



A Review on: “Ovarian Cancer”

Suchita S. Shendage*¹, Mahesh P. Shekade² Rutuja S Shelke³, Sachin J. Anbhule⁴

¹Department of Pharmacy, HSBPVT, GOI, Faculty of Pharmacy, Kashti,
Shrigonda 413701, India

²Department of Pharmacy, HSBPVT, GOI, Faculty of Pharmacy, Kashti,
Shrigonda 413701, India

³Department of Pharmacy, HSBPVT, GOI, Faculty of Pharmacy, Kashti,
Shrigonda 413701, India

⁴Department of Medicinal Chemistry, HSBPVT, GOI, Faculty of Pharmacy, Kashti,
Shrigonda 413701, India

*Corresponding Author

Name: Mrs. Suchita S. Shendage

Contact: +91 7796859355

Email: suchitashendage1404@gmail.com

ABSTRACT

A cancer that begins in the female organs that produce eggs (ovaries). Ovarian cancer often goes undetected until it has spread within the pelvis and stomach. At this late stage, ovarian cancer is more difficult to treat and can be fatal cancer that forms in tissues of the ovary (one of a pair of female reproductive glands in which the ova, or eggs, are formed). Most ovarian cancers are either ovarian epithelial cancers (cancer that begins in the cells on the surface of the ovary) or malignant germ cell tumors (cancer that begins in egg cells). Around two in ten women with advanced-stage ovarian cancer are effectively cured and survive at least 12 years after the treatment as per the research. Your response to cancer therapy and chances for a cure depend on the type and the staging of ovarian cancer at the time of diagnosis back pain - Many sufferers of ovarian cancer will experience excruciating back pain. If the tumour spreads in the abdomen or pelvis, it can irritate tissue in the lower back for all types of ovarian cancer taken together; about 75% of women with ovarian cancer live for at least one year after diagnosis. Around 46% of the women with ovarian cancer can live five years after diagnosis if the cancer is detected in earlier stages.

Keywords: Ovarian cancer, Epithelial Cancer, Tumors, Cancer therapy, Diagnosis, Back pain etc.

INTRODUCTION

Ovarian cancer is a growth of cells that forms in the ovaries. The cells multiply quickly and can invade and destroy healthy body tissue

The female reproductive system contains two ovaries one each side of the uterus. The ovaries-each about the size of an almond-produce egg (ova) as well as the hormones estrogens and progesterone.

The risk of developing ovarian cancer gets higher with age. Ovarian cancer is rare in women younger than 40. Most ovarian cancer develops after menopause. Half of all ovarian cancer is found in women 63 years of age or older.

TYPES OF OVARIAN CANCER

1. Epithelial Carcinoma of the Ovary

Epithelial cell carcinoma is the most common type of ovarian cancer. It makes up 85 to 89% (percent) of ovarian cancers. It's also the fourth most common cause of cancer death in women.

This type often doesn't have symptoms in the early stages. Most people aren't diagnosed until they're in the advanced stages of the disease.

2. Germ Cell Cancer Of The Ovary

"Germ cell cancer of the ovary "is a name that describes several different types of cancer. These cancers develop from the cells that create eggs. They usually occur in young women and adolescents and are most common in women in their 20s.

These cancers can be large, and they tend to grow quickly. Sometimes, tumors produce human chorionic gonadotropin (HCG). This can cause a false positive pregnancy test. Germ cell cancers are often very treatable. Surgery is the first-line treatment. Chemotherapy after the surgery is highly recommended.

3. Stromal Cell Cancer of the Ovary

Stromal cell cancer develops from the cells of the ovaries. Some of these cells also produce ovarian hormones including estrogens, progesterone, and testosterone.

Stromal cell cancers of the ovaries are rare and grow slowly. They secrete estrogens and testosterone. Excess testosterone can cause acne and facial hair growth. Too many estrogens can cause uterine bleeding. These symptoms can be quite noticeable.

This makes stromal cell cancer more likely to be diagnosed at an early stage. People who have stromal cell cancer often have a good outlook. This type of cancer is usually managed with surgery.

