

**Even Late-Onset Cancer in Parents Increases Cancer Risk in Offspring**

**Scientists of the German Cancer Research Center (Deutsches Krebsforschungszentrum, DKFZ) have found out that even if a parent gets cancer at an old age, the cancer risk of their offspring increases. Up to now, this association has been known only for cancer cases at earlier ages. The researchers recently published their results in the British Medical Journal (BMJ).**

Aging is one of the most important risk factors for cancer. With people living ever longer lives, an increasing number of them develop cancer. However, little is known to date about how cancer at advanced age impacts the cancer risk for offspring, called "familial risk". Dr. Elham Kharazmi and her colleagues compared two groups: cancer patients whose parents were affected by the same cancer and cancer patients whose parents did not have cancer.

The authors based their study on almost eight million entries from the Swedish Family-Cancer Database (SFCD). Comprising twelve million individuals including over one million cancer cases, the SFCD is the largest family cancer registry in the world. Kharazmi and colleagues studied cancer cases from 1961 to 2008. Their study included parents of all ages and their offspring aged between 0 and 76 years.

The scientists concluded that the familial cancer risk is elevated even when a parent is affected by cancer as late as age 70 to 89. Descendants of Swedish parents who develop colorectal cancer between the ages of 70 and 79 years have a 1.9-fold increased risk of developing the disease by age 60. For breast cancer, the risk is elevated 1.8-fold. Even when parents are diagnosed with cancer over age 90, there still is a detectable risk elevation for some types of cancer.

Furthermore, the results confirm an increased risk for descendants of parents affected by cancer at a very young age, i.e. before age 40. Compared to those whose parents were not affected, the risk of developing colorectal cancer before age 60 in these individuals is increased 9.9-fold. The risk of breast cancer is elevated 5.2-fold.

Elham Kharazmi and colleagues assume genetic factors to be the basis of familial clustering of cancer. Their findings add to our knowledge of the genetics of cancer. Family members with a genetic predisposition for cancer may thus avoid known risk factors and have regular screening. The authors plan to include information about diet and lifestyle in future studies.

Familial risk of early and late onset cancer: nationwide prospective cohort study.

Kharazmi E, Fallah M, Sundquist K, Hemminki K.

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The German Cancer Research Center (Deutsches Krebsforschungszentrum, DKFZ) with its more than 2,500 employees is the largest biomedical research institute in Germany. At DKFZ, more than 1,000 scientists investigate how cancer develops, identify cancer risk factors and endeavor to find new strategies to prevent people from getting cancer. They develop novel approaches to make tumor diagnosis more precise and treatment of cancer patients more successful. The staff of the Cancer Information Service (KID) offers information about the widespread disease of cancer for patients, their families, and the general public. Jointly with Heidelberg University Hospital, DKFZ has established the National Center for Tumor Diseases (NCT) Heidelberg, where promising approaches from cancer research are translated into the clinic. In the German Consortium for Translational Cancer Research (DKTK), one of six German Centers for Health Research, DKFZ maintains translational centers at seven university partnering sites. Combining excellent university hospitals with high-profile research at a Helmholtz Center is an important contribution to improving the chances of cancer patients. DKFZ is a member of

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Dr. Stefanie Seltmann  
Leiterin Presse- und Öffentlichkeitsarbeit  
Deutsches Krebsforschungszentrum  
Im Neuenheimer Feld 280  
D-69120 Heidelberg  
T: +49 6221 42 2854  
F: +49 6221 42 2968  
presse@dkfz.de

Dr. Sibylle Kohlstädt  
Presse- und Öffentlichkeitsarbeit  
Deutsches Krebsforschungszentrum  
Im Neuenheimer Feld 280  
D-69120 Heidelberg  
T: +49 6221 42 2843  
F: +49 6221 42 2968  
presse@dkfz.de