

Most cancer cases are avoidable, say researchers

Study says environment and lifestyle factors such as toxic chemicals and radiation are main cause of disease

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Most cases of cancer result from avoidable factors such as toxic chemicals and radiation, according to a study.

The findings clash with research published earlier this year which found that differences in cellular processes were the chief reason some tissues became cancerous more frequently than others. That study led to claims that certain cancers were mainly the result of bad luck, and suggested these types would be relatively resistant to prevention efforts.

Researchers found that the more stem-cell divisions that occurred in a given tissue over a lifetime, the more likely it was to become cancerous. They said that though some cancers clearly had strong outside links – such as liver cancers caused by hepatitis C or lung cancer resulting from smoking – there were others for which the variation was explained mainly by defects in stem-cell division. In those cases, they argued, early detection and treatment would be more effective than prevention.

Yusuf Hannun, a cancer researcher at Stony Brook University in New York, wondered about the effect of external factors such as radiation on stem cell division rates. He and his team examined the contribution of environmental factors to cancer risk, such as data showing that people who migrated from regions of lower cancer risk to those with higher risk soon developed disease at rates consistent with their new environment.

They also looked at patterns in the mutations associated with certain cancers. Ultraviolet light, for example, tends to create a telltale signature of mutations in DNA, plus various mathematical models. They found that mutations during cell division rarely build up to the point of producing cancer, even in tissues with relatively high rates of cell division. In almost all cases, the team found that some exposure to environmental factors would be needed to set off the disease.

The study is published in the journal Nature.

<http://www.theguardian.com/science/2015/dec/17/cases-cancer-avoidable-environment-lifestyle-disease>