Nasopharyngeal Cancer Causes, Risk Factors, and Prevention

Risk Factors

A risk factor is anything that raises your chance of getting a disease such as cancer. Learn more about the risk factors for nasopharyngeal cancer.

- Risk Factors for Nasopharyngeal Cancer
- What Causes Nasopharyngeal Cancer?

Prevention

There's no way to prevent all nasopharyngeal cancers. But there are things you can do that might help lower your risk. Learn more.

- Can Nasopharyngeal Cancer Be Prevented?

Risk Factors for Nasopharyngeal Cancer

A risk factor is anything that raises a person's chance of getting a disease such as cancer. Different cancers have different risk factors. Some risk factors, like smoking or diet, can be changed. Others, like a person's age or family history, can't be changed.

But risk factors don't tell us everything. Having a risk factor, or even many risk factors,
does not mean that you will get the disease. And many people who get the disease may have few or no known risk factors.

Some of the risk factors that make a person more likely to develop nasopharyngeal cancer (NPC) include:

**Gender**

NPC is found in males two to three more times more often than it is in females.

**Race/ethnicity and where you live**

NPC is most common in Asia, specifically eastern and southern China (including Hong Kong), Singapore, Vietnam, and the Philippines. It’s also fairly common in parts of North Africa and the Middle East, as well as the Arctic.

People of south China have a lower risk of NPC if they move to another area that has lower rates of NPC (like the US or Japan), but their risk is still higher than for people who are native to areas with lower risk. Over time, their risk seems to go down. The risk also goes down in new generations. Although whites born in the United States have a low risk of NPC, whites born in China have a higher risk.

**Diet**

People who live in parts of Asia, northern Africa, and the Arctic region where NPC is common, typically eat diets very high in salt-cured fish and meat starting at an early age. The process of cooking the salted food seems to make chemicals, such as nitrosamine¹, which is a probable carcinogen. The rate of this cancer is dropping in southeast China and Singapore and it might partly be from people eating less of the salted fish. In contrast, some studies have suggested that diets high in nuts, legumes, fruits, and vegetables and low in dairy products and meat may help lower the risk of NPC.

**Age**

In areas of the world where NPC is not common, older age is a risk factor.

In places where NPC is more common, the cancer tends to be seen in younger people. For example, about 1 in 5 people with NPC are younger than 30 years old and the
number of people diagnosed with NPC starts to go down after about age 59.

Epstein-Barr virus infection

Infection with the Epstein-Barr Virus (EBV)\(^2\) is very common throughout the world, often occurring in children. In the United States, where infection with this virus tends to occur in teens, it's commonly known as mononucleosis or mono.

EBV infection has been linked to the development of NPC, as well as certain lymphomas. It is often found in the non-keratinizing, undifferentiated type of NPC. But infection alone with EBV is not enough to cause NPC, since infection with this virus is very common and this cancer is very rare. Other factors, such as a person’s genes or smoking may affect how the body deals with EBV, which then may affect how EBV plays a part in the development of NPC.

EBV DNA can be found in NPC cells and also pre-cancer cells. EBV DNA can also be found in the blood of people with NPC.

The link between EBV infection and NPC is complex and still being studied.

Human papillomavirus (HPV) infection

Human papillomavirus (HPV) is a group of more than 150 types of viruses. Infection with certain types of HPV can cause some forms of cancer, including cancers of the mouth and throat\(^3\).

Some research shows that certain high-risk types of HPV may be linked to a small group of NPC cases especially in younger people who don’t smoke.

See HPV (human papillomavirus)\(^4\) to learn more about HPV and vaccines to prevent HPV infection.

Family history

Family members of people with NPC are more likely to get this cancer. It’s not known if this is because of inherited genes, shared environmental factors (such as the same diet or living quarters), or some combination of these.

Just as people have different blood types, they also have different tissue types. Studies have found that people with certain inherited tissue types have an increased risk of
developing NPC. Tissue types affect immune responses, so this may be related to how a person’s body reacts to EBV infection.

