A DOMINANT VIEW ON CHEMOTHERAPY OVER OTHER THERAPIES FOR OVARIAN CANCER

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Abstract: Chemotherapy is a type of treatment for ovarian cancer. It uses special drugs to kill cancer or the cyst in the body. Some types of cancer can be treated with just chemotherapy. Sometimes chemotherapy is used with other treatments like radiotherapy and surgery. Chemotherapy is given for different reasons. It can be given because it is the best way to get rid of the cancer It can be given because other treatments are not enough on their own to get rid of the cancer. It can be given to help you live longer. There are lots of different types of chemotherapy drugs. Each person will be given a different mixture depending on what type of cancer they have. The drugs travel through the body in your blood. They work by damaging the cancer cells so that they cannot spread and make more cancer cells. The drugs can also kill some of the healthy cells in your body. But healthy cells can usually mend themselves and get back to normal after a short time. The effects of the drugs on healthy cells can cause side effects like tiredness or feeling sick. Some people will only have a few side effects and others may have more.Chemotherapy treatment can be given in different ways. The two main ways that chemotherapy is given are: Tablets or capsules. Your doctor or nurse will tell you how many tablets to take and how often to take them. It is very important you know when to take your tablets. You may need support with this. By injection: This means putting the drugs into your blood through your skin using a needle. There are different places on your body that the drugs can be injected into. You will usually have to have lots of treatments, so the nurse will put a small tube under your skin that stays there all the way through your treatment. This is called a portacath. This makes it easier to give you the drugs without having to give you lots of injections. The chemotherapy drugs are given into the tube from a bag of liquid called a drip.

IndexTerms **- Theraphy, Chemotherapy,radiotheraphy, Uterus, Ovarian Cyst, Portacath ,Drip**

I. INTRODUCTION

Chemotherapy, which uses drugs designed to destroy cancer cells and shrink tumors, is an important part of treatment for many ovarian cancer patients at Cancer Treatment Centers of America whether they have received previous chemotherapy treatments elsewhere or not.Our gynecologic oncologists treat ovarian cancer with a comprehensive and personalized approach, which may include using various chemotherapy drug combinations. These chemotherapies are often identified with the use of molecular tumor testing.

Chemotherapy is the use of anticancer drugs designed to slow or stop the growth of rapidly dividing cancer cells in the body. The drugs may be used:

- As a primary treatment to destroy cancer cells
- Before another treatment to shrink a tumor
- After another treatment to destroy any remaining cancer cells
- To relieve symptoms of advanced cancer

At Cancer Treatment Centers of America (CTCA), medical oncologists are experienced in delivering targeted, individualized chemotherapy options while also proactively managing side effects. When chemotherapy drugs travel through the bloodstream to reach cells throughout the body, it's known as systemic chemotherapy. When chemotherapy drugs are directed to a specific area of the body, it's called regional chemotherapy.

Chemotherapy delivery methods

We also choose methods that are designed to deliver high doses of chemotherapy to tumors, while reducing damage to the rest of your body. For the treatment of ovarian cancer, chemotherapy is typically given:

Some chemotherapy delivery methods include:

- Orally (by mouth as a pill or liquid)
- Intravenously (by infusion into a vein)
- Topically (as a cream on the skin)
- Injection
- Directly into the abdomen through a catheter: Called intraperitoneal chemotherapy

For many of our patients, we place a port to deliver chemotherapy directly to the veins or tumor site, which reduces discomfort for ongoing chemotherapy treatment.

Managing chemotherapy side effects

While chemotherapy targets cancer cells, it may also damage healthy cells and cause unpleasant side effects, such as nausea, vomiting, hair loss, fatigue and mouth sores. Doctors will provide a variety of supportive care services to help you prevent or manage side effects throughout your chemotherapy treatment.

Experienced care team

For most of our patients, a medical oncologist serves as their primary doctor. Medical oncologists and cancer experts, including gynecologic oncologists, have training in diagnosing cancer and delivering chemotherapy, immunotherapy, targeted therapy and/or hormone therapy. They will work closely with you and the rest of your care team to discuss chemotherapy options based on your individual needs.

