

Urinary lead concentration in chronic kidney disease patients at nephrology clinic in Sabah

ABSTRACT

Presently, scientific knowledge on the association between urinary lead concentration and renal profile is limited, especially on the characteristic of urinary lead that could aggravate existing kidney disease. This study aims to determine the concentration of urinary lead with serum creatinine and blood urea nitrogen in chronic kidney disease patients and to identify the influences of confounding factors and the blood pressure on the chronic kidney disease patients. Graphite Furnace Atomic Absorption Spectrometer was used to determine the urinary lead concentration. The differences and correlation of urinary lead with serum creatinine, blood urea nitrogen and diastolic blood pressure between the chronic kidney disease patients and control groups were assessed using Mann Whitney U and Spearman correlation tests. Our findings indicated a significantly higher urinary lead concentration in the chronic kidney disease group compared to the control group ($p=0.002$). Nevertheless, there is a weak relationship between urinary lead with serum creatinine, blood urea nitrogen and diastolic blood pressure in the chronic kidney disease group (r values: -0.123 , 0.101 , and 0.127). In addition, sociodemographic factors did not influence the concentration of urinary lead ($p>0.05$). The urinary lead concentration in the chronic kidney disease group is not substantial, thus the evidence of urinary lead accumulation in chronic kidney disease group who have yet to start renal replacement therapy is inconclusive.