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Optic characteristics of anticancer drug NSC 631570 in urine samples sort healthy donors and prostate adenocarcinoma patients: Can it be exploited for the cancer diagnostics?

Larysa M Skivka¹, Olexander Fedorchuk², Mariia Rudyk¹ and Wassil Nowicky³¹Taras Shevchenko National University, Ukraine²National Academy of Sciences of Ukraine, Ukraine³Ukrainian Anticancer Institute, Austria

NSC 631570 (the mixture of alkaloids from *C. majus*) has shown anticancer activities against different types of solid tumor. Previous studies showed an anticancer effect of NSC 631570 in prostate cancer patients. The cytotoxic effect of the drug was evident in preclinical studies in prostate cancer cell line (PC-3). The aim of the work was to perform comparative investigation of optic characteristics of urine samples from prostate cancer patients (PCs) and healthy volunteers (HVs) to confirm different uptake of alkaloids mixture in both normal and cancer patients. Five PCs and five HVs were recruited to participate in this study. Urine samples were obtained before and 2, 4 and 6 hours after the sublingual administration of the drug. The UV light absorption spectrum characteristic for NSC 631570 was registered 2 h after the drug administration in HVs. PC1 showed an absorption spectrum similar to NSC 631570 4 hours after the drug intake. But absorption spectra of PC 2-5 was completely different during the entire observation period when compared with those observed in HVs ($p < 0.05$). Patterns of urine fluorescence in PCs had substantial differences from those in HVs. Urine fluorescence was increasing in all PCs after the drug administration, till the end of the observation period followed by a moderate decrease of the fluorescence intensity 6 hours after the drug intake. Thus urine optic characteristics after the drug intake make the differences between PCs and HCs. It suggests that this method could be potentially used to test whether non-clinically pathologic subject might be affected by cancer.

Biography

Larysa M Skivka has completed her PhD from R E Kavetsky Institute of Experimental Pathology, Oncology and Radiobiology, NAS of Ukraine and Post-doctoral studies from Taras Shevchenko National University of Kyiv. She is currently the Head of the Department of Microbiology and General Immunology of SCE Institute of Biology - Taras Shevchenko National University of Kyiv. Her areas of scientific activities are: Immunomodulation as a component of adjuvant cancer therapy and functional polarization of phagocytes in the pathogenesis of inflammatory diseases. She has published more than 13 papers in reputed journals and more than 40 abstracts in scientific congresses.

realmed@i.com.ua

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