Individualized treatment approach

When any arrive at the hospital, your medical oncologist or gynecologic oncologist will review your medical history and perform a full diagnostic evaluation, then present you with a treatment plan based on your specific diagnosis. Chemotherapy is an important part of treatment for many of our patients. Our physicians use standard-of-care treatment protocols and practice evidence-based medicine. In some cases, we may use innovative delivery methods to treat certain types of cancer. We strive to find the right chemotherapy drug, or combination of drugs, for each person. We may use certain tests to help us identify an appropriate drug combination for your disease and help you avoid unnecessary toxicity. If chemotherapy is part of your treatment plan, your medical oncologist will coordinate your dosage and schedule. You may receive chemotherapy alone, or in combination with other treatment modalities like targeted therapies, surgery and/or radiation therapy. Throughout your treatment, your medical oncologist will monitor the progress of your chemotherapy regimen and modify your treatment plan accordingly.

II. STAGES OF CYST

The first step in treating most stages of ovarian cancer is surgery to remove and stage Of the cancer. The stage of a melanoma tells you how deeper it has penetrated into the skin, and how far it has spreads.

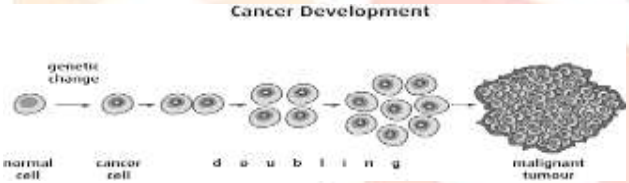


Fig.1 Cancer Development

TABLE.1 STAGES OF CYST

STAGE	DESCRIPTION	GRADE1	GRADE2	GRADE3
STAGES IA and IB (T1a or T1b, N0, M0),	In stages IA and IB (T1a or T1b, N0, M0), cancer was found inside one or both ovaries, without spread to lymph nodes or other organs. The treatment after surgery depends on the way the cancer cells look under the microscope (called the *tumor grade*).	The tumor is grade 1 when the cancer cells look a lot like normal ovarian cells. The outlook is good for grade 1 tumors, and most patients require no treatment after surgery. If someone with a grade 1, Stage IA ovarian cancer wants to be able to have children after treatment.	For a grade 2 cancer (meaning the cancer looks something like normal ovarian cells), patients are either watched closely after surgery without further treatment, or they are treated with chemotherapy (chemo).	Grade 3 cancers don't look very much like normal ovarian tissue under the microscope. The treatment of these tumors usually includes chemotherapy
Stage I C (T1c, N0, M0):	ovarian cancer standard surgery to remove the cancer is still the first treatment. After surgery, chemo is recommended, usually 3 to 6 cycles of treatment with carboplatin and paclitaxel.	-	-	-

Where T –TUMOR, N-NODES, M-METASIS

The initial treatment for stage I ovarian cancer is surgery to remove the tumor. Stage I fallopian tube cancer is treated the same way as stage I ovarian cancer.

Stage II (including IIA and IIB)

For all stage II cancers, treatment starts with surgery for staging and Debulking. This includes a hysterectomy and bilateral salpingo-oophorectomy. The surgeon will try to remove as much of the tumor as is possible. Stage II fallopian tube cancers are also treated with surgery for staging and Debulking, followed by chemo.

Stage III ovarian, fallopian tube, and primary peritoneal cancers

Stage III cancers (includes IIIA1, IIIA2, IIIB, and IIIC) are given similar treatments as stage II cancers. First, the cancer is surgically staged and the tumor is debulked (like stage II). The uterus, both fallopian tubes, both ovaries, and omentum (fatty tissue from the upper abdomen near the stomach and intestines) are removed. The surgeon will also try to remove as much of the tumor as possible.

Stage IV ovarian, fallopian tube, and primary peritoneal cancers.

In stage IV, the cancer has spread to distant sites. These cancers are very hard to cure with current treatments, but they can still be treated. The goals of treatment are to help patients feel better and live longer. Stage IV can be treated like stage III with surgery to remove the tumor and debulk the cancer, followed by chemo. Another option is to treat with chemo first. Then, if the tumors shrink from the chemo, surgery may be done, which is followed by more chemo. Most often, 3 cycles of chemo are given before surgery, with at least 3 more after surgery. Another option is to limit treatments to those aimed at improving comfort. This type of treatment is called *palliative*.

