Background/Aim Cadmium exposure may induce chronic intoxication with renal damage. Silver soldering may be a source of cadmium exposure.

Methods We analysed working environment measurement data and periodic health screening data from a small silver soldering company with ten workers. Concentrations of cadmium in air from working environment measurement data were obtained. Concentrations of blood and urinary cadmium, urine protein and urine beta2-microglobulin (B2M) were obtained. We used generalised linear model to identify the association between blood and urine cadmium and urine B2M. Clinical features of chronic cadmium intoxication focused with toxicological renal effects were described.

Results Mean duration of work was 9.7 years (range 3–20 years). Cadmium concentrations in air were ranged from 0.006 to 0.015 mg/m3. Blood cadmium was elevated in all ten workers with highest level of 34.3 μg/dL. Urinary cadmium was elevated in nine workers with highest level of 63.0 μg/g Cr. Urine B2M was elevated in three workers. Urinary cadmium was positively associated with urine protein (β coefficient 10.27, 95% CI 4.36, 16.18), while blood cadmium was not significantly associated with urine protein (β coefficient = -1.37, 95% CI = -10.00, 7.28). Electron microscopic findings and other clinical parameters were compatible with renal tubular damage.

Conclusions Cadmium intoxication may occur at quite low air concentrations. Exposure limit may be needed to be lowered.