Multidisciplinary approach to the management of oral cancer

Treatment modalities of oral cancer :

* Surgery
* Radiotherapy
* Chemotherapy
* Targeted therapy
* Combination of 2 or more

**-Radiotherapy**:Is the medical use of ionizing radiation as part of cancer treatment to control malignant cells.

-Radiotherapy can be used as soul treatment for cancer.

-How does radiotherapy work ?

By 2 ways :-

Indirect radiotherapy(The most commonly used) : we use x-ray or by using gamma radiation (photons)

- those photons do ionization of water forming free radicals (OH-/H+) which is toxic

-Because cancer cell are undifferentiated so they reproduce more, and they have a diminished ability to repair

Direct radiotherapy: through heavier particles as protons or big atoms

What are the disadvantages of indirect radiotherapy compared to the direct?

* Scattering, higher than the direct
* They do not really differentiate between bad cells from healthy cells.
* And one of the advantages of the direct (charged particles) that they are not affected by the presence of water

-what is the problem in providing radiotherapy ?

Radiotherapy can be given once and the tissues will become different for life, in other words, if the patient suffered from recurrence surgery will become much more complicated.

Principles of treating oral cancer :

* Radical therapy: aims to cure without surgery
* Palliative therapy: aiming to relieve symptoms when the patient is too old or when the patient is in T4 stage
* Multimodal treatment: which is combination of surgery and radiotherapy and usually radiotherapy commences 2-4 weeks after surgery

**-**we use Teletherapy in oral cancer

**Modes of radiation delivery:**

* Conventional
* Three dimensional conformal radiotherapy: decrease the scatteing

**The Dose of radiation:**

- We measure the intensity of radiation by Gray(typical dose ranges from 60-80 grays)

**Fractionation Schedule**:

-This applies only to photon radiotherapy(indirect) when you fractionate the total dose for many reasons:

* It allows normal cells to recover
* It allows tumor cells that were in a relatively radio-resistant phase to cycle into a sensitive phase
* Tumor cells that were chronically or acutely hypoxic may reoxygenate between fractions cause necrotic or hypoxic cells will be radio-resistant

We deliver the conventional fractionation in 30 fractions over 30 days (5 days a week for 6 week)

Unconventional Fractionation:

* Hyperfractionation: more than one fraction per day. Total daily and weekly doses are kept equivalent.
* Accelerated hyperfraction (CHART): 3 more fractions/day daily for 12 days. Shorter treatment time preventing the tumor stem cell repopulation
* **Chemotherapy:**

-By using chemicals that act by interfering with rapidly growing tumor cells. They are used for treating many types of malignancies as an adjunct to radiotherapy and surgery,but it can't be used as soul treatment

-the most commonly used chemoradiotherapy regime is 100mg/m2 cisplatin every 3 weeks and 60 Gy delivered in 30 fractions of 2 Gy for 6 weeks

* Chemotherapy side effects :- Mucositis ,Neutropenia,Anemia

**Targeted Therap(Immunotherapy)** is very promising

The most used drug in treating oral cancers is Cetuximab(an IgG1 monoclonal antibody), which is given IV. It might be used along with surgery and radiotherapy.

Oral cancer is not a single clone it’s several clones with different antigens that’s why it's difficult to use targeted therapy.

The final decision in treating oral cancer depends on number of factors including site, tumor type, extent of spread and biopsy results.