Causes, Risk Factors, and Prevention

Risk Factors

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

- What Are the Risk Factors for Bile Duct Cancer?
- Do We Know What Causes Bile Duct Cancer?

Prevention

There is no way to completely prevent cancer. But there are things you can do that might lower your risk. Learn more.

- Can Bile Duct Cancer Be Prevented?

What Are the Risk Factors for Bile Duct Cancer?

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

But having a risk factor, or even several risk factors, does not mean that a person will get the disease. And many people who get the disease may have few or no known risk factors.

Researchers have found several risk factors that make a person more likely to develop bile duct cancer.
Certain diseases of the liver or bile ducts

People who have chronic (long-standing) inflammation of the bile ducts have an increased risk of developing bile duct cancer. Several conditions of the liver or bile ducts can cause this.

- **Primary sclerosing cholangitis** is a condition in which inflammation of the bile ducts (cholangitis) leads to the formation of scar tissue (sclerosis). People with this condition have an increased risk of bile duct cancer. The cause of the inflammation is not usually known. Many people with this disease also have inflammation of the large intestine called *ulcerative colitis*.
- **Bile duct stones**, which are similar to, but much smaller than gallstones, can also cause inflammation that increases the risk of bile duct cancer.
- **Choledochal cysts** are bile-filled sacs that are connected to the bile ducts. (Choledochal means having to do with the common bile duct.) The cells lining the sac often have areas of pre-cancerous changes, which increase a person’s risk for bile duct cancer.
- **Liver fluke infections** occur in some Asian countries when people eat raw or poorly cooked fish that are infected with these tiny parasite worms. In humans, these flukes live in the bile ducts and can cause bile duct cancer. There are several types of liver flukes. The ones most closely related to bile duct cancer risk are *Clonorchis sinensis* and *Opisthorchis viverrini*. Liver fluke infection is rare in the US, but it can affect people who travel to Asia.
- **Abnormalities where the bile duct and pancreatic duct normally meet** can allow digestive juices from the pancreas to reflux (flow back “upstream”) into the bile ducts. This backward flow also prevents the bile from being emptied through the bile ducts as quickly as normal. People with these abnormalities are at higher risk of bile duct cancer.
- **Cirrhosis** is damage to the liver from irritants such as alcohol and diseases such as hepatitis that cause scar tissue to form. Studies have found it raises the risk of bile duct cancer.
- **Infection with hepatitis B virus or hepatitis C virus** increases the risk of intrahepatic bile duct cancers. This may be at least in part due to the fact that long-term infections with these viruses can also lead to cirrhosis.

Other rare diseases of the liver and bile duct that may increase the risk of developing bile duct cancer include **polycystic liver disease** and **Caroll syndrome** (a dilation of the intrahepatic bile ducts that is present at birth).
Inflammatory bowel disease

Inflammatory bowel disease includes ulcerative colitis and Crohn’s disease. People with these diseases have an increased risk of bile duct cancer. This is not explained completely by the link between ulcerative colitis and primary sclerosing cholangitis.

Older age

Older people are more likely than younger people to get bile duct cancer. Most people diagnosed with bile duct cancer are in their 60s or 70s.

Ethnicity and geography

In the United States, the risk of bile duct cancer is highest among Hispanic Americans and Native Americans. Worldwide, bile duct cancer is much more common in Southeast Asia and China, largely because of the high rate of infection with liver flukes in these areas.

Obesity

Being overweight or obese can increase the risk of cancers of the gallbladder and bile ducts. This could be because obesity increases the risk of gallstones and bile duct stones. But there may be other ways that being overweight can lead to bile duct cancers, such as changes in certain hormones.

Exposure to Thorotrast

A radioactive substance called Thorotrast (thorium dioxide) was used as a contrast agent for x-rays until the 1950s. It was found to increase the risk for bile duct cancer, as well as some types of liver cancer, which is why it is no longer used.

