean and connect it.
- Ensure you have appropriately checked the ID of the patient, the prescription (with a second checker), any allergies and that the patient has given informed consent.

- The port should be cleaned with a 2% wipe once the cap is removed, prior to connecting the primed line. The line should attach by screwing on to the cannula. Ensure it is secure but not so tight that it will cause trauma to remove.
- To commence the fluid, release the roller at the appropriate drip count.
- When changing fluids, a fresh line should be used unless the fluids are compatible. For example putting Hartman's up using the same line as a previous sodium chloride can cause the fluid to fizz in the line. The cannula should be flushed between drugs to prevent any incompatibilities.
- Substances such as IV antibiotics should be followed by a flush to ensure the full dose is given and there isn't antibiotic still in the IV line.
- Depending on the fluid given, a cannula flush may be appropriate following treatment.
- A fresh cap should be used to seal the cannula after the procedure.

Drug Calculations

For an infusion pump (to calculate mls per hour)

Mls to be given in total **/**over how many hours = infusion rate

Drops per Minute - for a gravity line

Drop rate of the fluid (usually 20) **x** mls (you may need to covert from litres) = drops per min

Minutes (you may need to convert from hours)

Useful Resources

NHS Injectable guidance - Medusa Logon page (only available as a subscription)

RCN Standard for IV therapy - Standards for infusion therapy | Infection prevention and control | Royal College of Nursing

Book: UCL Hospitals Injectable Medicines Administration Guide (2010) ISBN 9781405191920 (found in most clinical clean rooms for reference)

Health Education England IV Passport - IV Therapy Passport Practice Learning and Assessment Document (This is likely too advanced for this stage but can be used to form standards in line with NHS standards for your company).