



Abstract O-117 Figure 1 Agreement between ScvO₂ and SfvO₂ values at 1 h

Background and aim Femoral vein catheterization is very commonly performed while managing children with septic shock. However, the agreement between superior venal caval (ScvO₂) and femoral venous oxygen saturation (SfvO₂) has not been reported in children till date. Our aim was to evaluate the agreement between ScvO₂ and SfvO₂ values.

Methods Children with septic shock in whom femoral vein catheter was inserted before shifting to the ICU were eligible. Paired blood samples from subclavian/Internal jugular vein and femoral catheters were drawn simultaneously after initial fluid resuscitation in these children and analysed. Agreement was assessed by Bland and Altman (BA) analysis. The study was approved by IRB.

Results A total of 32 patients were enrolled. The mean ScvO₂ and SfvO₂ were 72.3% and 76% respectively ($p < 0.001$). BA analysis showed relatively poor agreement between ScvO₂ and SfvO₂ with mean bias of 3.6 and 95% limits of agreement of -1.95 to 9.25 ($r = -0.28$, $p = 0.14$) (Figure 1). In general, SfvO₂ values were higher than ScvO₂ values with 14 of the 32 children having values $\geq 5\%$. The SfvO₂ had poor sensitivity (45.5%) but 100% specificity for detecting low saturations. The PPV was 100% and the NPV was 77.8%. As SfvO₂ values were generally higher than ScvO₂ values, we tried a higher cut-off for SfvO₂ to detect low mixed venous saturations. With a SfvO₂ cut off of 72%, the sensitivity and specificity were both 100%.

Conclusions A higher cut off of 72% for SfvO₂ may be used in place of ScvO₂ in situations where ScvO₂ estimation has failed or is impractical. Our study findings however, need further validation.

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HIGH PREVALENCE OF CYTOMEGALOVIRUS PROTEINS IN SURGICAL SPECIMENS OBTAINED FROM INFANTS WITH NECROTIZING ENTEROCOLITIS, BOWEL PERFORATION OR BOWEL STRICTURE

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Background and aims Necrotizing enterocolitis (NEC) is a frequent cause of neonatal surgical emergency. The pathogenesis of the disease is incompletely understood. Postnatal cytomegalovirus (CMV) infection can present clinically as NEC and be related to bowel perforation or intestinal stricture in the neonate. The aim of this study was to evaluate the presence of CMV infection in intestinal samples obtained from infants with these conditions.

Methods Surgical specimens from infants diagnosed with NEC, bowel perforation or intestinal stricture during year 1997–2009 were collected from the pathology departments at Karolinska University Hospital and Uppsala University Hospital. The intestinal samples were retrospectively analysed for CMV Immediate Early Antigen (CMV-IEA) and CMV Late Antigen (CMV-LA) by immunohistochemistry.

Results Sixty-six intestinal specimens from 47 preterm infants and 10 full term infants were collected. The median gestational age of the infants was 27.9 weeks and their median birth weight was 1015 grams. The pathological diagnoses were NEC ($n = 36$), NEC and intestinal perforation ($n = 12$), intestinal perforation ($n = 12$), sequel after NEC ($n = 3$) and unspecific changes ($n = 3$). CMV-IEA and CMV-LA was detected in 85% and 61% of the intestinal tissue samples, respectively. Of these samples, 71% and 38% were classified as having a high-grade ($\geq 25\%$) CMV infection.

Conclusions CMV proteins were detected in the vast majority of intestinal specimens obtained from infants diagnosed with NEC, bowel perforation or intestinal stricture. These findings support a possible role of CMV in the pathophysiology of NEC and other surgical conditions in the neonate.

Teaching Using Simulation

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CAPNOGRAPHY IMPROVES NEONATAL FACE MASK VENTILATION

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Background Assessment of effective positive pressure ventilation (PPV) in neonatal mask ventilation can be difficult.

Objectives To determine which was the most effective method of providing PPV: a T-piece resuscitator (TPR) with no device attached (ND), a TPR containing an in line CO₂ detector (Neo-StatCO₂ <Kg[®]) (COD) or a TPR with a capnography device attached (CAP).

Methods This was a randomised crossover trial. Neonatal trainees were randomly assigned to each method (ND, COD or CAP). They then alternated methods such that all participants provided PPV with each method for a period of 2 min on a CO₂ producing mannequin. Participants were video recorded to determine the amount of effective ventilations delivered, and the overall percentage efficacy of each method. Informed consent was obtained.

Results 23 paediatric trainees provided a total of 6035 ventilations and 91.1% were deemed to be effective. There was no statistically significant difference between the percentage efficacy of breaths delivered between the three methods. Percentage of effective ventilations with ND, COD and CAP were 90.8%, 90.9% and 91.8% respectively. 15 (65%) of the trainees indicated a preference for the COD method and 8 (35%) for the CAP method. No trainees indicated a preference for the ND