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THE EXCLUSIVE USE OF CONTINUOUS POSITIVE AIRWAYS PRESSURE TO VENTILATE BABIES OF THE AUSTRALIAN AND NEW ZEALAND NEONATAL NETWORK DURING 1998

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Background: Two main forms of ventilatory assistance are offered in the level III Neonatal Intensive Care Units (NICUs) of Australia and New Zealand, CPAP (continuous positive airways pressure) and IPPV (intermittent positive pressure ventilation). Babies may be given assistance using either form or both. The use of CPAP has become increasingly popular, with the Australian and New Zealand Neonatal Network (ANZNN) noting an 18.3% increase from a total of 22,788 'CPAP days' in 1995¹ to 26,949 'CPAP days' in 1998². The numbers of babies receiving 'CPAP only' has risen from 447 in 1995 to 835 in 1996, 1,040 in 1997 and 1,445 in 1998.

Aim: To describe the babies who received CPAP as their only form of ventilatory assistance who were admitted to a level III NICU in Australia or New Zealand and born during the calendar year 1998.

Methods: ANZNN is a voluntary collaboration of the centres for newborn care in Australia and New Zealand. An objective of the ANZNN is to conduct an ongoing, prospective audit of all infants who receive assisted ventilation for four or more consecutive hours and are admitted to a level III NICU in Australia and New Zealand. All twenty-nine level III NICUs have contributed data to this audit since 1995. A 'CPAP day' is defined as four or more consecutive hours of this therapy during a 24-hour period without the concomitant use of four or more hours of IPPV.

Results: CPAP was the only form of ventilatory assistance given to 1,445 babies in 1998 who received their care in a level III NICU (25.3% of all babies receiving assisted ventilation). Their gestational age range was from 24 weeks to 43 weeks. 'CPAP only' was received most frequently by infants in the 32 to 36 weeks' gestation group (37.0% of all babies ventilated, compared to 4.4% of extremely preterm infants (24-27 weeks'), 27.7% of very preterm (28-31 weeks') and 23.4% of term infants).

The main reasons for respiratory support for 'CPAP only' babies were 'non-specific respiratory distress' (37.2%) and 'respiratory distress syndrome' (36.9%). Thirty-three (2.3%) babies received exogenous surfactant therapy. A third (34.7%) of babies received CPAP for one day only and more than half (59.4%) for less than 3 days. Ninety percent of babies had CPAP for less than 7 days, although the maximum duration of therapy was 226 days. Supplemental oxygen therapy was given to 77.3% of these infants and 90% had ceased oxygen at day 8, and 95.6% by day 28. Chronic lung disease (any form of respiratory support at 36 weeks equivalent age in babies born at less than 32 weeks' gestation) was seen in 18 babies only, however 11 babies received supplemental oxygen after discharge to home.

All NICUs gave 'CPAP only' to at least one baby during 1998. However, there was a wide range in the number of babies who received 'CPAP only' compared to the total number ventilated. Overall, 6 units used 'CPAP only' for less than 5% of their ventilated babies and 4 units gave 'CPAP only' to more than 50% of their ventilated babies. In the gestational age group 32 to 36 weeks', where this therapy was most common, again 5 units gave 'CPAP only' to less than 5% of babies and 6 units used it for more than 50% of babies.

Conclusion: The increasing use of 'CPAP only' as a form of respiratory support is most common in the more mature preterm babies and the pattern of usage has a high variance between units.

¹ Donghue DA 1997 *Australian and New Zealand Neonatal Network 1995* Sydney: AIHW National Perinatal Statistics Unit.

² Donghue DA and Cust AE 2000 *Australian and New Zealand Neonatal Network 1998* Sydney: AIHW National Perinatal Statistics Unit.