**Vitamin D status in children with community acquired pneumonia and its association with severity: a hospital-based study**

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BACKGROUND: International and observational epidemiological studies provide evidence that vitamin D deficiency may confer increased risk of influenza and respiratory tract infection. This study was undertaken in an effort to evaluate the prevalence of vitamin D deficiency in pneumonia in children and assess its relationship with the severity.  
METHODS: Study group included children aged between 2 months to 5 years of age admitted as inpatients who presented with clinical features of pneumonia as per WHO classification. Detailed clinical assessment and physical examination was done at the time of admission and patients were enrolled and relevant findings were noted in prestructured proforma. Vitamin D levels <30 nmol/L (< 12ng/ml) were defined as deficient, 30-50nmol/L (12-20ng/ml) as insufficient, and > 125nmol/L (>50ng/ml) as sufficient. Outcomes of the patients admitted were recorded in terms of duration of hospitalization, ICU stay, oxygen requirement, antibiotic need and duration, need for upgradation of antibiotics, nebulization need with drugs used and ventilator need and other parameters. Statistical analysis was performed using statistical package for social sciences software. A p-value of <0.05 was considered as significant.  
RESULTS: Out of 101 Patients, 100% presented with fever, cough and fast breathing, 42.6% presented with grunting, 41(40.5%) presented with noisy breathing, 5.7% presented with bluish discolouration, and 4.3% presented with apnea. 41(40.5%) patients had crepitation, 53(52.4%) patients had ronchi, while 7(6%) presented with bronchial breathing. Chest radiography features at admission helped to differentiate between presumed viral and presumed bacterial infection. Vitamin D deficient patients had significantly longer duration of hospital stay as compared to vitamin D sufficient group (p<0.001). The need for up gradation of antibiotics between the three groups were found to be significant (p < 0.001). This showed that vitamin D deficiency is directly proportional to need of upgradation of antibiotics. Bacterial pneumonia presents mostly as alveolar infiltrates and/or pleural effusion while viral pneumonia presents as interstitial infiltrates and/or hyperinflation. Cases with presumed bacterial pneumonia (based on X-Ray, 38 out of 48, 79.1%) were more often vitamin D deficient as compared to case with presumed viral pneumonia (32 out of 52, 61.5%, p =0.05).  
CONCLUSIONS: Vitamin D is widely prevalent in Indian children with pneumonia. Vitamin D deficient patients needed a longer duration of hospitalization, more up gradation of antibiotics, PICU admissions, had more CPAP requirement, longer duration of PICU stay and longer duration of CPAP requirements as compared to vitamin D sufficient group.

KEY WORDS: Association; Child; Hospitals; Hospitalization; Pneumonia; Vitamin D