

CENTRAL VENOUS CATHETER TECHNIQUES IN INFANTS AND CHILDREN

ESSAY

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The Master Degree In Anesthesiology

By

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SUMMARY

Central venous catheter insertion in infants and children is not a simple or easy procedure that requires high degree of experience and profession and requires high degree of accuracy and caution.

Central venous catheter insertion sites include upper extremity veins as cephalic, basilica, median, median antecubital veins, and deep forearm veins such as brachial vein. Lower extremity veins as femoral vein. Chest and neck veins as axillary, subclavian, internal jugular, external jugular and chest veins as intercostals veins. The central venous catheter can be inserted also into veins in the abdomen as inferior vena cava, hepatic veins and collateral veins.

Indications of central venous catheter insertion in infant and children may be therapeutic as for total parenteral nutrition (TPN), for chemotherapy, infusion of inotropic agent, administration of blood products, aspiration of air as in pulmonary air embolism, and other therapeutic indications. Diagnostic indications for central venous catheter placement include measuring central venous pressure and other diagnostic indications. There are many contraindications for central venous catheter placement includes coagulopathy, sepsis, and anatomical variations.

The materials which central venous catheters may be made from includes silicone rubber (sialastic), polyurethane, or elastometric hydrogel. Choosing the number of lumens should be based on the nature and capability of the solutions to be infused. It should not be determined by the possibility of future occlusion of a lumen. Types of central venous access devices (CVADs) may be peripherally inserted venous catheters (PICC), non-tunneled (temporary) catheters, and skin tunneled (permanent) catheters.

Insertion techniques in infants and children require high degree of precautions. The techniques are similar to those in adults except in size of the catheters and anatomical

variations. Venous access may be blind using anatomical landmarks, under fluoroscopic or ultrasonographic guidance that allows easy accessibility of the veins.

New techniques are now available that helps in easy accessibility of difficult cases of central venous catheter insertion such as traslumbar or transhepatic inferior vena cava approach and other new techniques.

Complications of central venous catheter placement are not uncommon especially by using the blind techniques. Anatomical variations and difficulty of catheter placement in infants and children increase the incidence of complications. Complications include infection, hematoma, accidental arterial puncture, pneumothorax, and other complications. Complications may be severe and life threatening that requires degree of experience for monitoring during insertion, early detection, and proper management.