

# TREATMENT OUTCOMES OF BUBBLE-CPAP VERSUS OXYGEN THERAPY AMONG PRETERM BABIES PRESENTING WITH RESPIRATORY DISTRESS SYNDROME AT A TERTIARY HOSPITAL IN TANZANIA

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## ABSTRACT

**Background:** Respiratory distress syndrome is the most common respiratory disease in premature babies and the major cause of morbidity and mortality in preterm babies. Effective treatment of these babies requires exogenous surfactant and/or mechanical ventilation but these are of limited availability in developing countries. However a cheaper, simpler and more accessible treatment for preterms with RDS called bCPAP has been reported, in the neighboring countries, to be effective in treating RDS in preterm babies with varying results of effectiveness ranging from 42% to 85%.

**Aim:** To implement and determine the effectiveness of bCPAP and its immediate outcomes compared to oxygen therapy in preterm babies presenting with RDS.

**Method:** A randomized control trial, conducted from December 2016 to May 2017, included all premature babies admitted at the neonatal care unit presenting with signs of RDS and meeting the inclusion criteria. The primary outcome was survival and secondary outcomes were treatment duration, duration of hospital stay and treatment complications.

**Results:** A total of 824 babies were admitted during the study period. Of these, 187 babies were preterm and 48 babies were enrolled and randomized (25 bCPAP vs 23 oxygen). After randomization, 3 babies were excluded leaving 22 babies in the bCPAP arm and 23 babies in the oxygen arm. The overall survival to discharge for all eligible participants was 58.3% and for those that followed treatment protocol was 62.2%. Survival was 77.8% (17/22) on bCPAP compared to 47.8% (11/23) on oxygen therapy. Babies treated with bCPAP had a 7 fold higher odds of surviving (OR 6.9, 95% CI: 1.34 – 35.20) compared to babies receiving oxygen therapy.

Babies receiving oxygen therapy had a longer treatment duration of  $87\pm 105.9$  hours as compared to those receiving bCPAP ( $48\pm 37.8$ ). Amongst the babies that survived, those receiving bCPAP experienced a shorter duration of hospital stay ( $19.9\pm 12.2$  vs  $20.2\pm 10.9$  days). Nasal bleeding was commonly seen in the bCPAP group as compared to the oxygen therapy group.

**Conclusion:**

bCPAP showed a 30% significant improvement in survival to discharge and also reduced the duration for RDS treatment when compared to RDS treatment with oxygen therapy. bCPAP can help in reducing neonatal mortality if rolled out at a large scale with an aim of attaining SDG3.