Table 2. International Federation of Gynecology and Obstetrics Cervical Cancer Staging

Stage	Description	Therapeutic Approach
0	Full-thickness involvement of the epithelium without invasion into the stroma (carcinoma in situ)	Surgical
IA1	Invasive carcinoma limited to the cervix; diagnosed only by microscopy; no visible lesions; stromal invasion <3mm in depth and /mm in horizontal spread	Surgical (or radio therapeutic)
IA2	Invasive carcinoma limited to the cervix; diagnosed only by microscopy; no visible lesions; stromal invasion between 3mm and 5 mm with horizontal spread / mm	Surgical (or radio therapeutic)
IB1	Visible lesion 4 cm in greatest dimension, or microscopic lesion with >5 mm of depth, or horizontal spread >7 mm	Surgical or radio therapeutic
IB2	Visible lesion >4 cm	Multidisciplinary treatment
IIA	Invades beyond the cervix without parametrical invasion but involves the upper two-thirds of the vagina	Surgical or radio therapeutic
IIB	Invades beyond the cervix with parametrical invasion	Multidisciplinary treatment
IIIA	Involves lower one-third of the vagina only	Multidisciplinary treatment
IIIB	Extends to the pelvic wall and/or causes hydronephrosis or nonfunctioning kidney	Multidisciplinary treatment
IVA	The tumor has invaded the mucosa of the bladder or rectum and has grown beyond the true pelvis	Multidisciplinary treatment
IVB	Distant spread of disease	Medical treatment

III. VARIOUS THERAPIES

After the diagnostic tests are done, your cancer care team will recommend 1 or more treatment options. The main treatments for ovarian cancer are:

- Surgery
- Chemotheraphy
- Hormone theraphy
- Targeted theraphy
- Radiation theraphy

I. Surgery for Ovarian Cancer

Surgery is the main treatment for most ovarian cancers. For women of childbearing age who have certain kinds of tumors and whose cancer is in the earliest stage, it may be possible to treat the disease without removing both ovaries and the uterus.For epithelial ovarian cancer, surgery has 2 main goals: staging and debulking .It is important that this surgery is done by someone who's experienced in ovarian cancer surgery. Experts recommend that patients see a gynecologic oncologist for surgery. Gynecologic oncologists are specialists who have training and experience in treating, staging, and Debulking ovarian cancer. If your cancer isn't properly staged and debulked, you may need to have more surgery later. It has been shown that gynecologic oncologists are more likely than general surgeons and gynecologists to stage and debulk ovarian cancer optimally.For other types of ovarian cancer (germ cell tumors and stromal tumors), the main goal of surgery is to remove the cancer.

Staging epithelial ovarian cancer

Surgery for ovarian cancer has 2 main goals. The first goal is to *stage* the cancer to see how far the cancer has spread from the ovary. Usually this means removing the uterus this operation is called a *hysterectomy*. In addition, the omentum is also removed an *omentectomy*. The omentum is a layer of fatty tissue that covers the abdominal contents like an apron, and ovarian cancer sometimes spreads to this tissue. Some lymph nodes in the pelvis and abdomen are biopsied .If there is fluid in the pelvis or abdominal cavity, it will also be removed for analysis. The surgeon may "wash" the abdominal cavity with salt water (saline) and send

that fluid for analysis. He or she may also remove tissue samples from different areas inside the abdomen and pelvis. All the tissue and fluid samples taken during the operation are sent to a lab to be examined for cancer cells. Staging is very important because ovarian cancers at different stages are treated differently. If the staging isn't done correctly, the doctor may not be able to decide on the best treatment.

Debulking epithelial ovarian cancer

The other important goal of surgery is to remove as much of the tumor as possible this is called *Debulking.* Debulking is very important in any patient with ovarian cancer that has already spread widely throughout the abdomen at the time of surgery. The aim of Debulking surgery is to leave behind no tumors larger than 1 cm. This is called *optimally debulked*. Patients whose tumors have been optimally debulked, have a better outlook than those left with larger tumors after surgery .Sometimes the surgeon will need to remove a piece of colon to debulk the cancer properly. In some cases, a piece of colon is removed and then the 2 ends that remain are sewn back together. In other cases, though, the ends can't be sewn back together right away. Instead, the top end of the colon is attached to an opening (stoma) in the skin of the abdomen to allow body wastes to get out. This is known as a *colostomy.* Most often, this is only temporary, and the ends of the colon can be reattached later in another operation. For more information, see our document Colostomy Guide. Debulking surgery might also mean removing a piece of the bladder. If this occurs, a catheter (to empty the bladder) will be placed during surgery. This will be left in place until the bladder recovers enough to be able to empty on its own. Then, the catheter can be removed. If both ovaries and/or the uterus are removed, you will not be able to become pregnant. It also means that you will go into menopause if you haven't done so already. Most women will stay in the hospital for 3 to 7 days after the operation and can resume their usual activities within 4 to 6 weeks.

