

Large study reveals increased cancer risks associated with family history of the disease

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A family history of cancer increases the risk of other members of the family developing not only the same cancer (known as a concordant cancer) but also a different (discordant) cancer, according to a large study of 23,000 people in Italy and Switzerland.

The research, published in the leading cancer journal *Annals of Oncology* [1] today (Thursday), provides a comprehensive picture of the risk of developing various different types of cancer in families where there is a history of the disease, and is one of the few large studies of this kind that takes into account other important factors, such as individual characteristics and lifestyles, that could affect the degree of risk as well.

Results from the study supported known associations, such as the increased risk of developing the same cancer as a close relative, and the 1.5-fold increased risk of breast cancer in women with a history of colorectal cancer in the family. However, the study also found a 3.3-fold increased risk of developing oral and pharyngeal cancer among people who had a first-degree relative with cancer of the larynx, and a four-fold increased risk of cancer of the gullet (oesophageal cancer) where a first-degree relative had oral or pharyngeal cancer. If a first-degree relative had breast cancer, female family members had a 2.3-fold increased risk of ovarian cancer. Family members had a 3.4-fold increased risk of [prostate cancer](#) if a first-degree relative had [bladder cancer](#).

The researchers from Italy, Switzerland and France looked at 12,000

cases of cancer occurring in 13 different cancer sites (mouth and [pharynx](#), nasopharynx, oesophagus, stomach, colorectum, liver, pancreas, larynx, breast, womb, ovaries, prostate and kidneys) between 1991 and 2009. They matched them with 11,000 people without cancer, and collected information on any cancer in the family, particularly in a first-degree relative, age at diagnosis, sociodemographic characteristics, body shape, lifestyle habits such as smoking and [alcohol intake](#), diet, personal medical history, including menstrual and reproductive factors, and use of oral contraceptives and hormone replacement therapy.

Dr Eva Negri, head of the Laboratory of Epidemiologic Methods at the Mario Negri Institute for Pharmacological Research, Milan, Italy, said: "Besides confirming and quantifying the well-known excess risks of people developing the same cancer as their first-degree relative, we have identified increased risks for developing a number of different cancers. We have also found that if a patient was diagnosed with certain cancers when they were younger than 60, the risks of a discordant cancer developing in family members were greater.

"A major strength of our study is that we were able to adjust our analyses for tobacco, alcohol and a number of other lifestyle habits, which most previous studies have not been able to do."

Dr Negri said that some of the associations between discordant cancers were probably due to shared environmental factors such as family habits of smoking and drinking. However, she said: "Our results point to several potential cancer syndromes that appear among close relatives and that indicate the presence of genetic factors influencing multiple cancer sites. These findings may help researchers and clinicians to focus on the identification of additional genetic causes of selected cancers and on optimizing screening and diagnosis, particularly in people with a family history of cancer at a young age."

She said that the large numbers of patients in the study enabled the researchers to identify associations even for some rare cancers.

"For some rare cancers, a weak association with a different, common cancer can, on a population level, reveal a higher attributable risk than a strong association with the risk of developing the same cancer. For example, for ovarian cancer we found that a family history of [breast cancer](#) had a stronger attributable risk of ovarian cancer than the far rarer, albeit stronger, association with family history of [ovarian cancer](#)."

The researchers are still collecting data on the people they are studying, including biological material, which could help them to identify genetic factors that could be playing a role in the increased risk for people with a [family history](#) of [cancer](#). They also plan to investigate whether some well-recognised risk factors are involved in increasing the risk to family members of developing concordant or discordant cancers, and if so, to what extent.

More information: *Annals of Oncology*. [doi:10.1093/annonc/mdt280](https://doi.org/10.1093/annonc/mdt280)

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