Urban Air Pollution - a Major Cause of Pollution-related Cancer

A French scientist has reviewed the current epidemiological evidence linking exposure to pollutants with cancer. The author found that in Europe, outdoor air contaminants and indoor radon exposure seem to be the two most major causes of pollution-related cancer. The author calls for more research, as the number of studies on the health effects of non-occupational exposure to diverse environmental pollutants is still very limited.

Many man-made pollutants have severe negative impacts on human health. The current evidence in Europe linking non-occupational exposure to pollutants with a risk of cancer is very limited.

A new study has reviewed the epidemiological evidence linking exposure to pollutants with a risk of cancer, and has provided a quantitative estimate of the cancer pollutants may cause in Europe. The author considered non-occupational exposure to outdoor air pollution including residence near major industrial emission sources, asbestos, passive smoking, indoor radon, and other sources of indoor air pollution, arsenic in drinking water, chlorination by-products in drinking water, dioxins and electromagnetic fields.

The risk of lung cancer attributable to air pollution, in particular fine particles (PM$_{2.5}$), the most relevant indicator of air pollution, has been estimated to be 10.7% in Europe, corresponding to 20,942 cases in men and 6,112 cases in women annually. This figure corresponds to 1.9% of all cancer in men and 0.7% in women. Radon is another carcinogen present in indoor air, which may be responsible for 4.5% of lung cancer cases. This figure corresponds to 8,807 cases of cancer in men and 2,570 in women. The author also found that there may be an increased risk of bladder cancer due to water chlorination by-products.

The available evidence of a risk of cancer caused by exposure to other environmental pollutants such as pesticides, dioxins and electromagnetic fields is inconclusive.

Nevertheless, the author calls for great caution when interpreting the available evidence, due to different uncertainties in the components of such quantifications. For example, it is unknown whether PM$_{2.5}$ represents the measure of air pollution relevant to its carcinogenic potential. They should be considered indicators of the possible order of magnitude of the risk based on current knowledge. More research is needed in order to provide more evidence of the cancer risk from certain pollutants.

Overall, the available evidence suggests that of all the above-mentioned environmental pollutants, outdoor air pollution and indoor radon exposure are the greatest causes of pollution-related cancer in Europe. The results from this study highlight that air pollution continues to be a serious problem in Europe despite policy efforts. New policies aiming at controlling emissions of air pollutants may be necessary to further protect human health.

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