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ePoster Viewing

Basic science: biofilm pathophysiology

INVESTIGATION OF BIOFILM FORMATION RECOVERED FROM ENDOTRACHEAL TUBES AMONG INTENSIVE CARE UNIT PEDIATRIC PATIENTS

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OBJECTIVES: The VAP (ventilator associated pneumonia) microbiologic diagnosis has been based upon evaluation of the tracheal secretion cultures that might result on the identification of the colonizing bacteria from the upper airways. Our objective was to compare the quantitative culture of tracheal secretions with cultures of sonicate-fluid from biofilms attached to the endotracheal tube (ET) in mechanically ventilated patients in the Pediatric ICU with and without VAP. **METHODS:** Cross-sectional study performed from December 2012 to October 2013, at the pediatric ICU of Santa Casa de São Paulo School of Medicine. We included all mechanically ventilated patients intubated for any reason and decision for extubation was made solely by the Assistant pediatrician. After extubation, the distal 10cm of the ET was cut off and submitted to external surface aseptic cleaning with alcoholic clorexidine or alcohol 70%, followed by preservation in Falcon tubes with 20mL of NaCl 0,9% sterile physiologic solution. The Falcon tubes were submitted to vortex for 30 seconds, sonication with 100% of intensity for 5 minutes followed by vortexing for another 30 seconds. Then, 1mL was then placed onto blood and chocolate agar growth mediums. After the first culture, the Falcon tubes were centrifuged for 5 minutes with 2500 RPM, followed by homogenization and cultured onto blood and chocolate agar again. Quantitative cultures of tracheal secretions were also performed. **RESULTS:** Twenty four samples of ET and quantitative secretion from twenty one patients were analyzed. Their average age was 3,13 years (+3,76), 58,33% were male and only one patient had VAP. Mechanical ventilation average time was 11,625 days (+8,16). Gram-negative and gram-positive bacteria were identified in tracheal secretion (TS), sonication fluid (SF) and centrifuged sonication fluid (CSF) cultures in 52% (n=25) and 37,5% (n=18), 56% (n=24) and 37% (n=16), and 53% (n=23) and 37% (n=16) respectively. The most frequently identified bacteria in TS, SF and CSF were the *Pseudomonas* spp. in 21% (n=9) 20% (n=8) and 20,5% (n=8) respectively and *Streptococcus* spp. in 23 (n=11) 21% (n=9) and 18,6 (n=8) respectively. Other commonly detected bacteria included *Acinetobacter* spp., *Klebsiella* spp. and coagulase-negative *Staphylococcus*. There were no statistically significant differences when comparing Gram-positive and Gram-negative findings in TS, SF and CSF cultures (p=0,985). Differences regarding susceptibility patterns to antibiotics between the pathogens of ET biofilm and tracheal secretions were seen in 5 patients. In general, the pathogens of tracheal secretion were more resistant, but there were no statistically difference. **CONCLUSION:** We were unable to detect differences on microbiological findings in ST, FS and FCS cultures among ICU intubated pediatric patients.