Other possible risk factors

**Tobacco use:** Many studies have found that smoking\(^5\) may contribute to the development of NPC. Smoking might increase the risk of NPC by reactivating an EBV infection.

**Alcohol use:** Some studies have also linked heavy drinking\(^6\) of alcohol to this type of cancer. This is seen more often in the US and Europe. More research is being done.

**Hyperlinks**


**References**


Hui EP and Chan A. Epidemiology, etiology, and diagnosis of nasopharyngeal


Last Revised: August 1, 2022

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**What Causes Nasopharyngeal Cancer?**

The exact cause of most cases of nasopharyngeal cancer (NPC) is not known. But scientists have found links with certain diets, infections, and inherited factors. (See Risk Factors for Nasopharyngeal Cancer.)

**Epstein-Barr virus infection**

Scientists have studied how the Epstein-Barr virus (EBV) may cause cells in the nasopharynx to become cancer, but there's still a lot to learn. In developed countries, most people infected with EBV have infectious mononucleosis (mono), and their immune system is able to recognize and destroy the virus. These people recover without any long-term problems. But in some cases, pieces of EBV DNA mix with the DNA of cells in the nasopharynx.

DNA is the chemical in each of our cells that makes up our genes, the instructions for how our cells work. For instance, we often look like our parents because they're the source of our DNA. But DNA affects more than how we look. Some genes contain instructions that control when cells grow and divide into new cells. Viruses like EBV also contain DNA. When a cell is infected with the EBV virus, the viral DNA may mix with the normal human DNA. Then the EBV DNA may tell the cells of the nasopharynx to divide and grow in an abnormal way. Still, EBV infection rarely leads to NPC, so other factors, such as smoking and genetic factors, probably play a role in whether or not it causes cancer.

**Eating certain foods**

Eating a diet high in salt-cured fish and meat seems to increase the ability of EBV to cause NPC. Studies show that foods preserved in this way may produce chemicals that can damage DNA. The damaged DNA then changes a cell’s ability to control its growth.
Inherited Factors

Some studies suggest that inheriting certain tissue types may contribute to a person’s risk of developing NPC. Because the tissue type plays a role in the function of the immune system, some scientists suspect that an abnormal immune reaction to EBV infection may be involved. The details of how certain tissue types might increase NPC risk are still being worked out.

References


Last Revised: August 1, 2022

Can Nasopharyngeal Cancer Be Prevented?

There’s no sure way to prevent nasopharyngeal cancer (NPC). But there are some things you can do that might lower your risk of getting NPC and other types of cancers.

Avoid tobacco and alcohol
Both tobacco and alcohol use have clearly been linked to many cancers, as well as other health problems. Since there appear to be some links between tobacco and heavy alcohol use with NPC, especially in the US, it might help to avoid these to lower a person’s risk of NPC. Avoiding them in general can have many health benefits.

Avoid certain infections

Epstein-Barr virus (EBV)

Infection with EBV has been linked to NPC. Scientists are trying to make an EBV vaccine, but at this time there’s no known way to prevent this infection.

Human papillomavirus (HPV)

Some research shows that certain high-risk types of HPV may be linked to a small group of NPC cases especially in younger people who don’t smoke. Getting an HPV vaccine and trying to avoid HPV infection might help prevent NPC and some forms of cancer, including cancers of the penis, cervix, vulva, vagina, anus, mouth, and throat.

See HPV (human papillomavirus) to learn more about HPV and vaccines to prevent HPV infection.

Avoid certain foods

Because eating certain types of foods, such as diets high in salt-cured fish, have been linked with NPC risk, eating less or not eating some types of food may lower the risk. This is especially true in parts of the world where NPC is common, such as southern China, northern Africa, and the Arctic region. Descendants of Southeast Asians who immigrated to the United States and eat a typical American diet, for example, have a lower risk of developing NPC. But these dietary factors are not thought to account for all cases of NPC in most other parts of the world.

Hyperlinks

References


Last Revised: August 1, 2022

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