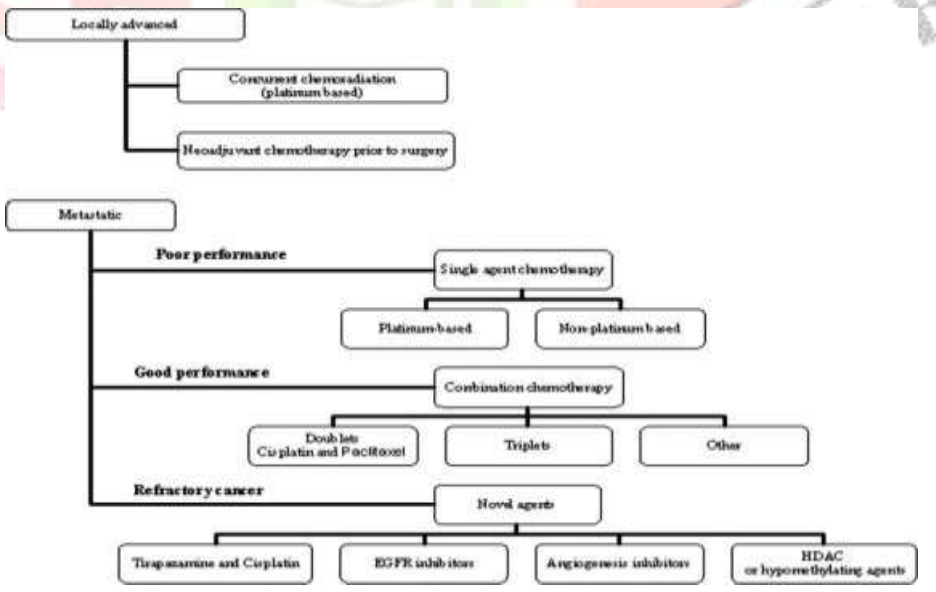
Surgery for ovarian germ cell tumors and ovarian stromal tumors.

Most ovarian germ cell tumors are treated with a hysterectomy and bilateral salpingo- oophorectomy. If the cancer is in only one ovary and the patient still wants to be able to have children, only the ovary containing the cancer and the fallopian tube on the same side are removed. Ovarian stromal tumors are often confined to just one ovary, so surgery may just remove that ovary .If the cancer has spread, more tissue may need to be removed. This could mean a hysterectomy and bilateral salpingo-oophorectomy and even Debulking surgery.

II. Chemotherapy for Ovarian Cancer

Chemotherapy (chemo) is the use of drugs to treat cancer. Most often, chemo is a systemic treatment the drugs are given in a way that lets them enter the bloodstream and reach all areas of the body. Systemic chemo can be useful for cancers that have metastasized (spread). Most of the time, systemic chemo uses drugs that are injected into a vein (IV) or given by mouth. For some cases of ovarian cancer, chemotherapy may also be injected through a catheter (thin tube) directly into the abdominal cavity.This is called *intraperitoneal (IP) chemotherapy*. Drugs given this way are also absorbed into the bloodstream, so IP chemotherapy is also a type of systemic chemo.

Fig.2 Chemotreatment



Chemotherapy for epithelial ovarian cancer

Chemo for ovarian cancer is most often a combination of 2 or more drugs, given IV every 3- to 4-weeks. Giving combinations of drugs rather than just one drug alone seems to be more effective in the initial treatment of ovarian cancer. The typical course of chemo for epithelial ovarian cancer involves 3 to 6 cycles. A cycle is a schedule of regular doses of a drug, followed by a

rest period. Different drugs have varying cycles; your doctor will let you know what schedule planned for your chemo Epithelial ovarian cancer often shrinks or even seems to go away with chemo, but the cancer cells may eventually begin to grow again. If the first chemo seemed to work well and the cancer stayed away for a long time (at least 6 to 12 months), it can be treated with additional cycles of the same chemotherapy used the first time. The different drug combinations used to treat germ cell tumor. Chemotherapy drugs kill cancer cells but also damage some normal cells. Therefore, your doctor will be careful to avoid or minimize side effects, which depend on the type of drugs, the amount taken, and the length of treatment. Most side effects disappear once treatment is stopped. Hair will grow back after treatment ends, although it may look different. There are remedies for many of the temporary side effects of chemotherapy. For example, drugs can be given to prevent and treat nausea and vomiting.

