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A study of Cord blood plasma Vitamin A (Retionol) Levels in low birth weight babies

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OBJECTIVES

Role of vitamin A in reducing the mortality in infants more than six months of age is well known. Low- birth-weight (LBW) infants (<2,500g) are at increased risk of respiratory infection in the first few months of life and have low liver stores of vitamin A. Adequate vitamin A levels may have significant impact on prevention of neonatal and childhood morbidity in developing countries. This study was undertaken to look for levels of vitamin A in cord blood plasma of low birth weight babies and to relate the value obtained with morbidity noted in these babies during immediate postnatal course in the hospital and NICU.

METHODOLOGY

Cord blood of LBW babies with a birth weight of 1505 and 2445 grams were included for estimation of umbilical cord blood plasma vitamin A levels. The vitamin A levels were measured using the HPLC method. All the babies included in the study were closely followed up till discharge from the hospital. Acutely ill LBW or term babies were managed at neonatal intensive care unit of the hospital. Morbidity as defined before study was recorded in the performa. The difference between the mean plasma vitamin A levels between LBW babies with or without morbidity was compared using Z test.

RESULTS

A total of 154 low birth weight babies were included in the study. Morbidity among the LBW babies was 31.2% (48/154). There was no significant difference in the birth weight between the groups of LBW babies with and without the morbidity (1949.6 vs 1981 grams). However, comparison of mean values of vitamin A levels (Z test) between the two groups (15.84 mcg/dl vs 18.19 mcg/dl) yielded significantly lower levels of cord blood vitamin A among low birth weight babies with morbidity as compared LBW babies without morbidity ($p<0.005$). A total of 05 babies died during perinatal period (5/154, mortality among LBW babies 3.24%).

RECOMMENDATION

This study revealed lower levels of vitamin A in preterm, LBW and term small for gestational age babies. Through majority of the babies had values more than the recommended cut off of < 10ìg /dI, the adverse impact of lower levels noted in babies with morbidity can not be ignored. There is a need to seriously examine the role of vitamin A supplementation for low birth weight babies during the immediate postnatal period.