

Occupational exposure influence on cancer risk biomarkers evaluated by FISH in Prostate Cancer or BPH patients

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Benign prostatic hyperplasia (BPH) and prostate cancer (PC) became one of the most common males diseases. Environmental factors that affect prostate cancer susceptibility are poorly defined, although it is believed that occupational factors including: pesticides, ionising radiation, polycyclic aromatic hydrocarbons (PAHs) may be associated with the occurrence of prostate cancer. The aim of this study was to compare the cellular vulnerability to the induction by challenging dose of the aberrations in chromosome 1 and to find out whether it is associated to the category of prostate diseases, endogenic or egzogenic factors, and if could be considered in modeling a therapeutic procedure. We have examined cells in metaphase using FISH (Fluorescence in Situ Hybridization). Our results showed significant higher level of all aberrations in patients with prostate cancer compared to BPH stage group. Additionally, obtained results showed differences in susceptibility to radiation, between occupationally exposed and unexposed donors from prostate cancer patients and BPH stage groups, expressed in significantly elevated or lowered frequency of various aberrations. We have also studied influence of genetic predisposition on lymphocytes susceptibility to the X-ray induced DNA damage in donors lymphocytes. We have found that for all patients who had reported occurrence of cancers in a immediate family members had statistically higher level of all aberrations. This results may suggest existing relation between radiosensitivity of lymphocytes and increased prostate cancer risk. It may confirm hypothesis that prostate cancer risk increases in a consequence of genetic predisposition to instability and accumulation of various mutation resulting from occupational and environmental exposures.