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## Gastric aspirate shake test in preterm neonates to predict respiratory distress syndrome

**Satish Koirala**
Kathmandu Medical College, Nepal

**Introduction:** Respiratory Distress Syndrome (RDS) is a major cause of mortality and morbidity in preterm babies. Early prediction of RDS is vital in the management of preterm babies. Among the various test, the gastric aspirate shake test is a simple bedside test to predict RDS.

**Objective:** To evaluate whether the shake test performed in the gastric aspirate sample in preterm babies can predict the likelihood of respiratory distress syndrome of prematurity.

**Methods:** A prospective hospital-based cohort study conducted at the NICU of Kathmandu Medical College for 6 months from May to October 2014. All live born babies greater than or equal to 26 weeks and less than 37 weeks (36+6) gestation were included in the study. Neonates who could only be seen after 1 hour of life, neonates in whom gastric aspirate samples < 0.5 ml were obtained or those samples mixed with blood or meconium, neonates who were fed before the procedure, neonates with severe congenital anomalies incompatible with life and those with parents denying to give consent were excluded from the study. Babies were defined to have respiratory distress syndrome if the neonate develop any two of the clinical signs of respiratory rate > 60/min, expiratory grunting, suprasternal, intercostal retraction or cyanosis within 6 hrs of life and persisted for >24 hours with chest xray showing hypoaeration, diffuse reticulogranular pattern with air bronchogram. The shake test results were read as positive ( if complete rim of bubbles were present across the surface of the fluid), intermediate ( an incomplete rim of bubbles were present across the surface of the fluid), negative ( if no bubbles were seen). The results of the shake test were then compared with clinical diagnosis of neonatal respiratory distress syndrome.

**Results:** Among the 50 preterm babies who were enrolled in the study, 15 (30%) babies developed RDS. Similarly, shake test predicted 48% as mature (positive shake test) and 34% intermediate and 18% as immature (negative shake test). The sensitivity, specificity, positive predictive value (immaturity), negative predictive value (maturity) by shake test was 93.3%, 65.7%, 53.8% and 95.8% respectively.

**Conclusions:** Gastric aspirate shake test in preterm babies is a simple yet reliable test for prediction of fetal lung maturity and therefore can be used routinely in resource limited settings to predict RDS.

skoirala_2009@hotmail.com