ABSTRACT

Objective To examine the effects of occupational exposure to pentachlorophenol (PCP) and its chlorinated dioxin and dibenzofuran contaminants on the skin, liver, porphyrin metabolism, lipid metabolism, central nervous system, and peripheral nervous system.

Design Medical survey

Participants The exposed participants were employed at a chemical plant where they were engaged in the production of PCP between 1938 and 1978. The referent group consisted of workers from the same plant who were not exposed to these or related compounds. A total of 366 PCP exposed workers and 303 unexposed workers participated in the medical survey.

Measurements Exposure was determined from computerized personnel records. The medical survey included an administered questionnaire; medical record review; physical examination by dermatologists, internists, and neurologists; computerized neurobehavioral testing; quantitative sensory testing; analyses of blood for liver function tests, lipids, and apolipoproteins; and analysis of 24-hour urine for quantitative porphyrins.

Main Results 17.8% of PCP exposed workers had evidence of current or past chloracne. PCP workers with chloracne had a significantly higher prevalence of elevated gamma glutamyl transpeptidase (GGT > 65 u/l; 22.6 vs 7.6%) and mean urinary excretion of coproporphyrins (117.0 vs 90.6 mcg/24 hours) than unexposed workers after controlling for potential confounders. Workers with chloracne who had worked with both PCP and polychlorinated biphenyls (PCBs) had significantly higher mean urinary excretions of uro-, hepta-, penta-,

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