The Role of Lead Exposure on Attention-Deficit/Hyperactivity Disorder in Children: A Systematic Review

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Iran J Psychiatry 2016; 11:1: 1-14

Objective:
Attention-Deficit/Hyperactivity Disorder (ADHD) is one of the most common behavioral disorders in children effecting the families and society. This systematic review examined the literature on the role of lead exposure in children with ADHD symptoms. Articles were analytically compared, focusing on the methodology used to assess exposure and adverse effects on children with ADHD.

Method:
Using the search strategy from six databases (Pub Med, PsycINFO, Web of Science, SID, IRAN Medex, IRAN DOC), hand searching in key journals, list of references of selected articles and gray literature, without time and language limitation, articles up to May 2014 were entered into this review. In this review, 1,387 articles were acquired at the primary search. Study selection and quality assessment processes were done based on Cochrane library guidelines. After assessing the quality and inclusion and exclusion criteria, 18 articles were selected and entered into the data synthesis.

Results:
Blood Lead level (BLL) of less than 10µg/dL in children has been attributed to at least one type of ADHD i.e., Combined / Inattentive / Hyperactive-Impulsive. The results of this study revealed that in 16 out of the 18 studies, a significant association was found between BLL and one of the types of ADHD.

Conclusion:
Based on the findings of this study, even the BLL of less than the action level of 10µg/dL, chosen by Centers for Disease Control and Prevention (CDC), may affect children with ADHD.