

### 997 VENTILATOR-ASSOCIATED PNEUMONIA (VAP) ON PEDIATRIC INTENSIVE CARE UNIT

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**Introduction** Ventilator-associated pneumonia (VAP) is a form of nosocomial infections - pneumonia which occurs in patients who are on mechanical ventilation for longer than 48 hours. It is very often complication on intensive unit care.

**Aim** To evaluate prevalence VAP on Paediatric intensive care unit (PICU) and the most common causes. Subjects and methods: From mart 2009. till mart 2011., 42 patients age two months to eight years. Design of study: prospective Patients were divided according to age, gender, time of manifestations VAP, types of microorganisms isolated in cultures.

**Results** From 42 investigated patients 22/42 (52.3%) were females. Patients were divided in the groups according to their age as follows: 0–6 months 9/42 (21.4%), 7–12 months 17/42 (40.4%), 1–3 years 11/42 (24.4%), 4–8 years 5/42 (11.9%) patients. According to time of manifestations VAP: between 48–96 hours of ventilations 14/42 (33.3%) patients, after 96 hours of ventilations 14/42 (33.3%) patients. According to types of microorganism isolated in cultures: *Klebsiella pneumoniae* 12/42 (28.5%), *Acinetobacter calcoaceticus* 7/42 (16.6%), *Staphylococcus aureus* 7/42 (16.6%), *Pseudomonas aeruginosa* 4/42 (9.5%), *Enterobacter* 4/42 (9.5%), *Stenotrophomonas maltophilia* 2/42 (4.7%), unknown 8/42 (19.2%). De-escalation therapy was administered in 30/42 (71.4%) patients. Dual antibiotic therapy was found in 22/42 (52.3%) patients. Mortality was 13/42 (30.9%) patients, in group therapy with deescalation 7/13 (53.8%), whereas in the monotherapy group was 8/13 (61.5%) patients.

**Conclusion** VAP is quite common complication on PICU. Previously taken cultures are very helpful in timely selection antibiotics and successful recovery.

### 998 NONINVASIVE POSITIVE PRESSURE VENTILATION IN INFANTS AND CHILDREN WITH ACUTE RESPIRATORY FAILURE

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**Objective** This study was performed to determine faisability and efficacy of Noninvasive positive pressure ventilation (NPPV) for infant and children with acute respiratory failure (ARF).

**Materials and Methods** During March 2006 to December 2011, we include in this prospective observational study infants and children ≤ 16 years of age hospitalized at the multidisciplinary PICU of the university teaching hospital of Oran with hypoxemic or hypercarbic acute respiratory distress. The patients were eligible to receive in first intention mask ventilation by means of a conventional volumetric ventilators as an alternative means of respiratory support in association with conventional medical treatment. Patients were evaluated regarding physiologic variables prospectively before NIV and at 2 hrs of NPPV.

**Results** A total of 109 patients were included. The average of age been of 57.07±57.95 months, we use NPPV for 22 (20%) children with hypercarbic acute respiratory failure (ARF), for 87 (80%) with hypoxemic ARF. 44 (40%) patients had ARF after extubation. The

BiPAP mode was used among all patients. After the second hour of NPPV we observe reduction of respiratory rate (43.72±13.46 b/min vs 34.25±13.47, p<0.01), heart rate (138.66 b/min vs 129.27±24.21, p<0.01) and improvement of the SPO<sub>2</sub> (86.17±13.33 vs 94.85±6.9, p<0.01). We listed only 36 (33%) failures which had recourse to the intubation.

**Conclusion** The NPPV is an interesting technique in PICU and the results are promising. The post-extubation ARF is probably a better indication for NPPV in paediatrics.

### 999 VALIDATION OF PEDIATRIC CARDIORESPIRATORY SIMULATOR: SIMULRESP

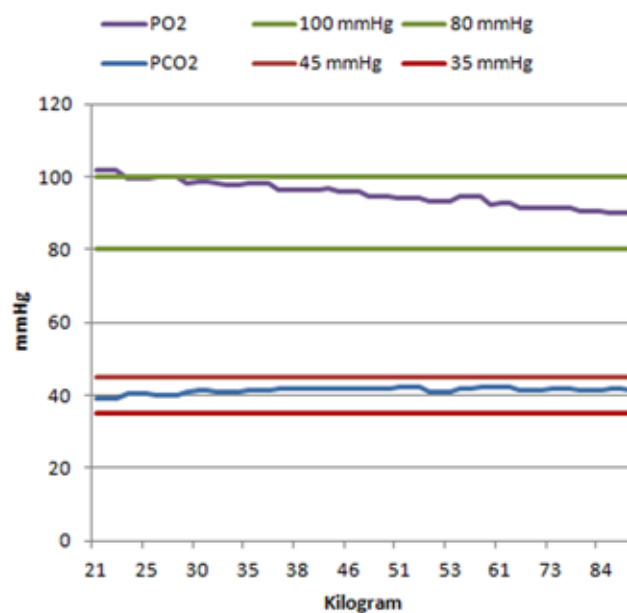
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**Introduction** To improve the training of medical students in respiratory physiology, we created an interactive cardio-respiratory simulator (SimulResp, figure 1). The objective of our study was to validate the simulator in normal and specific patient conditions.

**Methods** We run SimulResp (version 2012.03.10.01) with several virtual patients characteristics: sex (M/F), age (8 to 18 years old) and weights (10<sup>th</sup>, median, 90<sup>th</sup> percentiles), atmospheric pressure increase (simulation of scuba diving condition). SimulResp was run 3 times for each patient characteristic. We compared pH, PO<sub>2</sub> and PCO<sub>2</sub> obtained from the simulations to physiological values published in literature.

**Results** Blood gases values obtained from SimulResp (figure 1) were within normal range (pH 7.35–7.45, PCO<sub>2</sub> 35–45 mmHg, PO<sub>2</sub> 80–100 mmHg). At 4.7 atmospheres, the difference with the published data (ref 1) was less than 10% for all values (figure 2).



Abstract 999 Figure 1 Physiological condition at H4