



Original Article

Comparative study of vitamin D levels in children with autism spectrum disorder and normal children: A case-control study

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Abstract

Introduction: Autism Spectrum Disorder (ASD) is a group of neuro-developmental disorders with a genetic/environmental origin. Recently, vitamin D deficiency is considered as a possible risk factor in ASD development. This study aims to compare the vitamin D serum level in children with and without autism spectrum disorder.

Materials and Methods: In this case-control study, 13 children (3 to 12 years old) referred to the outpatient clinic of Ibn-e-Sina psychiatric hospital in Mashhad in 2014 who received the diagnosis of ASD based on clinical interview according to DSM-IV by child and adolescent psychiatrist and score ≥ 30 in Childhood Autism Rating Scale were selected as the case group. Other axis I psychiatric disorders were ruled out. These children were divided into mild, moderate, and severe groups. 14 normal children without any medical or psychiatric disorders who were matched in age and sex with ASD children were selected as control group. Vitamin D serum levels were measured in the two groups through ELIZA technique. Data were analyzed by SPSS software, through descriptive statistics, Kolmogorov-Smirnov, Mann-Whitney and Pearson tests.

Results: The mean vitamin D level in case group was 13.00 (distance between quartile: 9.6-19.5) and in control group was 12.00 (distance between quartile: 4.9-13.2). The difference between the two groups was not significant ($P=0.350$). Also, vitamin D serum levels had no significant relationship with the severity of ASD ($P=0.534$).

Conclusion: Based on the results, the serum levels of vitamin D in children with and without ASD have not any significant difference and the level of this vitamin has not significant relation with the severity of ASD.

Keywords: Autism spectrum disorder, Deficiency, Vitamin D

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Introduction

Autism Spectrum Disorder (ASD) is a group of neuro-developmental disorders that they may be indicated in early childhood if they have a prenatal origin or severe impairment. The symptoms of disorder are in a wide range of socio-communication problems with repetitive behaviors or patient's senses abnormalities. ASD usually relates with other neuro-behavior-cognitive disorders that these disorders almost include intelligent disabilities, speech problems, attention deficit hyperactivity or seizure (1).

Although the genetic origin of these disorders has been indicated but the interactions of environmental factors with genetic factors have increasingly gained

more significance (2,3).

Recently vitamin D deficiency during pregnancy and/or early childhood is concerned as a possible risk factor in ASD development (4,5).

This deficiency due to the progression of urban life, obesity and recommendations about protection against sunlight has shown an increasing trend from 1980s (5-8).

This vitamin has a unique role in brain hemostats, embryogenesis, neuro-immunity, antioxidant and anti-apoptose effects, neuro-differentiation and gene regulation (9-11).

It should be concerned that vitamin D is not a true vitamin but it is a steroid that it produced by a chemical cascade and the beginning point of this process is the skin exposure to ultraviolet sunlight. This procedure is related with cholesterol and the final active form of vitamin-calcitriol (1,25 OH₂ D) is developed (12,13).

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