



## Ovarian Cancer

Ovarian cancer is the second most common cancer of the genital tract after endometrial cancer. In the U.S. the lifetime risk is about 1 ½ %. Nearly all ovarian cancers occur in women over age 50 with increasing incidence to age 70. The most common ovarian cancer is an epithelial type of cancer that starts in the surface epithelium of the ovary. This type of cancer accounts for about 85% of ovarian cancers.

The cause of ovarian cancer is unknown. It is found more often in women who are infertile. Pregnancy and nursing appears to have a protective effect. Taking oral contraception pills will decrease the risk of ovarian cancer. After discontinuation of the birth control pill the protection appears to last 10-15 years. For unknown reasons a prior tubal ligation and a hysterectomy will also lower the risk of developing ovarian cancer. A family history of ovarian cancer increases the risk. If a first degree relative (mother, daughter, sister) has ovarian cancer, the lifetime risk increases from 1.5 % to 5%. With two (2) or more first degree relatives having ovarian cancer, the risk reaches 7%.

Hereditary ovarian cancer occurs with a mutation of the BRCA1 gene. This mutation is strongly associated with both breast and ovarian cancer. Similar increase in risk occurs with mutations in BRCA2 gene. These mutations are seen in about 2% of Ashkenazi Jewish women but can be found in nearly all populations. With BRCA1 mutation, the risk of breast cancer is 80-90%, ovarian cancer is 40-60%, and colon cancer is 8%. Women with a BRCA2 mutation have a risk of breast cancer of 80-90% and ovarian cancer of 20%. Genetic testing is recommended if there is a strong family history of ovarian cancer, especially a first degree relative who developed cancer at less than 50 years of age.

Epithelial ovarian cancers will often express a protein called CA-125 into the bloodstream. This tumor marker is used clinically to determine whether the ovarian cancer is returning. It is also helpful in differentiating a benign cyst from ovarian cancer in patients with an adnexal mass (ovarian).

CA-125 is a non-specific test with many false positives and false negatives. It can be elevated in patients with endometriosis, fibroid tumors, pregnancy, abdominal inflammation, pelvic adhesions, benign ovarian cysts and liver disease. It may also be elevated in other cancers including lung cancer. Because of the high false positive rate, it is not recommended as a screening test. Screening of patients with a family history of ovarian cancer using CA 125 and vaginal ultrasound has been proposed but is controversial. The test has false negatives as many ovarian cancers do not secrete CA-125.

Symptoms of ovarian cancer are very non-specific. The cancer can grow very quickly and is often not diagnosed until it has spread to both ovaries. Symptoms include abdominal swelling, pain, constipation, pain with intercourse and a mass in the lower abdomen.

The treatment of ovarian cancer is surgery and chemotherapy. The goal of surgery is to remove (debulk) as much of the tumor as possible and remove lymph nodes. Postoperatively, chemotherapy is used for any residual disease. Abdominal irradiation is occasionally used.

The prognosis for patients with ovarian cancer is related to the extent of the disease. The cell type, degree of malignancy as seen under the microscope, and the amount of residual tumor after resection all affect the prognosis. Current research is ongoing using stem cells, gene therapy, and immunology to treat ovarian cancer.