Chemo can also cause early menopause and infertility (inability to become pregnant), which may be permanent. This is rarely an issue in the treatment of epithelial ovarian cancer, since most women have both ovaries removed as a part of treatment. Rarely, some chemo drugs can permanently damage bone marrow. This can later cause a bone marrow cancer such as myelodysplastic syndrome or even acute myeloid leukemia. This is called a secondary malignancy. Your health care team knows which drugs can cause this problem and will discuss this possibility with you. Their positive effects against ovarian cancer offset the small chance that any of these drugs will cause another cancer.

Intraperitoneal chemotherapy

In intraperitoneal (IP) chemotherapy for ovarian cancer, in addition to giving the chemo drug paclitaxel IV, the drugs cisplatin and paclitaxel are injected into the abdominal cavity through a catheter (thin tube). The tube can be placed during the staging/debulking surgery, but sometimes it is placed later. If it is done later, it can be placed by a surgeon using laparoscopy, or by an interventional radiologist under x-ray guidance. The catheter is usually connected to a *port*, a half dollar-sized disk topped with a pliable diaphragm. The port is placed under the skin against a bony structure of the abdominal wall, such as a rib or pelvic bone. A needle can be placed through the skin and into the port to give chemo and other drugs. Over time, problems may rarely occur with the catheter. it may become plugged or infected or even damage the bowel.Giving chemo this way gives the most concentrated dose of the drugs to the cancer cells in the abdominal cavity. This chemo also gets absorbed into the bloodstream and so can reach cancer cells outside the abdominal cavity. IP chemotherapy works well, but the side effects are often more severe than with regular chemo. In a study of women with advanced ovarian cancer, women getting the IP chemotherapy had more abdominal pain, nausea, vomiting, and other side effects than the women getting chemo through the vein. These side effects actually made some women stop their treatment early. Still, the women getting IP chemotherapy lived longer than the women getting regular chemo. IP chemotherapy currently is only given to some of the women with ovarian cancer that has spread to the inside of the abdomen. It was only studied in women whose cancer had not spread outside the abdomen (stage III) and who had no tumors larger than 1 cm after surgery (optimally debulked). Also, because it can be so toxic, women must have normal kidney function and be in good overall shape for their doctor to be willing to try IP chemo. They also cannot have a lot of adhesions or scar tissue inside their abdomen because this can prevent the chemo from spreading well.

Germ cell tumors

Patients with germ cell cancer often need to be treated with combination chemo. The combination used most often is called PEB (or BEP), and includes the chemotherapy drugs cisplatin (Platinol), etoposide, and bleomycin. Dysgerminomas are usually very sensitive to chemotherapy, and can sometimes be treated with the less toxic combination of carboplatin and etoposide. Other drug combinations may be used if the cancer isn't responding to treatment or to treat cancer that has recurred (come back). These include:

- TIP: paclitaxel (Taxol), ifosfamide, and cisplatin
- VeIP: vinblastine, ifosfamide, and cisplatin
- VIP: etoposide (VP-16), ifosfamide, and cisplatin

Other possible side effects include kidney damage from cisplatin. To help prevent this, doctors give lots of IV fluid before and after this drug is given. Both cisplatin and the taxanes can cause nerve damage (called neuropathy). This can lead to problems with numbness, tingling, or even pain in the hands and feet. Cisplatin can also damage the nerves to the ear, which can lead to hearing loss (called *ototoxicity*). Rarely, bleomycin can lead to lung damage, so doctors may test lung function before using this drug. Ifosfamide can cause hemorrhagic cystitis (irritation and bleeding of the bladder lining). This can usually be prevented by giving the drug mesna with the ifosfamide. Other other side effects can occur depending on what drugs are used, so ask your doctor what side effects to expect from the drugs that you will receive. Most side effects improve once treatment is stopped, but some can last a long time and may never go away completely. Chemo can also cause early menopause and infertility (inability to become pregnant), which may be permanent. This can be a particular concern for young women treated for germ cell tumors. Rarely, some chemo drugs can permanently damage bone marrow. This can later cause a bone marrow cancer such as myelodysplastic syndrome or even acute myeloid leukemia. This is called a secondary malignancy. Your health care team knows which drugs can cause this problem and will discuss this possibility with you. Their positive effects against ovarian cancer offset the small chance that any of these drugs