4. Small Cell Carcinoma (SCCO)

SCCO of the ovary is an extremely rare ovarian cancer and it is not certain whether the cells in SCCO are from ovarian epithelial cells, sex-cord stromal cells or germ cells.

Table 1: Stage of Ovarian Cancer

Stages of Ovarian Cancer	Effect
Stage I	When a person has stage I ovarian cancer, it means the cancer has been found in one or both ovaries. 15% of women with ovarian cancer are diagnosed with Stage-I.
Stage II	Stage-II ovarian cancer means the cancer is found in one or both ovaries and has spread into other areas of the pelvic. Stage-II is a small group comprising 19% of ovarian cancer diagnoses.
Stage III	Stage-III ovarian cancer means that the cancer is found in one or both ovaries and has spread outside the pelvic to other parts of the abdomen and /or nearby lymph nodes. It is also considered Stage-III ovarian cancer. When it has spread to the surface of the liver 60% of all cases of ovarian cancer are diagnosed when

	they are Stage-III.
Stage IV	When a person is diagnosed with Stage-IV ovarian cancer, the cancer has spread beyond the abdomen to other parts of the body. Such as the lunge or tissue inside the liver. Cancer cells in the fluid around the lungs are also considered Stage-IV ovarian cancer.

SIGN AND SYMPTOMS

The most important common sign and symptoms of ovarian cancer are:

- Bloating
- Pelvic or abdominal pain
- Early satiety (feeling full quickly) or difficulty eating.
- A need to urinate frequently or urgently.
- Less common ovarian cancer symptoms include:
- Back pain.
- Extreme tiredness.
- Weight loss.
- Pain during sex
- Acid reflux.
- Constipation or upset stomach.
- Unusual belly swelling.
- Menstrual changes.

CAUSES

The growth of abnormal cells causes ovarian tumors. Researchers and scientists are still working to understand the cause behind the growth of these cells.

DIAGNOSIS OF OVARIAN CANCER

1. Pelvic Exam

During a pelvic exam doctor inserts gloved fingers into your vagina and simultaneously presses a hand on your abdomen in order to feel (palpate) your pelvic organs. The doctor also visually examines your external genitalia, vagina and cervix.

2. Imaging Test

Tests such as ultrasounds or CT scan of your abdomen and pelvic, may help determine the size, shape and structure of your ovaries.

3. Blood Tests

Blood test might include organ function tests that can help determine your overall health. Doctor might also test your blood for tumour markers, that indicates ovarian cancer.

4. Surgery

Sometimes doctor can't be certain of the diagnosis until you undergo surgery to remove an ovary and have it tested for signs of cancer.

5. Genetic Testing

Doctor may recommend testing a sample of your blood to look for gene changes that enhance the risk of ovarian cancer. Knowing you have an inherited change in your DNA helps doctor make decisions about your treatment plan, you may wish to share the information with your blood relatives such as your siblings and your children, since they also may have a risk of having those same gene changes.

TREATMENT OF OVARIAN CANCER

Treatment of ovarian cancer usually involves a combination of surgery and chemotherapy. Other treatments may be used in certain situations.

1. Surgery

Operation to remove ovarian cancer include-

- **Surgery to remove one ovary**

For early-stage cancer that hasn't spread beyond one ovary surgery may involve removing the affected ovary and its fallopian tube. This procedure may preserve your ability to have children.

- **Surgery to Remove Both Ovarian and fallopian tubes.**

This procedure leaves If cancer is present in both your ovaries, but there are no signs of additional cancer, your surgeon may remove both ovarian your uterus intact. So you may still be able to become pregnant using your own frozen embryos or eggs or with eggs from a donor.

- **Surgery to Remove Both Ovarian And The Uterus**

If your cancer is more expensive or if you don't wish to preserve your ability to have children your surgeon will remove Ovarian, the fallopian tubes, the Uterus, nearby lymph nodes and a fold of fatty abdominal tissue (omentum).

- **Surgery for Advanced Cancer**

If your cancer is advanced doctor may recommend surgery to remove as much of the cancer as possible. Sometimes chemotherapy is given before or after surgery in this situation.

