Effect of Coriandrum Sativum L. extract on blood and urine lead concentrations in 3-7 year old children

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Objective: Lead (Pb) poisoning is the most common occupational poisoning (1) that may affect family members of lead workers specially their children (2-4). The most important effect of lead poisoning in children is on the development of central nervous system (2, 5). High cost and severe side effects of chelating agents may result in incomplete treatment of lead poisoning in some cases. The aim of present study was to assess the effect of Coriandrum Sativum l. (Cilantro) extracts on renal lead excretion in 3-7 year old children. **Method**: In this randomized, case-control clinical trial, 32 children 3-7 years old (16 in treatment and 16 in control group) whom their parents were lead workers of a car battery manufacturer and in a tile factory, were randomly allocated in 2 groups. The test group received Cilantro extract and the controls were given placebo for 14 days. Blood and urine lead concentrations were determined at the beginning and 14 days later. Questionnaires were designed and used for data collection. Data were analyzed by Chi-square, Student-t, Mann-Whitney, Paired t-test, one way ANOVA, Kruskal-wallis and General Linear Model, using SPSS version 11.5. Numerical data were shown as mean ± SD and $p<0.05$ was used as the minimum statistical significance. **Results**: The age and weight of 32 children was 4.9±1.46 years and 17.32±4.74 kg, respectively and 59.4 percent of them were male. Duration of fathers' exposure to Pb at work was 9.14±5.63 years. All of the lead workers changed their clothes and shoes, but only 18.75 percent of them took bath at the end of the work. Blood lead concentration of car batteries workers' children were higher than tile factory's, but the difference was not significant (p=0.13). The mean of blood and urine Pb concentrations of children were 163.81±57.19 and 97±48.12 µg/l , respectively at the beginning of the study. There were no significant differences in blood (p=.87) and urine (p=.73) Pb concentrations between the two groups. After two weeks use of Cilantro, the mean blood lead concentration decreased (146.56±74.48, p=.006) and urine lead concentration increased significantly (127.75±53.67, p=.038). But similar significant changes were observed in the control group (p=0.034 and p= 0.021, respectively). There were no significant differences in blood lead concentration (p=.93) and urine lead concentration (p=.93) between two groups at the end of study. **Conclusion**: According to the results of this study, it seems

that Coriandrum Sativum is not effective in lead elimination. Increasing renal lead elimination in both groups of children may be due to other factors like improvement of nutrition following the education at the beginning of this study. **References:**(1) Aga M, Iwaki K, Ueda Y, Ushio S, Masaki N, Fukuda S, et al. Preventive effect of Coriandrum sativum (Chinese parsley) on localized lead deposition in ICR mice. Journal of Ethno pharmacology. 2001; 77:203-208. (2) Henretig FM. Lead. In: (Gold frank R.L. et al.) Gold frank's Toxicologic Emergencies. McGraw Hill, New York. 2002. Chap:80. (3) Erickson L, Thompson T. A Review of a Preventable poison: Pediatric Lead Poisoning. JPSN 2005;10(4):171-181. (4) Ellis MR, Kane KY. Lightening of the lead load in children. American Family Physician 2002;62:545 - 54. (5) Bellinger D. Lead. Pediatrics 2004;113:1016-1020