Cancer

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While there are different types of cancers – they begin in basically the same way. A cell, or group of cells, does not have normal controls that regulate cell growth. These cells can develop from any tissue in any organ. As the cells grow and multiply, they form a mass of cancerous tissue.

We usually think of cancerous tissue as a solid mass--a malignant tumor--that destroys healthy tissue, as with breast or lung cancer.

But cancer can also be of the blood or blood-forming tissue – as with leukemia and lymphoma. Instead of forming a tumor, the cancerous cells replace normal blood cells in the bloodstream and bone marrow.

**How do healthy cells become cancerous in the first place?**

By a 2-step process called transformation. In step 1, or initiation, the cell’s genetic material changes. This change can be spontaneous – or caused by a carcinogen like tobacco. Genetic flaws can make some cells more susceptible to change than others.

In step 2, promotion, initiated cells become cancerous. Substances called promoters cause this change. Promoters may be environmental or they may be certain drugs. Promoters only affect cells that have been initiated.

Cancer can occur without promotion when cells are exposed to such powerful carcinogens as radiation from nuclear power plants or atomic bombs.

**When cancer is a solid mass rather than of the blood, it can be divided into 2 types – carcinomas and sarcomas.**
Carcinomas are cancers of the skin, breast, lung, colon, stomach, prostate, and thyroid. These cancers are more common in older people. They strike cells that cover the body’s surface, make up glands, or produce hormones.
Sarcomas are cancers of the bone and the smooth muscle of digestive organs. They are more common in younger people, and strike cells that form muscle and connective tissue.

**Who is at risk for developing cancer?**
Genetics plays a role. Higher risk runs in some families.

There are environmental risk factors:
- Air pollution from cigarette smoke or industrial waste.
- Smoking cigarettes.
- Radiation from the sun and from x-rays – nuclear power – and radon gas.

Diet can increase risk. High fat intake has been linked to higher risk of breast, colon, and maybe prostate cancer. High alcohol intake is linked to increased risk of esophageal cancer. And a diet rich in smoked, pickled and barbecued foods may increase risk of stomach cancer.

Geography plays a role. Some regions have higher cancer rates, probably because of a combination of genetics, diet and environment.

Japan, for instance, has lower rates of colon cancer than the U.S., but more stomach cancer. Diet may be the reason.

**Many cancers can be prevented by lifestyle choices.**
- Don’t smoke, chew tobacco, or expose yourself to second-hand smoke.
- In addition to lung cancer – tobacco is linked to cancers of the throat, mouth, kidney, bladder, and maybe breast and colon.
- Avoid carcinogens like asbestos, which causes lung cancer.
- Avoid sun exposure and wear sunscreen to prevent skin cancer.
- Limit high-fat foods, especially ones from animals, like beef and dairy. This may help prevent breast and colon cancer.
- Eat fruits and vegetables, which may also help prevent breast and colon cancer.
- Exercise regularly and maintain a healthy weight.

**For people with cancer, many treatment options exist.**
The 2 main goals are, 1 – to remove the cancer. Surgically, with chemotherapy, radiation – or some combination of the 3. And 2, reduce the chance of spread.

Surgery is often the choice to remove tumors that haven’t spread. When removal is impossible, surgeons may debulk the tumor. They remove part of it to relieve symptoms and help make radiation or chemo more effective.

Radiation is intense energy focused on the tumor. It kills cells that divide rapidly before it kills normal ones. Since cancer cells divide more often than other cells, they’re more likely to be killed. Radiation is very important in treating prostate, Hodgkin’s, and early-stage breast cancer.
Chemotherapy uses drugs to destroy cancer cells. It also affects normal cells and causes side effects, like nausea, fatigue and anemia. Drugs are available to prevent or reduce many of the side effects.

We’re making steady advances in cancer treatment – and prevention. Know your family history, make healthy lifestyle choices, and seek out medical care if you suspect any problem.

To learn more about Dr. Ravi Salgia, visit: http://www.uchospitals.edu/physicians/ravi-salgia.html

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