2. Chemotherapy

Chemotherapy is a drug treatment that uses chemicals to kill fast-growing cells in the body, including cancer cells. Chemotherapy drugs can be injected into a vein or taken by mouth.

Chemotherapy is often used after surgery to kill any cancer cells that might remain. It can also be used before surgery.

In certain situations, chemotherapy drugs may be heated and infused into the abdomen during surgery (hyperthermic intraperitoneal chemotherapy). The drugs are left in place for a certain amount of time before they are drained. Then the operation is completed.

3. Targeted Therapy

Targeted drug treatment focus on specific weakness present within cancer cells by attacking these weaknesses, Targeted drug treatment can cause cancer cells to die.

If you are considering targeted therapy for ovarian cancer, doctor may test your cancer cells to determine with targeted therapy is most likely to have an effect on your cancer.

4. Hormone Therapy

Hormone therapy uses drugs to block the effects of the hormone estrogens on ovarian cancer cells. Some ovarian cancer cells use estrogens to help them grow. So blocking estrogens may help control the cancer.

Hormone therapy might be a treatment option for some type of slow-growing ovarian cancer. It may also be an option if the cancer comes back after initial treatment.

5. Immunotherapy

Immunotherapy uses the immune system to fight cancer. The body's disease fighting immune system may not attack cancer cells because they produce protein that helps them hide from the immune system cells. Immunotherapy works by interfering with that process.

Immunotherapy might be an option for treating ovarian cancer in certain situations.

6. Supportive (palliative) Care

Palliative care is specialized medical care that focuses on providing relief from pain and other symptoms of a serious illness. Palliative care specialists work with you, Your family and your other doctors to provide an extra layer of support that complements your ongoing care. Palliative care can be used while undergoing other aggressive treatment, such as surgery and chemotherapy.

When Palliative care is used along with all of other appropriate treatments. People with cancer may feel better and live longer.

Palliative care is provided, by a team of doctors, nurses and other specially trained professionals. Palliative care teams aim to improve the quality of life for people with cancer and their families. This form of care is offered alongside curative or other treatment you may be receiving.

CONCLUSION

Recent advances in ovarian cancer research have expanded options for patients with ovarian cancer in 2020, but these same advances have also made decision making more complicated for physicians. Treatment algorithms become more complex. The COVID-19 pandemic has only added to current complexity of in person visits, intensive care unit bed availability and patient concerns also factor into treatment decisions.

Ovarian cancer is a leading cause of cancer incidence and mortality worldwide. The EPIC(Early Detection Of Ovarian Cancer) study modelled factors of menopausal status, hormones therapy use, oral contraception use, parity, oophorectomy and BMI (Body Mass Index) and estimated 5- year absolute risk of ovarian cancer for women aged 68 years varied from 0.1p% to 0.24% (High of 10%) depending of factors. Through ongoing advances, we hope that ovarian cancer will transition from a historically highly fatal disease to a chronic but treatable illness, and, increasingly, to one that is curable.

REFERENCE

- 1) Medically reviewed by Yamini Ranchod, Ph.D., M.S. — Written by Yvette Brazier on September 4, 2019
- 2) Brett M. Reid, Jennifer B. Permeth, and Thomas A. Sellers *Cancer Biol Med.* 2017 Feb; 14(1): 9–32
- 3) Chen VW, Ruiz B, Killeen JL, Coté TR, Wu XC, Correa CN, et al. Pathology and classification of ovarian tumors. *Cancer.* 2003;97:2631–42.
- 4) The Cancer Genome Atlas Research Network. Integrated genomic analyses of ovarian carcinoma. *Nature.* 2011;474:609–15.
- 5) Kurman RJ, Shih IM. The origin and pathogenesis of epithelial ovarian cancer: a proposed unifying theory. *Am J Surg Pathol.* 2010;34:433–43.
- 6) Arpita Desai, Jingyao Xu, and Veena N Rao *World J Transl Med.* Author manuscript; available in PMC 2014 Dec 16.
- 7) Hamilton TC. Ovarian cancer, Part I: Biology. *Curr Probl Cancer.* 1992;16:1–57.

