

Cancer: The Target



Don't target the disease, target the cause - Dr. Anand Kumar

Cancer is the most common and frequent seen malignancy, third in India and second leading cause of death in the United States. Oncology is a branch of science that specializes and deals in the diagnosis and treatment of cancer and characterized by the uncontrolled abnormal growth of cells. The word onco means mass, tumor or bulk and logy means study and it can develop anywhere in the body. It includes medical oncology (the use of chemotherapy, hormone therapy, and other drugs to treat cancer), radiation oncology (the use of radiation therapy to treat cancer), and surgical oncology (the use of surgery and other procedures to treat cancer). The three most common type of cancer in India are oral cancer (head and neck cancer), lung cancer, breast cancer, and cervix cancer.

THE ONCOLOGICAL TEAM

The branch or field of oncological team consists of:

Medicinal oncologist - Basically treat cancer by medications widely known as chemotherapy, such as targeted therapy. Target therapy is a special type of chemotherapy in drug, or other substances are used to identify and block the growth and spread of cancer cells more precisely (molecular target) and attack them. Other names for target therapy are molecular target therapy, molecular target drug, and precise oncological medicine. Future name suggestions could be Bullseye chemotherapy treatment, focused molecular chemotherapy. It works on:

- Block or turn of chemical signals to stop cancer cells growth and divide
- Change proteins, so cells start to die
- Stop making new blood vessels to feed cancer cells
- Trigger immune system to kill cancer cells
- Carry toxins to cancer cells to kill them.

Disadvantage - Chemo drugs can sometime affect other cells in the body which can lead to serious side effects.

Surgical oncologist - Surgical oncology is that branch of oncology which deals with surgical management, diagnosis, staging, and treating cancers. The factors which depend for surgery in oncology are:

- Type of tumor
- Size of tumor
- Location of tumor
- Grade of tumor
- Stage of tumor.

Few general health factors are also very important before surgery are:

- Age
- Physical fitness
- Other systemic comorbidities.

Surgical treatment in oncology can also be done in combination with other available cancer treatments such as chemotherapy, radiation therapy, or hormone therapy.

Oncological surgery is done a team of surgeons who are highly-skilled generalists, each with versatility and special interests and consist of specialty and super-specialty of that particular area with the involvement of post-operative supportive and palliative care rehabilitation therapists, nutritionists and naturopathic clinicians.

Radiation oncologist - Radiation oncologists are the physician with specific training in management of cancer patients involving radiation therapy as one aspect of cancer treatment who carefully target and regulate doses of high-energy radiation to kill cancer cells. Radiation was first applied by an American Student Emil Grubbe, on January 29, 1896, in a clinical setting and term radiotherapy was introduced in the year 1903.

Radiation oncologist must be:

- Experiences and aware with advanced technology
- Must have taken specialized training and skills
- Able to assess the radiation treatment according to need
- Works with surgical oncologists, interventional radiologists, internal medicine super-specialties, medical physicists, dosimetrists, nurse, and medical oncologists.

A radiation oncologist deals with all the area of cancer infected organs such as bone marrow, breast, endocrine, head and neck cancer (oral cavity, nasopharynx, oropharynx, salivary gland, etc.), and gynecologic (cervix, ovary,

uterus, etc.). He must work together with the concerned team of surgeon (both medical and non-medical) who has performed the surgery and must work as a team to develop diagnostic and treatment procedures properly. A radiation oncologist is the integral part of the cancer treatment from initial, ongoing, and final management process and has an important role in communicating with the patients and family members.

The radiation oncologist must be considered the five “R” of radiotherapy:

1. Repopulation
2. Repair
3. Redistribution (reassortment)
4. Reoxygenation
5. Radiosensitivity (intrinsic radiosensitivity).

The target - An observed data by Indian Council of Medical Research^[1] have said that approximately 7.36 lakhs cases are expected to succumb in the previous year 2016 while the figure can shoot up. And an expected of 17 lakhs newer cases in India by 2020. Among female’s breast cancer was found to be the most and in males oral (mouth) cancer was registered in the year 2016 in India.

We are only concentrating on the incidence of cancer spreading in India and on anatomical sites involving the spread of this disease. I think we should rather concentrating on spreading, incidence and prevalence, we should concentrate on cause.

- Cause which is origin of cancer
- Cause which spreading it worldwide

- Cause which should be removed as earliest if really, we want complete win.

Chances are that there were many more that remained undetected. This is a huge challenge that needs to be addressed because most of the cancers in India are diagnosed when the tumors are big or have spread in the body (metastasis), at which point they become either untreatable or are harder to treat.

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