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URINARY MERCURY AND HAIRY HEAVY METALS LEVELS IN PATIENTS WITH AMALGAM FILLINGS

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Aim: In this study we aimed to evaluate the levels of urinary mercury (Hg) and hairy heavy metals levels in subjects with amalgam fillings.

Subjects & Methods: From Mar' 2012 to May' 2013, specimen collection was conducted at Dentistry department in Gullhane Military Medical Academy in Ankara. The study group consisted of 102 patients who have amalgam fillings from different periods of time and 32 healthy subjects as control group. The members of both groups were enrolled in the study voluntarily. Urine and hair samples were collected from the subjects. Mercury levels in urine and heavy metals levels in hair were measured using inductively coupled plasma mass spectrometry (ICP-MS).

Results: The mean of urinary mercury level ± SD was significantly higher in patients group (6.4±3.8 µg/L) in comparison with that in control group (2.5±1.3 µg/L) ($p<0.001$). A strong correlation was found between urinary mercury levels and both number,duration of amalgam fillings (Pearson rank 0,768 and 0,823 respectively).The mean ± SD of mercury concentration in hair was significantly higher in patients group in comparison with healthy group (0.78±0.15 vs. 0.48±0.24 µg/g hair) ($p<0.001$). The results did not reach the toxic level of human body (150 µg/g hair). There is no correlation between the number of amalgam fillings and Hg levels in hair and there is a positive correlation between Hg levels and the duration of amalgam fillings ($r=0.876$). The levels of Hg, Zn, B, V, Cr, Mo, Mn, Be, Sn, Cu, As, Ag, Cd, Pd, and Ni were found significantly higher in hair samples of patients group ($p<0.05$).

Conclusion: These exploratory findings suggest that the amalgam fillings contribute to the body mercury burden by showing an increase in urinary mercury and hair mercury levels.

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