Stromal tumors

Ovarian stromal tumors are not often treated with chemotherapy, but when they are, the combination of carboplatin plus paclitaxel or PEB (cisplatin/Platinol, etoposide, and bleomycin) is most often used.

Chemo for stromal tumors has some of the same risks and side effects as the chemo for epithelial ovarian cancer. These include

- nausea and vomiting
- loss of appetite

- loss of hair

Increased chance of infection (caused by a shortage of white blood cells)
Bleeding or bruising after minor cuts or injuries (caused by a shortage of blood platelets
Fatigue (caused by low red blood cell counts)

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III. Targeted Therapy for Ovarian Cancer

Targeted therapy is a newer type of cancer treatment that uses drugs or other substances to identify and attack cancer cells while doing little damage to normal cells. These therapies attack the cancer cells' inner workings the programming that makes them different from normal, healthy cells. Each type of targeted therapy works differently, but all alter the way a cancer cell grows, divides, repairs itself, or interacts with other cells.

Bevacizumab

Bevacizumab (Avastin) belongs to a class of drugs known as *angiogenesis inhibitors*. In order for cancers to grow and spread, they need new blood vessels to form to nourish the tumors (called angiogenesis). This drug binds to a substance called VEGF that signals new blood vessels to form. This can slow or stop the growth of cancers. In studies, bevacizumab has been shown to shrink or slow the growth of advanced epithelial ovarian cancers. Trials to see if bevacizumab works even better when given along with chemotherapy have shown good results in terms of shrinking (or stopping the growth of) tumors. But it doesn't seem to help women live longer. This drug is given as an infusion into the vein (IV) every 2 to 3 weeks. Common side effects include high blood pressure, tiredness, bleeding, low white blood cell counts, headaches, mouth sores, loss of appetite, and diarrhea. Rare but possibly serious side effects include blood clots, severe bleeding, slow wound healing, holes forming in the colon (called perforations), and the formation of abnormal connections between the bowel and the skin or bladder (fistulas). If a perforation or fistula occurs it can lead to severe infection and may require surgery to correct.

PARP inhibitors

Olaparib (Lynparza), rucaparib (Rubraca), and niraparib (Zejula) are drugs known as a *PARP (poly(ADP)-ribose polymerase) inhibitors*. PARP enzymes are normally involved in one pathway to help repair damaged DNA inside cells. The *BRCA* genes (*BRCA1* and *BRCA2*) are also normally involved in a different pathway of DNA repair, and mutations in those genes can block that pathway. By blocking the PARP pathway, these drugs make it very hard for tumor cells with a mutated *BRCA* gene to repair damaged DNA, which often leads to the death of these cells. Olaparib (Lynparza) and rucaparib (Rubraca) are used to treat advanced ovarian cancer, typically after chemotherapy has been tried. These drugs are used mainly in patients who have mutations in one of the *BRCA* genes. Only a small portion of women with ovarian cancer have mutated *BRCA* genes. If you are not known to have a *BRCA* mutation, your doctor will test your blood to be sure you have one before starting treatment with one of these drugs.Olaparib can also be used to treat patients (with or without a *BRCA* mutation) with advanced ovarian cancer that has come back after treatment, and then shrank in response to chemotherapy containing cisplatin or carboplatin. Olaparib can help extend the time before the cancer comes back or starts growing again.In studies, these drugs have been shown to help shrink or slow the growth of some advanced ovarian cancers for a time. So far, though, it's not clear if they can help women live longer.

Niraparib (Zejula) is typically used to treat recurrent ovarian cancer, after chemotherapy has been tried. This drug can be used to treat women with or without a *BRCA* gene mutation. All of these drugs are taken daily by mouth, as pills. Side effects of these drugs can include nausea, vomiting, diarrhea, fatigue, loss of appetite, taste changes, low red blood cell counts (anemia), belly pain, and muscle and joint pain. Rarely, some patients treated with these drugs have developed a blood cancer, such as myelodysplastic syndrome or acute myeloid leukemia.

