

EFFECT OF STRESSFUL ENVIRONMENTAL FACTORS UPON NEONATAL IMMUNE SYSTEM

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SUMMARY

To examine the effects of stressful environmental conditions upon the immune system of the newborn (neonates), we analyzed the neonatal serum immunoglobulin levels in a total of 67 neonates from tribal families living in a rural community of eastern India. These cases were grouped into three categories, based upon the predominance of one of the three factors being analyzed, and the reasonable absence of the other two factors. The three factors as determined by the prevailing environmental conditions, which were the basis for forming the three groups, were: 1. indoor air pollution; 2. hygienic conditions; and 3. the cohabitation of domesticated animals in the same household as the infants's families. Presence of indoor air pollution or unhygienic conditions resulted in the disturbance and depression of the levels of serum immunoglobulins of different classes. There was no discernible correlation found between the levels of immunoglobulins of different classes from the neonates (except IgM) and the cohabitation of domesticated animals in the same households. However the incidence of GIT and RT infections was higher in all the three experimental groups, as compared to the control group. These results suggest that unfavorable environmental conditions can adversely affect the immune system at neonatal stages, and can increase their susceptibility to subsequent acute or chronic events.

Key words: environmental stress, newborns, immune system

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