

## CANCER OF THE OVARY

### What is cancer of the ovary?

Cancer of the ovary is a disease in which cancer cells are found in the ovary. Approximately 25,000 women in the United States are diagnosed with this disease each year. The ovary is a small organ in the pelvis that makes female hormones and holds egg cells which, when fertilized, can develop into a baby. There are 2 ovaries: one located on the left side of the uterus (the hollow, pear-shaped organ where a baby grows) and one located on the right. This PDQ summary has information on cancer that occurs in the lining (epithelium) of the ovary. Cancer that is found in the egg-making cells in the ovary is called a germ cell tumor of the ovary .

Unfortunately, the vast majority of women with ovarian cancer are diagnosed with advanced disease. Although sometimes women with early ovarian cancer have symptoms, such as vague gastrointestinal discomfort, pelvic pressure, and pain, more often women with early ovarian cancer have no symptoms or very mild and nonspecific symptoms. By the time symptoms are present, women with ovarian cancer usually have advanced disease.

Because cancer of the ovary may spread to the peritoneum, the sac inside the abdomen that holds the intestines, uterus, and ovaries, many women with cancer of the ovary may have fluid inside the peritoneum (called ascites), which causes swelling of the abdomen. If the cancer has spread to the muscle under the lung that controls breathing (the diaphragm), fluid may build up under the lungs and cause shortness of breath.

Some women are at higher risk of developing ovarian cancer because of a family history of ovarian cancer. Women with 2 or more close family members affected by ovarian cancer may be a part of a cancer family syndrome and should be counseled by a qualified specialist regarding their individual risk. A woman with one affected close relative (mother, sister, or daughter) has a 5.0% lifetime risk of ovarian cancer. This compares with a 1.5% lifetime risk of ovarian cancer in a woman with no affected relatives. At the present time, with current knowledge and technology, routine screening for ovarian cancer for women with one or no close relatives with ovarian cancer cannot be recommended.

The chance of recovery (prognosis) and choice of treatment depend on the patient's age and general state of health, the type and size of the tumor, and the stage of the cancer.

### STAGES OF CANCER OF THE OVARY

Once cancer of the ovary has been found, more tests will be done to find out if the cancer has spread to other parts of the body (staging). An operation called a laparotomy is done for almost all patients to find out the stage of the disease. A doctor must cut into the abdomen and carefully look at all the organs to see if they contain cancer. During the operation the doctor will cut out small pieces of tissue (biopsy) so they can be looked at under a microscope to see whether they contain cancer. Usually the doctor will remove the cancer and other organs that contain cancer during the laparotomy (see section on how cancer of the ovary is treated). The doctor needs to know the stage of the disease to plan further treatment. The following stages are used for cancer of the ovary:

### **Stage I**

Cancer is found only in 1 or both of the ovaries.

### **Stage II**

Cancer is found in 1 or both ovaries and/or has spread to the uterus, and/or the fallopian tubes (the pathway used by the egg to get from the ovary to the uterus), and/or other body parts within the pelvis.

### **Stage III**

Cancer is found in 1 or both ovaries and has spread to lymph nodes or to other body parts inside the abdomen, such as the surface of the liver or intestine. (Lymph nodes are small bean-shaped structures that are found throughout the body. They produce and store infection-fighting cells.)

### **Stage IV**

Cancer is found in 1 or both ovaries and has spread outside the abdomen or has spread to the inside of the liver.

### **Recurrent or refractory**

Recurrent disease means that the cancer has come back (recurred) after it has been treated. Refractory disease means the cancer is no longer responding to treatment.

## **TREATMENT OF CANCER OF THE OVARY**

There are treatments for all patients with cancer of the ovary. Three kinds of treatments are used:

- surgery (taking out the cancer in an operation)
- radiation therapy (using high-energy x-rays to kill cancer cells)
- chemotherapy (using drugs to kill cancer cells)

Adequate and complete surgical intervention is mandatory primary therapy for ovarian carcinoma, permitting precise staging, accurate diagnosis, and optimal debulking of the tumor (taking out as much of the cancer as possible). Such an operation generally involves total hysterectomy, bilateral salpingo- oophorectomy (removal of fallopian tubes and ovaries), omentectomy (removal of fatty tissue covering within the abdomen), and lymphadenectomy (sampling of lymph nodes). An aggressive approach to tumor debulking is important in ovarian cancer, since removal of the maximum amount of tumor is associated with improved survival. The procedure is best performed by a qualified gynecologic oncologist, who is a gynecologic surgeon with specialized training in pelvic cancers.

Radiation therapy is the use of high-energy x-rays to kill cancer cells and shrink tumors. Radiation may come from a machine outside the body (external-beam radiation therapy) or it may be put directly into the sac that lines the abdomen (peritoneum) in a liquid that is radioactive (intraperitoneal radiation).

Chemotherapy is the use of drugs to kill cancer cells. It may be taken by pill or put into the body by inserting a needle into a vein. Chemotherapy is called a systemic treatment because the drugs enter the bloodstream, travel through the body, and kill cancer cells outside the ovaries. Chemotherapy can also be given by a needle put through the abdominal wall into the peritoneum.

Bone marrow transplantation is a type of treatment that is being studied in clinical trials. Sometimes ovarian cancer becomes resistant to treatment with radiation therapy or chemotherapy. Very high doses of chemotherapy may then be used to treat the cancer. Because the high doses of chemotherapy can destroy the bone marrow, marrow is taken from the bones before treatment. The marrow is then frozen and the patient is given high-dose chemotherapy with or without radiation therapy to treat the cancer. The marrow that was taken out is then thawed and given back to the patient through a needle inserted into a vein to replace the marrow that was destroyed. This type of transplant is called an autologous transplant.