

# Gastric Cancer

Gastric cancer, or cancer of the stomach, is the fourth most common cause of cancer worldwide, and is also the second most common cause of death caused by cancer. The World Health Organization estimates that stomach cancer is more common in developing than in developed countries. The reducing incidence of stomach cancer in developed countries has been attributed to lifestyle changes, including the intake of diets high in fruits and vegetables, the wide-spread use of refrigeration, and reducing the use of salt as a preservative. Gastric cancers can be classified according to their position in the stomach. Most commonly, the cancer develops either in the lower (pylorus) or middle (body) part of the stomach, and rarely, in the upper part (cardia).

Stomach cancer has a poor prognosis, mostly because its initial symptoms are very difficult to recognize, and by the time a diagnosis is made, the cancer has spread to other organs. Very early symptoms, like indigestion and heartburn are non-specific and vague, and are therefore, often ignored or misdiagnosed for other common gastric conditions. Later on, more specific symptoms of the condition emerge, including abdominal pain, vomiting and diarrhea or constipation, accompanied by bleeding, bloating, loss of weight, and difficulty in swallowing.

## Risk Factors

**Gender:** Gastric cancer is two times more common among men than women.

**Age:** Most individuals who develop gastric cancer are older than 55 years of age.

**Infection with *Helicobacter pylori* (*H. pylori*) bacteria:** It is the most important known risk factor for gastric cancer. *H. pylori* is a microaerobic bacterium

that is able to grow in the human stomach and that is strongly linked to the development of duodenal and gastric ulcers. Crowded living conditions, poor hygiene, large families and low socio-economic status are all associated with high rates of *H. pylori* infection.

**Diet:** The intake of large amounts of foods preserved through salting, smoking or drying, and pickling appears to increase the risk of gastric cancer. Conversely, eating a diet high in fresh fruits and vegetables that contains antioxidant vitamins (such as A and C) can decrease this risk. Other dietary risk factors include lack of refrigeration, poor drinking water, tobacco smoking, and alcohol drinking. Additionally, being very overweight or obese has emerged as a possible cause for gastric cancer.

**Medical conditions:** Some medical conditions such as previous stomach surgery, vitamin B12 deficiency, long-term stomach inflammation and non-cancerous growth in the stomach have been linked to increased gastric cancer risk because they lower the amount of acid produced in the stomach. The low acidic environment may allow more bacteria to grow and they may help to produce more nitrites and nitrosamines (chemicals that may increase stomach cancer risk).

**Genetic:** About 5-10% of all gastric cancer is thought to be familial. Hereditary diffuse gastric cancer is an inherited condition that caused by gene changes (mutations). Gastric cancer is seen in several other cancer predisposition syndromes, including breast cancer, hereditary non-polyposis colorectal cancer (HNPCC), Li-Fraumeni syndrome (LFS), familial adenomatous polyposis (FAP), Peutz-Jeghers syndrome, and Cowden syndrome. For unknown reasons, people with type A blood have a higher risk of getting gastric cancer.

**Occupation:** Workers in the coal, metal, and rubber industries seem to have a higher risk of having gastric cancer.

## Diagnosis and Management

Unfortunately, diagnosis of gastric cancer is often delayed because early-stage gastric cancer rarely causes symptoms or causes symptoms that may be common to other less serious gastrointestinal diseases. Endoscopy is the main test used to diagnosed gastric cancer. During this test, tissue samples (biopsies) from abnormal areas can be taken. These tissue samples are looked at under a microscope to see if cancer is present. Different kinds of imaging tests are done to know how far the cancer may have spread. A blood test called a complete blood count (CBC) to look for anemia, and a fecal occult blood test to look for blood in stool (feces) can also be done.

Surgical removal of the stomach is the only curative treatment. Radiation therapy and chemotherapy may be used in addition to surgery to improve the chance of a cure. In advanced cases, when a cure is not possible, radiation therapy and chemotherapy can be used to relieve symptoms and restore some quality of life.

## Gastric Cancer in Arab Populations

Incidence of gastric cancer is generally recognized as being high in the Middle Eastern countries when compared to the developed countries of the West. Yet, compared to other cancers, incidence of stomach cancer is lesser in the Arab World. However, in some countries like Oman and the United Arab Emirates, these rates are unusually high. In Oman, gastric cancer is the most common cancer among males, while in the UAE, it ranks second among males. In both these countries, females also show a high incidence of gastric cancer, pointing to a possible

environmental influence in this area. Gastric cancer is also among the five most common cancers affecting men in Algeria, Morocco, and Mauritania, and women in Libya, Morocco, Mauritania, Qatar, and Sudan.

Studies have been undertaken on the specific features of gastric cancer among Arab populations. In the Gulf region, it is unlikely that standard of living has any effect on the development of gastric cancer, since individuals in varied socioeconomic strata were found to have the same *H. pylori* profile. Meanwhile, the low incidence rate of gastric cancer in Iraq is explained by the mildly virulent strain of *H. pylori* prevalent in the Iraqi population. An interesting study done among Arab immigrants in Zanzibar has shown that the incidence of stomach cancer among these immigrants is drastically reduced when compared to their original countries, probably due to adoption of a different diet.

### Gastric Cancer in History

The first cases of possible gastric cancer were reported in the *Ebers papyrus*, written in 1600 BCE, and in the Hippocrates reports related by Galen in the second century CE in Rome. Hippocrates was the first to use the words “cancer” and “carcinoma” (in Greek, *Karkinos* and *Karkinoma*), but he believed that this pathology attacked the human body from outside, penetrating through the skin and infiltrating soft tissues and internal organs.

At the end of the first millennium CE, a possible description of a gastric cancer could be read in Avicenna’s *Canon of Medicine*. A recent study found the cause of death of the French Emperor Napoleon Bonaparte to be gastric cancer.