

Monitoraggio biologico dell'esposizione ad idrocarburi policiclici aromatici in un gruppo di asfaltatori

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KEY WORDS

Asphalt workers; urinary 1-hydroxypyrene; polycyclic aromatic hydrocarbons (PAH)

SUMMARY

«**PAH exposure in asphalt workers**». **Background:** *There has been interest in evaluating the potential carcinogenicity of bitumen fumes in asphalt workers since the 1960's. The IARC classified air-refined bitumens as possible human carcinogens, while coal-tar fumes were classified as known carcinogens. Occupational/environmental PAH exposure can be measured by several urinary markers. Urinary 1-OHP has become the most commonly used biological marker of PAH exposure in asphalt workers.* **Objectives:** *The aim of this study was to assess asphalt workers' exposure levels by monitoring 1-OHP urinary excretion and compare this data with those of non-occupationally exposed subjects.* **Methods:** *We investigated three groups of asphalt workers: 100 in summer 2007, 29 in winter 2007, and 148 during summer 2008 and compared 1-OHP urinary concentrations using Kruskal-Wallis test.* **Results:** *Median 1-OHP urinary concentrations during the three biomonitoring sampling periods were 0.65, 0.17 and 0.53 µg/g creatinine respectively. There was a significant difference in 1-OHP values between the three groups ($p < 0.001$).* **Conclusions:** *our study showed that PAH exposure of asphalt workers' is higher than that observed in the general population and in workers in urban areas. Our results suggest that PAH exposure in the three groups studied is not sufficiently kept under control by the use of personal protective equipment and that biomonitoring is useful in evaluating PAH exposure and for risk assessment. Regulations need to be enforced for workers exposed to cancer risk, such as the register of workers exposed to carcinogens.*