Abstract

The study was conducted to evaluate the status of worker exposure to polycyclic aromatic hydrocarbons (PAHs) through the measurement of urinary metabolites such as 1-hydroxypyrene (OHP) and 2-naphthol. A survey using a questionnaire involving 326 workers with measurement of urinary metabolites of 1-OHP and 2-naphthol was conducted. The differences in urinary 1-OHP and 2-naphthol concentrations, and changes in work, smoking habits and lifestyle were analyzed. The number of male subjects was 314 (96.3%), the largest age group was the fifth decade (170 cases, 52.1%). The urinary 1-OHP and 2-naphthol concentrations were significantly higher in the production workers. The urinary 1-OHP and 2-naphthol concentrations were significantly higher in smokers. In a multiple regression model, log (1-OHP) increased in smokers and production workers, while log (2-naphthol) only increased in smokers. Our results suggest that workers in this factory were exposed to PAHs from non-occupational as well as occupational sources. The occupational exposure to PAHs can be reduced through the improvement of the process, but the exposure due to smoking can be prevented only by giving up smoking.

Keywords

Coal tar, Polycyclic aromatic hydrocarbons, 1-hydroxypyrene, 2-naphthol, Smoking.