ASGO Webinar Series #52

Hypofractionated radiation therapy in gynecologic cancer

Distillation-Discussion

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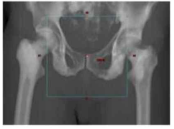
EVOLUTION OF RADIATION THERAPY IN GYNAE CANCER

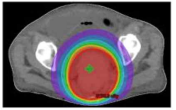
Dr. Abbe uses radium to treat cervical cancer

Early 1900s

1960s

Development of 2D radiation



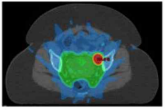


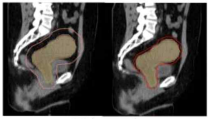
Development of 3D conformal radiation

1980s

1990s

Development of IMRT



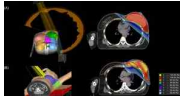


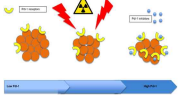
Widespread implementation of adaptive radiation

2020s

INTRODUCTION

- Radiotherapy has a fundamental role in the treatment of gynecologic malignancies
- Cervical cancers- offered as a curative option for locally advanced tumors
- Uterine cancers- mostly being utilized in the adjuvant setting with the goal of improving locoregional control
- Vaginal and vulvar cancers - definitive radiotherapy
- Hypofractionated RT - alternative fractionation scheme that delivers higher doses of radiation in fewer fractions compared to conventional fractionation and is already a standard-of-care option in some sites, including but not limited to prostate, breast and rectal cancers





- The biological plausibility of hypofractionated RT stems from the sensitivity of tumors with **low α/β ratios** (breast, prostate) to higher doses per fraction, reduced opportunities for tumor cell repopulation, and the use of advanced techniques to minimize normal tissue damage

- These principles combine to deliver effective, shorter-duration treatments without significantly compromising therapeutic efficacy

- Gynecological cancers, like cervical and endometrial cancers, have **high α/β ratio**, meaning they are less sensitive to fraction size but more responsive to total dose

Q1. What is the biological plausibility of hypofractionated RT in gynae cancers?

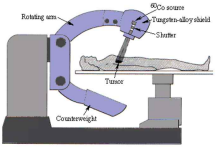
- Hypofractionated RT is a way forward in LMIC but there are concerns of lack of modern techniques such as IMRT and IGRT

- Hypofractionation utilization is lacking in specific countries of the Asia-Pacific region due to disparities by geographic region and cancer site

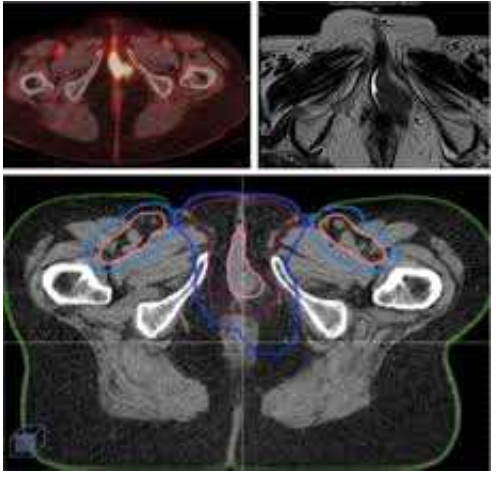
Q2. What are the implication of Hypofractionated RT in the absence of modern techniques?

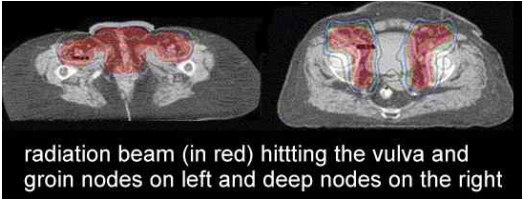
Most of the 3rd world countries have Cobalt-60 machine

Q3. Whether hypofractionated RT is feasible with Cobalt machine?



EBRT as standard of care in vulvar cancer

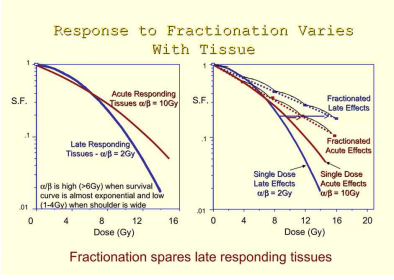




radiation beam (in red) hittting the vulva and groin nodes on left and deep nodes on the right

Q4. Is there any role of hypofractionated RT in vulval cancer and vaginal cancer?

- There is a consistent difference between early- and late-responding tissues in their responses to changing fractionation patterns
- If fewer and larger dose fractions are given, late reactions are more severe, even though early reactions are matched by an appropriate adjustment in total dose
- Achieving local control is one of the primary goals of radiation therapy, as it can lead to either the complete elimination of the tumor in that specific area or long-term management to prevent recurrence



Q5. Do you think that local control is compromised with hypofractionated RT in cervical cancer?

- In hysterectomized patients, the risk of radiation toxicity to adjacent organs like bowel and bladder is an important consideration when evaluating hypofractionated radiotherapy (RT)

- While hypofractionated RT can offer benefits such as a shorter treatment duration and potentially comparable efficacy, the risks of acute and late toxicities must be carefully assessed

Q4. Conventional vs hypofractionated RT in operated cases of endometrial cancers?

Does benefit outweighs the risks

What is your opinion?

Thank You