Introduction DNA repair enzymes could modulate the individual susceptibility to the genotoxic effect of exposure to ionising radiation (IR).

Methods The influence of polymorphisms of XRCC1, XRCC3 and XPD genes on the onset of chromosomal and DNA damage has been investigated in 43 workers exposed to low levels of IR, including 36 healthcare professionals and 7 industrial radiologists (exposed workers), and 43 subjects not occupationally exposed to IR (controls), matched for age. Chromosomal aberrations (CA) and micronuclei (MN) frequencies in peripheral blood lymphocytes were measured according to standard procedures and used as cytogenetic biomarkers, while Tail Intensity (TI) was the parameter of the Comet test used to evaluate oxidative DNA damage. Genotypic variants Arg194Trp, Arg280His and Arg399Gln for XRCC1, Thr241Met for XRCC3 and Lys751Gln for the XPD genes were analysed using the restriction fragment length polymorphism technique.

Results Both total CA and chromosome breaks frequencies were significantly higher in the exposed workers than controls ($p < 0.05$ and $p < 0.01$ respectively), while no significant differences between the two groups were observed in terms of chromatid breaks and MN frequencies as well as the TI. In the controls only, TI was significantly higher in females than males, whereas a smoking habit did not affect the biomarkers investigated. The genetic polymorphisms of XRCC1, XRCC3 and XPD, individually analysed, did not influence any of the genotoxicity and oxidative damage biomarkers studied, either in the exposed workers or the controls.

Discussion Chromosome breaks frequency resulted a valid cytogenetic biomarker for the monitoring of workers exposed to low doses of IR. The presence of single genetic variants reducing the activity of DNA repair enzymes does not seem to determine an increased risk of genotoxic effects of low doses of IR.

671 EXPOSURE OF EMPLOYEES IN THE GERMAN TRANSPORT INDUSTRY TO SOLAR UV RADIATION

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Introduction In Germany, the number of skin cancer diseases, which is caused by ultraviolet radiation (UV radiation) of sunlight, increases considerably. The exposure to solar UV radiation can be effected outdoors during a professional activity. But reliable data about the level of UV radiation exposure are missing.

In the research project 'skin cancer induced by UV radiation', initialized and realised by the German social accident insurance, the actual exposure should be identified under realistic working conditions. The objective is to create a task-related exposure matrix.

Methods From april till october 2015, UV radiation was determined in different groups of occupational activities. 18 people were involved, who were exclusively working at the airport ramp including handling agents (passenger handling), handling agents (cargo handling), turn round coordinators (TRC), turn round supervisors and gardeners. During their daily working hours they wore an electronic dosimeter, which is fixed at an

arm mount and determines the erythral exposure radiation. The data were recorded and anonymously transferred to a server.

Result During summer, the UV exposure of occupational groups is as different as their work. Compared to other occupational groups, apron workers are exposed to a medium level of solar UV radiation. Values between 129 and 322 SED were determined. Among the apron workers, the handling agents (passenger handling) get the highest erythral exposure.

Discussion Sun protection has to be adapted to the expected UV exposure of the different occupational groups. The data can be used for the development of tailor-made prevention measures.

88 SHORT-TERM RADON 222 MEASUREMENT MODELLING

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Introduction Radon concentration undergoes seasonal and daily changes. Those changes are kept into account by long-term measurement: in Italian law this period is one year. Following the excess of limits, it is mandatory to start mitigation activities. The assessment of the new concentration cannot exceed few weeks, otherwise it will infringe the want for workers' safety.

Methods The aim of present work is to assess feasibility of short-term measurement that can substitute longer ones. In order to do so we measured radon in the same room by two different methods one long-term integration (reliable) and another one that gives short-term time history. Radon concentration was assessed by half-yearly CR39 and active alpha spectrometer Tracerlab in the same room. The spectrometer daily curves were modelled by mathematical functions to fit changes while giving the CR39 integrated value.

Result After comparison of modelled values with integrated ones, it comes out that the very important step is to keep into account, in the modellization, the occupation and the use of rooms, along with their duration. If this step is accurate, the numbers are comparable with those of passive methods.

Discussion Essentially two occupational phases gives two functions to reproduce integrated values: a sinusoidal and an exponential function. The correct duration with the window opening/closing time profile, provide the estimation of values of parameters to be used with those functions.

This gives the coincidence of actual and foreseen data of daily radon changes, saving a whole lot of measuring time and, hence, money.

888 RADIATION PROTECTION IN PUBLIC HOSPITALS IN ABIDJAN

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Introduction Advances in medical imaging have helped to better orient the therapeutic strategy and evaluate the