Question:

Explain EBRT Exterenal Beam radio Therapy, brachy therapy, Systemic therapy .

External Beam Radiation Therapy (EBRT), Brachytherapy, and Systemic Therapy are all types of cancer treatments that use different methods to target and treat cancer cells. Here's an explanation of each:

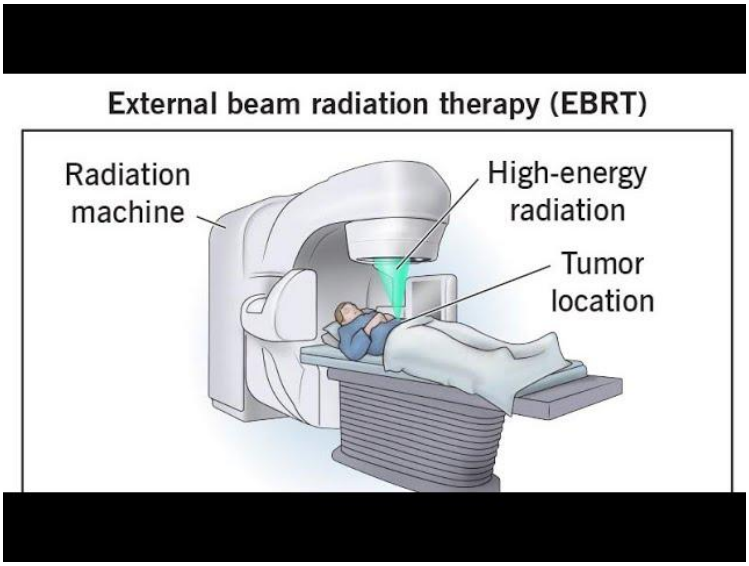
1. External Beam Radiation Therapy (EBRT)

EBRT is a type of radiation therapy where high-energy rays (usually X-rays) are directed from outside the body to target cancer cells. The radiation is delivered using a machine called a linear accelerator.

How it works: The patient lies on a treatment table, and the radiation machine is positioned to focus beams of radiation precisely at the tumor. The treatment is typically delivered in small daily doses (often five days a week) over several weeks.

Purpose: It's used to treat cancers in various parts of the body and is effective in shrinking tumors and killing cancer cells. It can also be used in combination with surgery, chemotherapy, or other treatments.

Side effects: EBRT generally causes side effects like fatigue, skin irritation, and changes to the treated area, such as hair loss or redness. Long-term effects depend on the area treated.



2. Brachytherapy

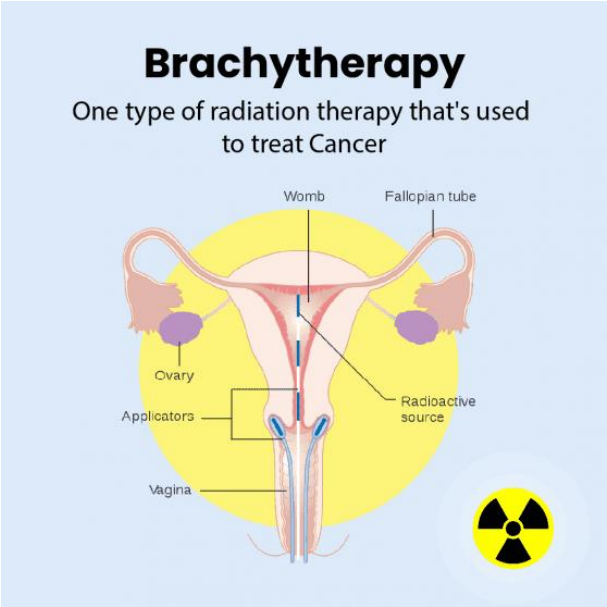
Brachytherapy, also known as internal radiation therapy, involves placing a radioactive source directly inside or very close to the tumor. This allows higher doses

of radiation to be delivered to the tumor while minimizing damage to surrounding healthy tissue.

How it works: The radioactive material is placed in or near the tumor, either through a needle, catheter, or applicator. The treatment may be permanent (seeds) or temporary (where the radioactive material is removed after treatment).

Purpose: It is often used for cancers of the prostate, cervix, breast, and some head and neck cancers. It can be used alone or in combination with other treatments, like external beam radiation.

Side effects: Side effects can vary depending on the location of the tumor being treated but may include discomfort, swelling, and potential long-term complications such as urinary problems or erectile dysfunction (especially in prostate cancer).



3. Systemic Therapy

Systemic therapy involves the use of medications that travel through the bloodstream to reach and affect cells throughout the entire body. This can include chemotherapy, targeted therapy, immunotherapy, and hormone therapy.

How it works:

- Chemotherapy: Uses drugs that kill rapidly dividing cancer cells. These drugs can be given intravenously or orally and affect the whole body.

- Targeted Therapy: These drugs target specific molecules or genetic changes in cancer cells that help them grow, spread, or survive.

- Immunotherapy: Boosts or modifies the body's immune system to recognize and fight cancer cells more effectively.

- Hormone Therapy: Works by blocking or lowering the levels of hormones that some cancers (like breast or prostate cancer) need to grow.

Purpose: Systemic therapies are often used for cancers that have spread to other parts of the body or for cancers that are difficult to treat with localized therapies like surgery or radiation. It can be used before surgery to shrink tumors, after surgery to kill remaining cancer cells, or in combination with other treatments.

Side effects: The side effects can be widespread because systemic therapy affects the entire body. Common side effects include nausea, hair loss, fatigue, and a weakened immune system. Specific side effects depend on the type of systemic therapy being used.