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 34.5 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 (beta coefficient 10.27, 95% confidence interval [CI] 4.36, 16.18), while blood cadmium was not significantly associated with urine protein (beta 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.

Poster Presentation

Exposure Assessment

0427 OCCUPATIONAL EXPOSURES AMONG HOME-BASED INFORMAL WORKERS IN A POOR URBAN AREA OF BRAZIL

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Background In Brazil, the National Health System provides primary health care, PHC, in which interdisciplinary teams support community health agents, CHA, responsible for families living in catchment areas.

Objectives To describe occupational exposures among informal home-based workers, HBW, in order to integrate occupational health and safety into PHC.

Methods Based on PHC families' files, home-based informal workers were listed and recruited. Trained interviewers and CHAs visited worksites to identify hazards using a checklist, assessing levels of noise and formaldehyde in the air, and other self-reported threats to health. Tablets with ODK Collect software were used.

Results There were 450 worksites and 468 invited workers agreed to participate. The majority comprises women (77.1%), of black skin colour (92.5%), 18–50 years of age (54.7%), 6–9 school years (65.4%), and an average US\$300.00 income per month (75.4%). Prevailing trades were retail (35.3%),

food (25.8%) and personal beauty care (17.1%). Almost all workers reported to be self-employed (92.5%), had no resting days (45%) and 45 to 135 work hours per week (48.5%). All worksites had occupational exposures of interest for health. From 19.6 hours continuous assessment, the noise level was 77 dB(A), and formaldehyde exposure over threshold limit value was detected in five beauty salons out of 10 investigated.

Conclusions Home-based businesses is a mainly women survivorship strategy, who work for long journeys, in poor urban areas of Brazil. The integration of workers' health into PHC can identify, in this context, situations of health problems and support planning of preventive measures.

Oral Presentation

Occupational Medicine (SCOM/Modernet)

0429 DAYTIME WORKPLACE NOISE EXPOSURES LOWER THAN OCCUPATIONAL CRITERIA CAN DISTURB NIGHTTIME SLEEP

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Background Nighttime noise exposure has been shown to affect sleep quality. However, effects of daytime noise exposure on nighttime sleep have been inconclusive. A quasi-experimental study was carried out using crossover design to determine daytime occupational noise exposure on polysomnography (PSG)-documented sleep quality.

Methods From two hospital cafeterias, 48 employees were recruited to participate in this study. Each participant was randomly assigned to expose to high noise level areas for 8 hours and, on a separate occasion, low noise level areas for 8 hours. The high and low noise periods were separated by a washout period of 14 days. Personal noise exposure, pure tone audiometry, autonomic nerve system (ANS) function tests, and overnight PSG were measured.

Results A total of 20 men and 20 women completed the study, with average tenure of 10.0 years. Average daily noise exposure (time-weighted average in 8 hours, TWA-8 hours) was 73.5 dBA during the high noise exposure day, and 64.4 dBA during the lower noise day ($p=0.001$). Subjective sleep quality was not different between nights after higher and lower noise days. Comparing to nights after low noise days, deep sleep by PSG was significantly shorter, sleep efficiency worse, resting heart beats and blood pressure after cold pressor test (CPT) higher after high noise days, after adjusting for covariates.

Conclusions Daytime noise exposure had a sustained effect on nighttime sleep, including shorter deep sleep and lower sleep efficiency. The sleep disturbance could be partially explained by post-shift ANS activity.