

### Bubble CPAP in preterm babies with RDS with higher peak pressure

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#### Abstract

The standard of care for respiratory support in neonates with respiratory failure is evolving toward the use of nasal continuous positive airway pressure (n-CPAP), mainly because of its association with lower rates of chronic lung disease (CLD) than invasive ventilation. Bubble nasal-CPAP (Bn-CPAP) has re-emerged as a strategy to address the high failure rates associated with conventional CPAP, still limited published data exists in terms of practical aspects of CPAP and optimal and maximum pressure which can be given. Different studies have quoted peak pressure up to 6 or 7, sometimes up to 8 and FiO<sub>2</sub> 0.4 to 0.6 as cut off before deciding as failure of CPAP and have recommended its use for mild and moderate RDS only.

In the COIN trial, maximum pressure of 8 cm water was used in CPAP group and the failure rate was 46%. CPAP group had higher rate of pneumothorax (9%) than the ventilator group (3%). We conducted an observational study to evaluate effectiveness of early Bn-CPAP as a successful primary approach in managing preterm neonates with RDS. CPAP failure rate was 4.1% overall and it was 14.3% in preterm < 28 weeks. Success of Bn-CPAP in severe RDS was 84.6%. Success rate was 85.7% in babies < 1 kg weight and it was 95.6% in <1.5 kg wt. babies. Peak pressure of  $\geq 8$  cm water was given to 21.4% babies in success group out of which none developed pneumothorax. Our complication rate of CLD (mild CLD 2.7%), pneumothorax (2.7%), ROP (2.7%) and IVH (1.3%) was very low. A higher CPAP pressure had statistically significant association with severe RDS (p-value = 0.05). It was found to be safe for preterm infants with RDS including <28 weeks. A systematic review from Cochrane collaboration also showed that Continuous distending airway pressure reduces risk of mortality and doesn't increase risk of pneumothorax.

#### Biography

Lata Bhat completed her MRCPCH (UK) in 2003 and has been conferred FRCPCCH (London) in 2015. She did fellowship in neonatology from London in 2005. Prior to that she did Post graduation in Pediatrics from Safdarjung Hospital in Delhi in 1991. She has about 28 years of experience in Neonatology. Currently she is working as a Senior Consultant Neonatologist in Indraprastha Apollo hospital at Delhi, India which is a popular corporate hospital. She has 21 publications in reputed National and International journals, 2 research publications in American journal of Neonatal Biology and she has co-Authoring 6 books. Her areas of special interest are use of Bubble CPAP in neonates with respiratory failure and follow up of high risk babies. She is the Founder President of Foundation for High risk babies and Child Development and she was Convener of Indian Foundation of Preterm Babies from 2013 to 2016. She is the chief Editor of Journal, Development Pediatrics Today which is by Neurodevelopmental Chapter of Indian Academy of Pediatrics (IAP). Also State coordinator for Neurodevelopmental chapter of IAP.



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