

Blood sampling from in-dwelling arterial line

Standard

Every infant who experiences blood sampling from an in-dwelling arterial cannula will have the procedure carried out in a manner which minimises actual or potential trauma and enables correct analysis.

Equipment

Blue tray, alcohol swabs, one 1ml arterial syringe, three 3ml luer lock syringes, heparinised saline (0.45% NaCl with 1iu. Heparin/ml), non-sterile gloves, paper towel and container for blood sample (this depends on the reason for obtaining the sample - see note 1).

Procedure

- Cleanse hands according to NNU policy.
- Equipment is assembled and placed in an accessible position for carrying out the procedure.
- With another registered nurse/midwife, check the heparinised saline (see note 2).
- Apply gloves.
- Position the infant to promote comfort during the procedure.
- Vigorously rub the sampling port of the 'spike' in the heparinised saline solution bag with an alcohol swab for 15-30 seconds. Allow drying for 30 secs. Connect a 3ml syringe to the spike and withdraw approximately 2mls. of solution.
- Place paper towel under sampling site to protect bedding/clothing.
- Vigorously rub the 'no-needle' luer lock smart site (**red bung**) for 15-30 seconds with an alcohol swab and allow to dry for 30 secs.
- Insert the unused 3ml syringe into the luer lock smart site.
- Close off completely the 3-way tap attached to the pressure monitoring set, adjust the 3-way tap proximal to the baby so that the tap is off to the infusion but open to the baby.
- Draw back on the syringe until 2mls of blood stained solution are obtained.
- Close off completely the 3-way tap. Remove the syringe from the **red bung** and place the syringe into its sterile wrapper. Insert the 1ml syringe into the **red bung**, open the 3-way tap and withdraw the required amount of blood (see note 3) (**over at least 1 minute**).
- Close off completely the 3-way tap. Remove the 1 ml syringe and place it into its sterile wrapper.
- If further blood samples required attach 3ml syringe and withdraw amount required for blood sample.
- Re-attach the 3ml syringe with blood stained solution, open the tap, withdraw slightly on plunger then return contents of the syringe.
- Remove syringe and close off completely the 3-way tap. Re-attach 3ml syringe with heparinised saline, open the tap, withdraw slightly on the plunger then purge the line with enough solution to clear the blood (**return slowly over 2 minutes**). Close off the tap.
- Whilst withdrawing blood and infusing heparinised saline observe the infant's response to the procedure (see note 4).
- Open both 3-way taps to baby and pressure monitoring set but leave closed to sampling ports.
- Re-calibrate if the pressure transducer has moved position since the last calibration or following change of fluids/set.
- Observe sampling line for back flow of blood.
- Reposition infant comfortably.
- Dispose of sharps and waste material according to Trust Clinical Waste Policy
- Record procedure and findings in the relevant documentation. Label the specimens and complete the appropriate forms.
- Report abnormal findings to nurse/midwife in charge (see note 5)

Potential complications

Infection, air embolism, haemorrhage and inaccurate analysis of sample due to poor technique.

Notes

1. This procedure is applicable in obtaining blood for glucose, blood gas and drug level estimation, screening tests e.g. Dried blood spot test and other tests e.g. serum bilirubin estimation.
2. Where there is administration of an intra-arterial drug e.g. heparin, the solution must be checked by two registered nurse/midwives. The solution is checked for accuracy in: type, drug additive, concentration of additive to solution and expiry date of 'new' solution.
3. The 'required amount of blood' refers to the minimum amount needed to perform the test and obtain an accurate result. This will vary according to the test undertaken.
4. Intra-arterial lines may cause changes in perfusion distal to the insertion site. These changes may be observe as: blanching of fingers and toes, duskiness of fingers or toes, mottling of the buttocks.
5. See appropriate guidelines for the management of hypoglycaemia, blood gas interpretation and serum drug monitoring.

References

Developing the Scope of Professional - Arterial blood sampling
Trust Clinical Waste Policy

IVH bundle