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FIVE YEARS EXPERIENCE WITH NCPAP AS THE STANDARD OF PRACTICE IN POLAND

J. Swietlinski¹, E. Gajewska², T. Bachman³,
K. Bober⁴, E. Helwich⁵, R. Lauterbach⁶,
B. Maruszewski⁷, J. Szczapa⁸, M. Skrzypek⁹

¹Research, IPCZD, Warszawa, ²Neonatology, Medical University, Wroclaw, Poland, ³Mountains Community Hospital, Arrow Springs, CA, USA, ⁴Neonatology, Silesian Medical University, Katowice, ⁵Neonatology, IMiDZ, Warszawa, ⁶Neonatology, Jagiellonian University Medical College, Krakow, ⁷Cardiosurgery, IPCZD, Warszawa, ⁸Neonatology, Medical University, Poznan, ⁹Biostatistics, Silesian Medical University, Katowice, Poland

Objective: We hypothesized that nCPAP could be applied successfully across our country and that gathering of relevant data would identify factors associated with successful treatment.

Methods: We implemented a program in 2003 to establish general use of nCPAP as the standard of practice. The variable flow Infant Flow was selected as the system of choice. A registry of the baseline, course of treatment and outcome of all infants treated with nCPAP was established. In this analysis we present our experience with 11,476 neonates treated with nCPAP over the first 5 year period.

Results: 41% of the infants were between 1000-2000 grams, 14% below and 45% above. Most of the infants were treated to avoid intubation (67% RDS, 12% other, 5% apnea), and the balance to avoid reintubation when weaning from mechanical ventilation. The percentage of infants in the weaning category decreased as elective intubation decreased. nCPAP treatment successfully avoided intubation or reintubation 84% of the time. Multivariate analysis revealed that treatment success was not only associated with diagnostic category, weight and EGA, but also Apgar score at 5 minutes, pH>7.25 and PaO₂/FiO₂>150. The incidence of pneumothorax was highest in infants larger than 1000 grams being treated to avoid intubation, but still only 2.2%. Multivariate analysis revealed that pneumothorax in this group was associated with Apgar score at 5 minutes, pH< 7.25 and PaO₂/FiO₂< 150.

Conclusions: We successfully established nCPAP as a standard of practice in Poland. We identified baseline factors associated with bad outcomes.

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VOLUME GUARANTEE SETTING AND SPONTANEOUS RESPIRATORY RATE RESPONSE IN A NEONATAL ANIMAL MODEL OF RDS

M. Sanchez Luna¹, M. Santos², F. Tendillo²

¹Hospital General Universitario Gregorio Marañon, ²Hospital Universitario Puerta de Hierro-Majadahonda, Madrid, Spain

Background: The spontaneous breathing rate (SRR) response to different tidal volume setting during volume guarantee ventilation (VG) combined with flow cycled ventilation, (PSV) could represent an adequate response in keeping a constant minute volume ventilation, and probably correlates with PaCO₂ variations.

Objective: To investigate the effect of different V_T settings in the spontaneous respiratory rate (SRR), respiratory rate/tidal volume ratio (RVR), minute volume ventilation and lung mechanics.

Design/Methods: Six newborn piglets were ventilated with a Dräger BB8000+ ventilator in PSV with spontaneous breathing and VG initially set at 4 ml/kg of V_T and increased in 10 min intervals in 1 ml/kg until a V_T of 10 ml/kg. with normal lungs and after artificial RDS induced with a BAL. Respiratory mechanics, heart rate and blood pressure were continuously recorded and arterial blood gas measured after each 10 min intervals.

Results: SRR, RVR and PaCO₂ decreased after increase in V_T in normal lung (p< 0.05). In the RDS lung, SRR, RVR and PaCO₂ increased by decreasing V_T settings (p< 0.05). Minute volume inversely correlated with SRR (p< 0.05).

Conclusions: In this animal model, during PSV with VG ventilation in normal lungs and after BAL, changes in V_T induced inverse changes in the SRR. The SRR and RVR value could be an important guide to know if the setting V_T during VG with PSV is adequate or not.