

Psychometric evidence that mercury from silver dental fillings may be an etiological factor in depression, excessive anger, and anxiety.

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Author information

Abstract

Scores on the Beck Depression Inventory were compared for 25 women who had silver dental fillings (amalgams) and for 23 women without amalgams. Women with amalgams had significantly higher scores and reported more symptoms of fatigue and insomnia. Anger scores from the State-Trait Anger Expression Inventory showed that the women with amalgams had statistically significantly higher mean scores on expressing anger without provocation and experiencing more intense angry feelings. The women without amalgams scored significantly higher on controlling anger, which suggested they invested more energy in monitoring and preventing the experience and expression of anger. Anxiety scores from the State-Trait Anxiety Inventory showed the women with amalgams scored significantly less pleasant, satisfied, happy, secure, and steady, and had a more difficult time making decisions. They had significantly higher Trait Anxiety scores. The women with amalgams also had significantly higher levels of mercury in the oral cavity before and after chewing gum. The study suggests that amalgam mercury may be an etiological factor in depression, excessive anger, and anxiety because mercury can produce such symptoms perhaps by affecting the neurotransmitters in the brain.

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Evidence supporting a link between dental amalgams and chronic illness, fatigue, depression, anxiety, and suicide.

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Author information

Abstract

The purpose of this review is to examine the evidence for a relationship between mercury (Hg) exposure from dental amalgams and certain idiopathic chronic illnesses--chronic fatigue syndrome (CFS), fibromyalgia (FM), depression, anxiety, and suicide. Dental amalgam is a commonly used dental restorative material that contains approximately 50% elemental mercury (Hg0) by weight and releases Hg0 vapor. Studies have shown that chronic Hg exposure from various sources including dental amalgams is associated with numerous health complaints, including fatigue, anxiety, and depression--and these are among the main symptoms that are associated with CFS and FM. In addition, several studies have shown that the removal of amalgams is associated with improvement in these symptoms. Although the issue of amalgam safety is still under debate, the preponderance of evidence suggests that Hg exposure from dental amalgams may cause or contribute to many chronic conditions. Thus, consideration of Hg toxicity may be central to the effective clinical investigation of many chronic illnesses, particularly those involving fatigue and depression.

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A significant dose-dependent relationship between mercury exposure from dental amalgams and kidney integrity biomarkers: a further assessment of the Casa Pia children's dental amalgam trial.

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Author information

Abstract

Dental amalgams are a commonly used dental restorative material. Amalgams are about 50% mercury (Hg), and Hg is known to significantly accumulate in the kidney. It was hypothesized that because Hg accumulates in the proximal tubules (PTs), glutathione-S-transferases (GST)- α (suggestive of kidney damage at the level of PT) would be expected to be more related to Hg exposure than GST- π (suggestive of kidney damage at the level of the distal tubules). Urinary biomarkers of kidney integrity were examined in children of 8-18 years old, with and without dental amalgam fillings, from a completed clinical trial (parent study). Our study determined whether there was a significant dose-dependent correlation between increasing Hg exposure from dental amalgams and GST- α and GST- π as biomarkers of kidney integrity. Overall, the present study,

using a different and more sensitive statistical model than the parent study, revealed a statistically significant dose-dependent correlation between cumulative exposure to Hg from dental amalgams and urinary levels of GST- α , after covariate adjustment; whereas, a nonsignificant relationship was observed with urinary levels of GST- π . Furthermore, it was observed that urinary GST- α levels increased by about 10% over the 8-year course of the study among individuals with an average exposure to amalgams among the study subjects from the amalgam group, in comparison with study subjects with no exposure to dental amalgams. The results of our study suggest that dental amalgams contribute to ongoing kidney damage at the level of the PTs in a dose-dependent fashion.

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Biomarkers of kidney integrity in children and adolescents with dental amalgam mercury exposure: findings from the Casa Pia children's amalgam trial.

Woods JS¹, Martin MD, Leroux BG, DeRouen TA, Bernardo MF, Luis HS, Leitão JG, Kushleika JV, Rue TC, Korpak AM.

Author information

Abstract

Mercury is toxic to the kidney, and dental amalgam is a source of mercury exposure. Few studies have evaluated the effects of dental amalgam on kidney function in a longitudinal context in children. Here, we evaluated urinary concentrations of glutathione S-transferases (GSTs) alpha and pi as biomarkers of renal proximal and distal tubular integrity, respectively, and albumin as a biomarker of glomerular integrity in children and adolescents 8-18 years of age over a 7-year course of dental amalgam treatment. Five hundred seven children, 8-12 years of age at baseline, participated in a clinical trial to evaluate the neurobehavioral and renal effects of dental amalgam in children. Subjects were randomized to either dental amalgam or resin composite treatments. Urinary GSTs alpha and pi, albumin, and creatinine concentrations were measured at baseline and annually in all subjects. Results were evaluated using linear regression analysis. GST-alpha concentrations were similar between treatment groups and in each sex and race (white vs. non-white) group in each follow-up year. GST-pi levels tended upward over the course of follow-up by four- to six-fold. This increase was seen in all groups irrespective of the treatment, race, or gender. Females had GST-pi levels approximately twice those of males at all ages. Albumin concentrations were constant throughout the follow-up period and did not differ by treatment, although females had 39% higher albumin levels than males. Additionally, we found no significant effects of amalgam treatment on the proportion of children with microalbuminuria (>30 mg/g creatinine). These findings are relevant within

the context of children's health risk assessment as relates to the safety of mercury exposure from dental amalgam on kidney function. These data also provide normative values for sensitive indices of renal functional integrity that may serve in the evaluation of children and adolescents with renal disorders.