Conclusion: NIPPV compared with nCPAP decreased the requirement for endotracheal ventilation in neonatal infants with respiratory failure.

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USE OF NASAL CPAP IN INFANTS WITH BRONCHIOLITIS IN THE SOUTH OF ENGLAND: A PROSPECTIVE, MULTICENTRE, OBSERVATIONAL STUDY

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Aim: To review the use of nasal CPAP (nCPAP) in infants with bronchiolitis.

Methods: A prospective, multicentre, observational study was undertaken from 1st November 2008 to 28th February 2009. Seven Paediatric Units in the South of England participated in the study. Data was collected on indications for nCPAP, respiratory rate and blood gases prior to nCPAP, total number of days on nCPAP and length of hospital stay.

Results: A total of 51 infants with the clinical diagnosis of bronchiolitis required nCPAP during the study period. The main indications were increased work of breathing (47.0%), apnoeas (39.2%) and increasing oxygen requirements (23.5%). Among them 16 were ex-preterm (31.37%).

Prior to nCPAP the mean respiratory rate was 63/min (range 28 to 120), mean oxygen saturations 85% (70 to 98%), mean pH 7.25 (7.03 to 7.36) and mean PCO2 10.42 (4.36 to 19.0).

The average time on nCPAP was 2.6 days (2 hours to 11 days) and the average length of hospital stay was 10.96 days (5 to 22 days).

11 out of the 51 infants failed trial on nCPAP requiring intubation (21.5%). The main indications were apnoeas (45.45%), CO2 retention (36.36%) and increasing work of breathing (36.36%).

7 out of the 11 infants requiring intubation were ex-preterm (63.6%) and 8 had significant PCO2 rise (>8) prior to the trial of nCPAP (72.72%).

Conclusions: nCPAP has a good success rate in bronchiolitis. In our study, predictive factors associated with nCPAP failure were prematurity and high CO2 retention prior to trial of nCPAP.

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NON INVASIVE VENTILATION IN PEDIATRIC STATUS ASTHMATICUS: A PROSPECTIVE OBSERVATIONAL STUDY

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Objective: Non invasive ventilation (NIV) has been shown to be effective in different causes of respiratory failure in both adult and pediatric patients. However, its role in status asthmaticus (SA) remains unclear. We designed a prospective study to assess the response of children with SA to NIV.

Patients and methods: We conducted a prospective, observational, single-center study in a teaching hospital. Children with SA unresponsive to conventional therapy with a modified Wood's clinical asthma score (m-WCAS) ≥4 after this treatment, were included. Patients were placed on pressure support NIV in spontaneous/timed mode. During NIV therapy, salbutamol was nebulized continuously and ipratropium bromide every two hours; methyl-prednisolone was given at a dose of 1-2 mg/kg/6 hours. Clinical variables were measured at baseline and at 1, 6, 12, 24 and 48 hours.

Results: During the study period, 122 children with SA were admitted to the PICU; 72 fulfilled inclusion criteria. Baseline mean values were as follows: m-WCAS of 5.7 points, heart rate (HR) of 166.7 beats/minute, respiratory rate (RR) of 49.5 breaths/minute and FiO_2 of 45.3%. In the first hour m-WCAS fell 2.3±1.5 points, HR 13.5±14 beats/minute and RR 9.8±10 breaths/minute ($p< 0.001$). Despite NIV therapy, 5 children required intubation due to increasing respiratory distress. There was one case of barotrauma, with no other serious adverse effects associated with NIV.

Conclusions: These results suggest that NIV is an effective and safe therapy in children with SA unresponsive to conventional treatment. Its effects are seen from the first hours of NIV therapy.