Ventilator associated condition in infants undergoing cardiac surgery using cuffed and uncuffed tracheal tubes: preliminary analysis

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Argomento: Terapia Intesiva Pediatrica

Introduction. Ventilator associated pneumonia (VAP) is a serious complication among neonates (2-5) and pediatric patients after cardiac surgery (6,7) accounting for 6.8 - 32.2 % of health-care associated infections. Its origin and pathogenesis remains unclear but it would seem most likely subsequent to micro-aspiration. Nevertheless, the use of cuffed tracheal tube (CTT) or uncuffed tracheal tube (UTT) presents nowadays uncertain recommendations in pediatric population. Recently the Centers for Disease Control and Prevention (CDC) rolled out a new surveillance definitions: ventilator associated condition (VAC) to overcome the limitation of VAP definitions.

Our main aim was to evaluate the incidence of VAP, VAT (ventilator associated tracheobronchitis) and VAC with systematic application of the CDC definition in children from birth up to 5 years undergone a cardiac surgery with an expected ventilator time more than 24 hours. **Methods**. Single center, prospective before-and-after observational study with a predefined sample size. Data were collected using an electronic dedicated case report (Prosafe) with a petal specifically designated for the study. **Results**. We enrolled 244 (122 patients in each group) through the following periods: Phase I (from Jan 2017 to Feb 2018) at which children were intubated with UTT; Phase II (from Feb 2018 to Feb 2019) at which children were intubated with CTT. Mean weight was 6,73±3,86 Kg. We observed 7 VAP with 6 corresponding IVAC (Infection- related ventilator associated condition), 4 VAT with 1 corresponding IVAC, and 2 trachebronchitis in intubated children less than 48 hours in UTT group. Meanwhile we observed 1 VAP and 1 VAT only in TT group. Moreover 2 subglottic stenosis, requiring endoscopic treatment, and 12 reintubation for leakage were observed in UTT group (1 intubation for leakage in CTT group). **Conclusions**. Preliminary analysis showed a reduction in VAC and post-extubation airway morbidity in children with CTT.