

**EXPOSURE TO TOXIC SUBSTANCES AND MALIGNANT TUMORS: CONDITION
AND PERSPECTIVE IN THE REPUBLIC OF SERBIA**

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According to the latest estimates from the World Health Organization and the International Agency for Research on Cancer, number of malignant diseases worldwide has grown to 19.3 million and 9.9 million deaths have been registered in 2020 (1). The aim of this work was to investigate public health importance of cancer burden due to exposure to carcinogens by conducting a review of professional journals and public health publications related to toxic substances and emergence of malignant tumors. Increased cancer burden is a consequence of several factors, the most significant being total population growth and prolonged life expectancy, but also changes in cancer risk factors frequency, increasing exposure to known environmental carcinogens (chemicals, viruses and radiation), as well as adopting unhealthy lifestyles (smoking, alcohol intake, obesity and insufficient physical activity). Carcinogens are cancer-causing substances, damaging the genome or interrupting cell metabolic processes. Carcinogens typically have an "insidious" and not acute toxic effect and can be classified as genotoxic or non-genotoxic agents according to the mechanism of carcinogenesis. Genotoxins are directly attached to DNA, causing irreversible damage to the genome, such as polycyclic aromatic hydrocarbons. Non-genotoxic agents do not directly affect DNA, but can stimulate tumor growth, such as hormones and some organic compounds (2). In order to reduce exposure to known carcinogens, activities need to be conducted on multiple levels, primarily research, to better understand the mutual link between exposure and disease, implementation of existing regulations in health protection and implementation of legislation supporting public health and reducing malignant diseases burden.

References

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IZLOŽENOST TOKSIČNIM SUPSTANCAMA I MALIGNI TUMORI: STANJE I PERSPEKTIVE U REPUBLICI SRBIJI

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Prema poslednjim procenama Svetske zdravstvene organizacije i Međunarodne agencije za istraživanje raka, u toku 2020. godine od malignih bolesti u svetu je obolelo 19,3 miliona ljudi i registrovano je 9,9 miliona smrtnih slučajeva od svih lokalizacija malignih tumora (1). Cilj rada bio je istražiti javno zdravstveni značaj opterećenosti društva malignim bolestima usled izloženosti kancerogenima, pregledom stručnih časopisa i javnozdravstvenih publikacija vezanih za izloženost toksičnim supstancama i pojavom maligniteta. Povećano opterećenje rakom je posledica nekoliko faktora, od kojih su najznačajniji ukupan porast stanovništva i produženo očekivano trajanje života, ali i promena učestalosti određenih faktora rizika u nastanku raka, povezanih sa sve većom izloženošću poznatim kancerogenima iz životne i radne sredine (hemikalijama, virusima i zračenjem), kao i u usvajanju nezdravih načina života kao što su pušenje, unos alkohola, gojaznost i nedovoljna fizička aktivnost. Kancerogeni su supstance koje izazivaju rak, oštećujući genom ili prekidajući metaboličke procese u ćeliji. Kancerogeni obično imaju „podmukao“ toksični efekat, a ne akutni toksični efekat. Kancerogeni se mogu svrstati u genotoksične ili negenotoksične agense prema mehanizmu kancerogeneze. Genotoksini se direktno vezuju za DNK uzrokujući trajno oštećenje genoma poput policikličnog aromatičnog ugljovodonika. Ne-genotoksini ne utiču direktno na DNK ali mogu da podstaknu rast tumora, kao npr. hormoni i neka organska jedinjenja (2). U cilju smanjenja izloženosti poznatim kancerogenima potrebno je sprovesti aktivnosti na više nivoa, pre svega sprovođenjem istraživanja radi boljeg razumevanja uzajamne povezanosti izloženosti i pojave bolesti, sprovođenje postojećih propisa u oblasti zaštite zdravlja i sprovođenjem zakonske regulative koje podržavaju javno zdravlje i smanjuju opterećenost malignim bolestima.

Literatura

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