- 8) Oswald, A. J. & Gourley, C. Low-grade epithelial ovarian cancer: a number of distinct clinical entities? *Curr. Opin. Oncol.* 27, 412–419 (2015).
- 9) Groen, R. S., Gershenson, D. M. & Fader, A. N. Updates and emerging therapies for rare epithelial ovarian cancers: one size no longer fits all. *Gynecol. Oncol.* 136, 373–383 (2015).
- 10) Chornokur G, Amankwah E, K. Schildkraut J, M. Phelan C, M. Global ovarian cancer health disparities.
- 11) *Gynecol Oncol.* 2013; 129: 258-264
- 12) orstner R, Hricak H, Occhipinti KA, Powell CB, Frankel SD, Stern JL (1995) Ovarian cancer: staging with CT and MR imaging. *Radiology* 197 (3):619-626.11
- 13) Abramowicz JS, Timmerman D (2017) Ovarian mass-differentiating benign from malignant: the value of the International Ovarian Tumor Analysis ultrasound rules. *Am J Obstet Gynecol* 217 (6):652-660.
- 14) Permut-Wey J, Sellers T: Epidemiology of ovarian cancer. *Methods Mol Biol* 2009, 472: 413–437. full_text
- 15) Bristow RE, Chang J, Ziogas A, Randall LM, Anton-Culver H, High-volume ovarian cancer care: survival impact and disparities in access for advanced-stage disease. *Gynecologic oncology.* 2014
- 16) Chang SJ, Hodeib M, Chang J, Bristow RE, Survival impact of complete cytoreduction to no gross residual disease for advanced-stage ovarian cancer: a meta-analysis. *Gynecologic oncology.* 2013 Sep;
- 17) Smith CG, A Resident's Perspective of Ovarian Cancer. *Diagnostics* (Basel, Switzerland). 2017 Apr 27; [PubMed PMID
- 18) Mackenzie R, Talhouk A, Eshragh S, Lau S, Cheung D, Chow C, Le N, Cook LS, Wilkinson N, McDermott J, Singh N, Kommoss F, Pfisterer J, Huntsman DG, Kobel M, Kommoss S, Gilks CB, Anglesio MS (2015) Morphologic and molecular characteristics of mixed epithelial ovarian cancers. *Am J Surg Pathol* 39 (11): 1548–1557.
- 19) Della Pepa, C. et al. Low grade serous ovarian carcinoma: from the molecular characterization to the best therapeutic strategy. *Cancer Treat. Rev.* 41, 136–143 (2015).
- 20) Yang, X., Shen, F., Hu, W., Coleman, R. L. & Sood, A. K. New ways to successfully target tumor vasculature in ovarian cancer. *Curr. Opin. Obstet. Gynecol.* 27, 58–65 (2015).
- 21) Goff, B. A., Mandel, L. S., Melancon, C. H. & Muntz, H. G. Frequency of symptoms of ovarian cancer in women presenting to primary care clinics. *JAMA* 291, 2705–2712 (2004).
- 22) Prat, J. & FIGO Committee on Gynecologic Oncology. Staging classification for cancer of the ovary, fallopian tube, and peritoneum. *Int. J. Gynecol. Obstet.* 124, 1–5 (2014).
- 23) Castells, M. C. et al. Hypersensitivity reactions to chemotherapy: outcomes and safety of rapid desensitization in 413 cases. *J. Allergy Clin. Immunol.* 122, 574–580 (2008).
- 24) Kopal B, Noventa M, Cvjeticanin B, Barbic M, Meglic L, Herzog M, et al. Primary debulking surgery versus primary neoadjuvant chemotherapy for high grade advanced stage ovarian cancer: Comparison of survivals. *Radiol Oncol.* 2018;52:307-19.
- 25) Javellana M, Hoppenot C, Lengyel E. The road to long-term survival: surgical approach and longitudinal treatments of long-term survivors of advanced stage serous ovarian cancer. *Gynecol oneol* 2019;153: 228-34 doi: 10.1016/j.ygyno.2018.11.007