
Association Between Asthma and Attention-deficit Hyperactivity Disorders in Children: Potential Risk Factors

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Background: There is conflicting research data regarding the association between ADHD and atopic disorders.

Aim: The objective of this study was to investigate the prevalence of asthma among ADHD children.

Methods: Case-control study 520 children with asthma and ADHD and 520 controls aged 5-16 years old controls matched by age and ethnicity. Data based questionnaire, clinical manifestations. Univariate and multivariate statistical analyses were performed.

Results: The mean age for ADHD versus control subjects was 9.92 ± 3.3 vs. 10.20 ± 3.4 . There was a significant difference found in the mean values of vitamin D between asthmatic with ADHD (17.25 ± 10.53) and control children (23.91 ± 9.82) ($p < 0.0001$). Out of 520 asthmatic children with ADHD, 18.4% had severe vitamin D deficiency (< 10 ng/ml). Also, the proportion of overweight and obesity was significantly higher among asthmatic children with ADHD than healthy controls ($p < 0.001$). The mean values of all biochemistry parameters such as vitamin D, serum iron, serum ferritin, hemoglobin, magnesium, and potassium were significantly lower among asthmatic children with ADHD than healthy controls ($p < 0.001$). The multivariate logistic regression analysis showed that predictors for asthmatic with ADHD using were the mean serum vitamin D serum calcium level, physical activity, nervous behavior, consanguinity, BMI and child order were considered as the main factors associated with ADHD after adjusting for age, gender and others.

Conclusion: The present study revealed that vitamin D deficiency was higher in ADHD children compared to healthy children and supplementing infants with vitamin D might be a safe and effective strategy for reducing the risk of ADHD.