Role of Environmental Factors in Carcinogenesis

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Abstract

Cancer is one of the most serious diseases that threaten human being today. Most cancer results from the interaction of genetic and the environment. Genetic factors by themselves are thought to explain only about 5%-10% of all cancers and the remainder can be attributed to environmental carcinogens. The involuntary or voluntary exposure to these carcinogens may account for the recent growing incidence of cancer. These agents include; microorganisms (viruses, bacteria and parasites), radiations (radioactivity, UV and pulsed electromagnetic fields), occupational exposures, tobacco smoke, sexual behavior, alcohol, dietary constituents, pollutants (in the workplace, air, water, and food supply), formaldehyde, volatile organic compounds such as benzene and 1,3 butadiene and many xenochemicals, carcinogenic metals and metalloids, pharmaceutical medicines, food additives, additive in cosmetics, etc. The industrial revolution over the second half of the last century and its consequences in domains such as energy, transport, agriculture, food and health led to synthesize, produce and introduce into the environment, millions of man-made chemicals or substances. Although environmental, occupational, and recreational exposures to carcinogens contribute to cancer risk in humans, variation in incidence and progression of cancers among individuals can be attributed to inter-individual variation in genetic makeup. The risk fraction attributable to environmental factors is still unclear. One of the hopeful messages from cancer research is that most of the cases of cancer are linked to environmental factors and, in principle, can be prevented by growing awareness about the modulating risks from environmental carcinogens.

Keywords: Carcinogenesis, Environment, Air pollution; Food additives; Pesticides Radiations; Screening; Tobacco smoke; Virus