IV. Hormone Therapy for Ovarian Cancer

Hormone therapy is the use of hormones or hormone-blocking drugs to fight cancer. This type of systemic therapy is rarely used to treat epithelial ovarian cancer, but is more often used to treat ovarian stromal tumors.

Luteinizing-hormone-releasing hormone (LHRH) agonists

LHRH agonists (sometimes called *GnRH agonists*) switch off estrogen production by the ovaries. These drugs are used to lower estrogen levels in women who are premenopausal. Examples of LHRH agonists include goserelin (Zoladex®) and leuprolide (Lupron®). These drugs are injected every 1 to 3 months. Side effects can include any of the symptoms of menopause, such as hot flashes and vaginal dryness. If they are taken for a long time (years), these drugs can weaken bones (sometimes leading to

osteoporosis).

Tamoxifen

Tamoxifen is a drug that is often used to treat breast cancer. It can also be used to treat ovarian stromal tumors and is rarely used to treat advanced epithelial ovarian cancer. Tamoxifen acts as an anti-estrogen in many tissues in the body, but as a weak estrogen in others. The goal of tamoxifen therapy is to keep any estrogens circulating in the woman's body from stimulating cancer cell growth. The anti-estrogen activity of this drug can lead to hot flashes and vaginal dryness. Because tamoxifen acts like a weak estrogen in some areas of the body, it does not cause bone loss but can increase the risk of serious blood clots in the legs.

Aromatase inhibitors

Aromatase inhibitors are drugs that block an enzyme (called *aromatase*) that turns other hormones into estrogen in post-menopausal women. They don't stop the ovaries from making estrogen, so they are only helpful in lowering estrogen levels in women after menopause. These drugs are mainly used to treat breast cancer, but can also be used to treat some ovarian stromal tumors that have come back after treatment. They includeletrozole (Femara®), anastrozole (Arimidex®), and exemestane (Aromasin®). These drugs are taken as pills once a day.Common side effects of aromatase inhibitors include hot flashes, joint and muscle pain, and bone thinning. The bone thinning can lead to osteoporosis and bone that break easily.

V. Radiation Therapy for Ovarian Cancer

Radiation therapy uses high energy x-rays or particles to kill cancer cells. These x-rays may be given in a procedure that is much like having a regular (diagnostic) x-ray. In the past radiation was used more often for ovarian cancer, at this time radiation therapy is only rarely used in this country as the main treatment for this cancer. It can be useful in treating areas of cancer spread.

External beam radiation therapy

In this procedure, radiation from a machine outside the body is focused on the cancer. This is the main type of radiation therapy used to treat ovarian cancer. Treatments are given 5 days a week for several weeks. Each treatment lasts only a few minutes and is similar to having a regular x-ray. As with a regular x-ray, the radiation passes through the skin and other tissues before it reaches the tumor. The actual time you are exposed to the radiation is very short, and most of the visit is spent getting precisely positioned so that the radiation is aimed accurately at the cancer.

Some common side effects include:

- Skin changes – the skin in the treated area may look and feel sunburned or even blister and peel
- Fatigue (tiredness)
- Nausea and vomiting
- Diarrhea
- Vaginal irritation, sometimes with a discharge (if the pelvis is being treated)

These side effects improve after treatment is stopped. Skin changes gradually fade, and the skin returns to normal in 6 to 12 months. If you are having side effects from radiation, discuss them with your cancer care team.There may be things you can do to obtain relief.

Brachytherapy

Radiation therapy also may be given as an implant of radioactive materials, called *brachytherapy*, placed near the cancer. This is rarely done for ovarian cancer.

Radioactive phosphorus

Radioactive phosphorus was used in the past, but is no longer part of the standard treatment for ovarian cancer. For this treatment, a solution of radioactive phosphorus is instilled into the abdomen. The solution gets into cancer cells lining the surface of the abdomen and kills them. It has few immediate side effects but can cause scarring of the intestine and lead to digestive problems, including bowel blockage.

