RADIATION THERAPY OF OVARIAN CANCER

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About Radiation therapy of ovarian cancer

Radiation therapy is used as a treatment of ovarian cancer in cases to prevent recurrence and as a palliative therapy (treatment of symptoms) to cease the symptoms.

Radiation therapy is used on tumors because of its ability to control cell growth. Ionizing radiation works by damaging the DNA of target tissue thus killing it. To spare normal tissues (such as skin or organs which radiation must pass through in order to treat the tumor), doctors aim weaker radiation beams from several angles of exposure to intersect at the tumor, providing a much larger absorbed dose there than in the surrounding, healthy tissue. Besides the tumor itself, the target for the radiation may also include the lymph nodes that drain the area.

Radiation therapy is used in an effort to prevent recurrence of ovarian cancer after surgery. This is called adjuvant radiation therapy. The main purpose is to clean the body from micrometastases, which can be spread in the lymph nodes, but cannot be detected with available tests. Micrometastases can be responsible for recurrence after surgery treatment alone. Radiation therapy leads to improvement of survival.

In case of palliative treatment the radiation is used to shrinking a tumor, which leads to relief of symptom and improvement in patient’s quality of life.

Radiation therapy may also be used in cases of a treatment in women, which do not tolerate chemotherapy drugs.

A radiation therapy is administered daily, from Monday through Friday, from 3 to 5 weeks. It may vary depending on individual circumstances. The application lasts less than few minutes, patient does not feel any discomfort.

Success or failure factors

Despite evidence that ovarian cancer is a radiosensitive malignancy, the use of radiation as a therapeutic modality in the modern era is limited. Ovarian cancer has a unique pattern of dissemination (spreading widely) as transperitoneal (through the serous membrane that forms the lining of the abdominal cavity) spread is the most common route such that, diagnosis, the tumor is confined to the abdominal and pelvic cavity in approximately 85% of patients.

Because ovarian cancer is rarely confined to the pelvis, whole pelvic radiation is a largely ineffective method of disease control since it does not treat the entire volume at risk of recurrence.

Whole abdominal radiotherapy (WAR) was used in the pre-chemotherapy era to sterilize large volumes of micrometastatic intraperitoneal disease. However, the low doses required to meet tolerance of the bowel, kidneys, and liver using two dimensional fields were ineffective in eradicating gross residual disease in the peritoneal cavity resulting in poor therapeutic efficacy.
Additionally, the toxicity of radiation therapy was high particularly when using wide-field irradiation. High rates of both acute and late toxicity, particularly gastrointestinal, resulted in the abandonment of radiation in this disease particularly when cisplatin (a chemotherapy medication used to treat a number of cancers) was confirmed to be a highly active systemic agent.

Improved radiation techniques with lower toxicity have led to a renewed interest in the use of radiation therapy for metastatic cancers for many disease sites including ovarian cancer.

**Complications**

Side effects and complications of radiation are limited to the areas that are receiving the treatment and a dose, which can cause discomfort in one patient may cause no side effects in other patient.

Common side effects of radiotherapy include diarrhea, constipation, and frequent urination. Other side effects include abdomen cramping, increased frequency of bowel movements, nausea and some of patients can be tired after the treatment.

After the end of radiation therapy, these symptoms usually resolve.

**Prognosis**

Many of the toxicities of WAR in ovarian cancer are due to the large volume of tissue receiving a high dose of radiotherapy with little sparing of the organs at risk as well as minimal time for intrafraction repair of normal tissues.

Over recent years, newer, more palatable fractionation schemes and advanced techniques, which allow sparing of at risk organs may allow for renewed interest in this treatment modality for this disease. Improved radiation techniques combined with an increasingly sophisticated understanding of molecular mechanisms leading to radiation and chemotherapy sensitivity are leading to innovative and novel therapies for patients with ovarian cancer.

Egg freezing and ovarian tissue cryopreservation offers women with cancer the chance to preserve their eggs so that they can have children in the future. Preimplantation genetic screening allows studying the DNA of eggs or embryos to select those that do not carry certain damaging characteristics caused by radiation.

If a woman have no own eggs left after the treatment or their quality is not sufficient, donated ones may be used.

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#### Diagnoses

**Ovarian cancer**
A type of cancer in which abnormal cells begin to grow in one or both of a woman's ovaries.
Learn more at: [www.fertilitypedia.org/therapy/diag/ovarian-cancer](http://www.fertilitypedia.org/therapy/diag/ovarian-cancer)

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