This paper analyses the safety of USG percutaneous CVAD insertion in the pediatric population weighing ten kilograms or less” Vierboom et al (2018).

Abstract:

PURPOSE: Ultrasound-guided (USG) percutaneous insertion of tunnelled central venous access devices (CVADs) has been shown to be safe and effective in adults. However, there have been concerns over the safety of this technique in small children. This paper analyses the safety of USG percutaneous CVAD insertion in the pediatric population weighing ten kilograms or less.

METHOD: All surgically inserted CVADs for children weighing ten kilograms or less, between January 2010 and December 2015 at the Children’s Hospital at Westmead were retrospectively reviewed. Open and USG percutaneous techniques were compared with intraoperative complications as the primary outcome variable. Secondary outcome measures included conversion to open technique, postoperative complications, operating time and catheter longevity.

RESULTS: 232 cases were identified: 96 (41.4%) open, 136 (58.6%) USG percutaneous. Age ranged <1-48 months; weight 0.7-10 kg. CVADs ranged 2Fr-9Fr in size. Eleven USG percutaneous cases required conversion to open. There was no significant difference in intraoperative complication rate between open (11/96, 11.5%) and USG percutaneous (19/136, 14.0%) groups (p = 0.574). There was no significant difference in overall postoperative complications, operative time or catheter longevity. Mechanical blockage was significantly higher in the open group than the USG percutaneous group (21% vs 10%, p = 0.015).

CONCLUSION: USG percutaneous CVAD insertion is safe in children weighing ten kilograms or less. Open catheter insertion may be associated with higher rates of post-operative catheter blockage in small children.

LEVEL OF EVIDENCE: Level III.
Reference:
