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Cadmium Nephropathy: A Reminder of a Forgotten Occupational Disease

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Background: The toxic effects of cadmium have been well reported in the literature. However, cadmium nephropathy is still a condition that is sometimes overlooked in terms of exposure to various occupational sources and environments.

Methods: This report describes diagnostic approach of two recent cases that presented with renal dysfunction as consequences of occupational exposure.

Results: The first patient was a 59-year-old non-smoker female who was referred for evaluation of proteinuria and impaired renal function. Renal biopsy revealed global glomerulosclerosis with interstitial nephritis. As she gave an occupational history of working in a synthetic leather industry for over 20 years, the heavy metal analyses were performed and the results showed that her blood and urine levels of cadmium were 7.49 µg/L and 3.74 µg/day, respectively. Another case was a 39-year-old female dental technician who presented with general weakness and easy fatigue for previous several weeks. Laboratory findings demonstrated increased fractional excretions of uric acid and phosphorus, renal glycosuria and proximal renal tubular acidosis, indicating Fanconi syndrome. Kidney biopsy showed the features of severe tubulointerstitial nephritis. Considering her occupation, assessment of heavy metal concentrations was performed, showing cadmium levels of 7.51 µg/L in blood and 4.93 µg/day in urine. These patients were considered to have cadmium nephropathy resulting from long-term occupational exposure. Both were treated with steroids and renal function including Fanconi syndrome was improved.

Conclusion: Early diagnosis of heavy metal exposure and its nephropathy may be enhanced by taking a detailed medical and occupational history in patients with unexplained renal dysfunction.

Keywords: Cadmium, Fanconi syndrome, Heavy metal, Nephropathy, Occupational exposure