Family history

A history of bile duct cancer in the family seems to increase a person’s chances of developing this cancer, but the risk is still low because this is a rare disease. Most bile duct cancers are not found in people with a family history of the disease.
Diabetes

When taken together, the data from many different studies show that people with diabetes have a higher risk of bile duct cancer. This increase in risk is not high, and the overall risk of bile duct cancer in someone with diabetes is still low.

Alcohol

People who drink alcohol are more likely to get intrahepatic bile duct cancer. The risk is higher in those who have liver problems from drinking alcohol.

Other possible risk factors

Studies have found several other factors that might increase the risk of bile duct cancer, but the links are not as clear. These include:

- Smoking
- Pancreatitis (inflammation of the pancreas)
- Infection with HIV (the virus that causes AIDS)
- Exposure to asbestos
- Exposure to radon or other radioactive chemicals
- Exposure to dioxin, nitrosamines, or polychlorinated biphenyls (PCBs)

References

See all references for Bile Duct Cancer

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Do We Know What Causes Bile Duct Cancer?

We don’t know the exact cause of most bile duct cancers, but researchers have found
several risk factors that make a person more likely to develop bile duct cancer (see the section “What are the risk factors for bile duct cancer?”). There seems to be a link between this cancer and things that irritate and inflame the bile ducts, whether it’s bile duct stones, infestation with a parasite, or something else.

Scientists are starting to understand how inflammation might lead to certain changes in the DNA of cells, making them grow abnormally and form cancers. DNA is the chemical in each of our cells that makes up our genes – the instructions for how our cells function. We usually look like our parents because they are the source of our DNA. But DNA affects more than how we look.

Some genes control when cells grow, divide into new cells, and die. Genes that help cells grow, divide, and stay alive are called oncogenes. Genes that slow down cell division or cause cells to die at the right time are called tumor suppressor genes. Cancers can be caused by DNA changes (mutations) that turn on oncogenes or turn off tumor suppressor genes. Changes in several different genes are usually needed for a cell to become cancerous.

Some people inherit DNA mutations from their parents that greatly increase their risk for certain cancers. But inherited gene mutations are not thought to cause very many bile duct cancers.

Gene mutations related to bile duct cancers are usually acquired during life rather than being inherited. For example, acquired changes in the TP53 tumor suppressor gene are found in most bile duct cancers. Other genes that may play a role in bile duct cancers include KRAS, HER2, and MET. Some of the gene changes that lead to bile duct cancer might be caused by inflammation. But sometimes what causes these changes is not known. Many gene changes might just be random events that sometimes happen inside a cell, without having an outside cause.

- References

See all references for Bile Duct Cancer

Can Bile Duct Cancer Be Prevented?
There is no known way to prevent most bile duct cancers in the United States. Many of
the known risk factors for bile duct cancer, such as age, ethnicity, and bile duct abnormalities, are beyond our control. But there are things you can do that might lower your risk.

Getting to and staying at a healthy weight is one important way a person may reduce their risk of bile duct cancer, as well as many other types of cancer. The American Cancer Society recommends that people try to stay at a healthy weight throughout life by being active and eating a healthy diet, with an emphasis on plant foods. This includes at least 2½ cups of vegetables and fruits every day. Choose whole-grain breads, pastas, and cereals instead of refined grains. Eat fish, poultry, or beans and limit how much processed meat and red meat you eat. To learn more, see the American Cancer Society Guidelines on Nutrition and Physical Activity for Cancer Prevention.

Other ways that people may be able to reduce their risk of bile duct cancer include:

- Get vaccinated against the hepatitis B virus (HBV) to prevent infection with this virus and the cirrhosis it can cause.
- Take precautions to avoid blood-borne or sexually transmitted infections by HBV and other viruses (like hepatitis C virus) to help prevent cirrhosis.
- Treat hepatitis infections (such as B and C) to help prevent cirrhosis.
- Avoid excessive alcohol use to help prevent cirrhosis.
- Quit (or don’t start) smoking.
- Avoid exposure to certain chemicals (see the section “What are the risk factors for bile duct cancer?”).

References

See all references for Bile Duct Cancer

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