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OCCUPATIONAL CANCER PREVENTION SYSTEM AMONG OIL-REFINERY WORKERS BY GENO-AND IMMUNOTOXICOLOGICAL BIOMARKERS

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Altogether more than 5000 cases were investigated since 1989 by follow-up genotoxicology monitoring investigations, performed among workers occupationally exposed to various carcinogens (e.g. in oil-industry with occupational exposure to benzene, polycyclic aromatic hydrocarbons (PAHs), bitumen, styrene and 1-3 butadiene, heavy metals etc). More than 200 workers were followed in oil refinery plants and compared to industrial controls, by geno- and immunotoxic biomarkers. In our follow-up genotoxicological study the exposed groups were monitored annually by testing chromosomal aberrations, sister-chromatid exchanges, DNA-repair capacity measurement and immune phenotyping of peripheral blood lymphocytes. Our results showed the effectiveness of active prevention together with the lowering of exposure by proper chemical safety interventions and by changes in life style (diet, smoking, alcohol consumption). However, besides exposures, the results were negatively affected by medication, obesity, non-alcoholic fatty liver and smoking. The detection of early signs of genotoxic effects of occupational and environmental carcinogens causing

DNA-damages, mutations and chromosome aberrations, are indicators of the increase risk for the development of cancer. A possible attempt for prevention is the elimination of the harmful agents from the (working) environment (primary prevention), or promoting the elimination of somatic mutations (chemoprevention), by changes in life style with cooperation with local occupational health care authorities. The incidences of malignant diseases were less among the monitored oil refinery workers, compared to age matched controls followed by the same methodology.

Biography

Anna Tompa completed her Graduation from Semmelweis University Faculty of Medicine as a Medical Doctor, with the specialties including Pathology, Social and Community Medicine. Presently, she is Professor emeritus and Vice director of Semmelweis University, Institute of Public Health, Budapest, Hungary.

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