IV. RESULTS AND DISCUSSION

This report aims to determine whether its support to treat several important cancer types and to access the weight of the evidence. Another aim is to determine through a survey of current practices, whether the use of chemotherapy complies with the scientific evidence presented in this.Chemotheraphy can be used for ovarian cancer in part because a new extremely expensive group of chemotherapy drugs, taxans has shown very promising results. Most studies consist of metaanalyses, randomized prospective studies and other prospective analyses with well defined study protocols.

A survey of the practices in chemotherapy was conducted in two healthcare regions in Sweden in 1997. The survey covered 1590 patients. The survey of practices revealed that chemotherapy varies widely among different tumour types and covers from 10% to nearly 100% of the patients. Chemotherapy was used mainly against those types of cancer where treatment has been most effective, mainly tumours in blood-forming organs, hematological malignancies. Other treatment alternatives are often lacking in these cases. Chemotherapy was used to a lesser extent to treat other types of cancer where surgery and/or radiotherapy play a greater role. The survey also showed cure to be the goal of treatment in approximately half of the patients who received chemotherapy. This percentage was somewhat higher at university or regional hospitals than at other hospitals. Curative treatment focused mainly on patients with aggressive malignant lymphomas, acute myelogenous leukemia, and cancer in the breast and ovaries. Chemotherapy represents the main type of treatment for lymphoma and leukemia. Chemotherapy was used to complement surgery and, at times, radiotherapy in treating breast cancer, ovarian cancer, and colorectal cancer. Palliative treatment was administered for low grade lymphoma and chronic lymphocytic leukemia and when locally advanced stages or metastases were found in cancer of the breast, colon and rectum, stomach, pancreas, ovaries, urinary bladder, and in non-small cell lung cancer. Most chemotherapy was administered on an outpatient

basis. Patients visited a hospital for treatment and were discharged the same day. More intensive treatment was given on an inpatient basis.

V. CONCLUSION

Cancer is a general term used to describe many different types of malignant tumours. Cancers have the capacity for uncontrolled growth and can spread to different parts of the body. In Sweden, over 40 000 individuals per year (approximately as many men as women) are diagnosed with some form of cancer. Cancer is perceived to be more frightening and threatening than many other diseases. However, the most common cause of death in both men and women in Sweden is not cancer, but diseases of the circulatory organs, accounting for more than 50% of all deaths annually. Cancers account for 23%. In people aged 45 through 64 years, the mortality rate from cancer is higher or 40%. Cancer appears in all ages, but is most common among the elderly. One half of all patients diagnosed with cancer are above 70 years of age. Since the number of elderly is rising, increasingly more people will be diagnosed with cancer.Cancer is usually treated by surgery, radiotherapy, and drugs - mainly agents that prevent cell growth and proliferation (cytostatics) and those that have hormonal effects - or a combination of these therapies. In recent decades, great knowledge has been gained concerning growth regulation in normal cells and cancer cells and changes in the genetic material that causes a transition to cancer. In the future, this knowledge can promote new, and hopefully better, treatment methods. The term "cytostatics" is a general term referring to drugs that have the capacity to kill tumour cells or inhibit their growth. In Sweden, around 50 substances classified as cytostatics are currently registered by the Swedish Medical Products Agency. These drugs are usually administered directly into the bloodstream, but can also be administered in other ways.Chemotherapy (treatment with cytostatics drugs) can lead to cure for several types of cancer and can alleviate symptoms and extend life in many patients with different forms of cancer. Cytostatics agents not only affect cancer cells but also the growth of normal cells. Hence, treatment carries a major risk for side effects. Different cytostatics drugs have different side effects, and the individual's reaction to chemotherapy varies. A characteristic common to most cytostatics is that they affect the bone marrow and reduce the number of blood cells. This may increase the risk for severe infections.The term "curative treatment" is used when the intent of chemotherapy is to cure the patient. The term "palliative treatment" is used when the intent is to ameliorate the patient's pain and other symptoms, but where the potential for cure does not exist. The goal of palliative treatment is to improve the patient's quality of life and extend survival. In the individual case, the different approaches to treatment may overlap.Chemotherapy is usually delivered as a series of treatment cycles separated by an interim of one to several weeks so the body's normal cells have the opportunity to recover between cycles. Often 6 to 9 treatment cycles are administered during a 4- to 6-month treatment program, but there are many examples of both shorter and longer treatment programs. In some cases, cytostatics drugs are delivered in high doses to achieve a much greater impact on tumor cells.

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