Risk of subsequent attention-deficit/hyperactivity disorder among children and adolescents with amalgam restorations: A nationwide longitudinal study.

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Abstract

OBJECTIVES: Dental amalgam has been used as a common restorative material since the 1800s, but concerns have been raised regarding its purported neuropsychological effects due to the neurotoxicity of mercury. In this study, a nationwide population-based database was employed to investigate the association of dental amalgam restoration with the risk of attention-deficit/hyperactivity disorder (ADHD).

METHODS: After matching, 88 068 young people with at least one tooth restoration during 2002-2010 and no ADHD history before 2001 were selected and then collected the further information until the end of 2011. Cox proportional hazard models were employed to estimate the possible effect of amalgam restorations on the risk of ADHD during the period of 2002-2011. Subgroup analyses were performed according to age, sex and number of amalgam restorations.

RESULTS: In total, 2073 people (2.4%) received an ADHD diagnosis during the study period, yielding an incidence rate of 32.4 per 100 000 person-years. Those who had 6 or more amalgam restorations had a higher risk of future ADHD in the unadjusted Cox proportional hazard regression model (hazard ratio=1.20, 95% confidence interval [CI]=1.04-1.38, P=.015) than those who had received composite resin or glass ionomer restorations. However, after adjustment for potential confounding factors, the result was found to be confounded by age.

CONCLUSIONS: The univariate analysis results showed that those who had 6 or more amalgam restorations had a 20% higher risk of future ADHD; however, the association disappeared after the model was adjusted for age. Despite this study analysing a larger sample than those analysed in previous studies, no association was observed between young patients' having received amalgam restorations and a future ADHD diagnosis. Further research aimed at evaluating the association between dental amalgam and other subsequent neuropsychological effects is warranted, especially for people who are vulnerable to mercury exposure.