**Evaluation of concentration of heavy metals in blood and urinary stones and its relationship with environmental factors and dietary pattern**


## *Abstract*

**Background:** Kidney and urinary tract stones are one of the most common and important problems that due to machine life, poor nutrition, bad habits in fluid intake and improper use of drugs, its prevalence is increasing today. One of the dangerous elements that can have a significant effect on the formation of urinary stones is heavy metals

**Aim:** Evaluation of concentratioin of heavy metals in blood and urinary stones and its relationship with environmental factors and dietary pattern

**Meterials and Methods** : This study was a case-control study that the study population included people with urinary stones in Ardabil. Blood and urine stones were sampled randomly from patients with urinary stones referred to the urology clinic of Imam Reza Hospital in Ardabil. The number of cases was 40 and the number of controls was 40. To measure blood samples, 2 ml of blood samples were taken from each person and injected into a tube containing heparin. To prepare urine stones, 0.2 g of urine stones were taken from each person and in a Teflon PFA tube was poured. This sample prepared for measuring heavy metals was sent to the laboratory of Tehran University by ICP-MS. Data were analyzed by chi-square test, ANOVA and independent t-test and tukey test.

**Results***:* The concentration of copper and selenium in the blood and urinary stones is higher than other metals. There was a significant relationship between the history of kidney stones and the possibility of kidney stones. There was a significant relationship between the concentrations of lead, chromium and sodium and kidney stone formation.The levels of mercury and sodium in the blood of people who used filtered water were higher

**Conclusion:** Increased blood lead levels are associated with an increased risk of kidney stones.



**Keywords:** Concentrations of heavy metals, urinary stones, environmental factors and dietary pattern