Radiation: What's new?

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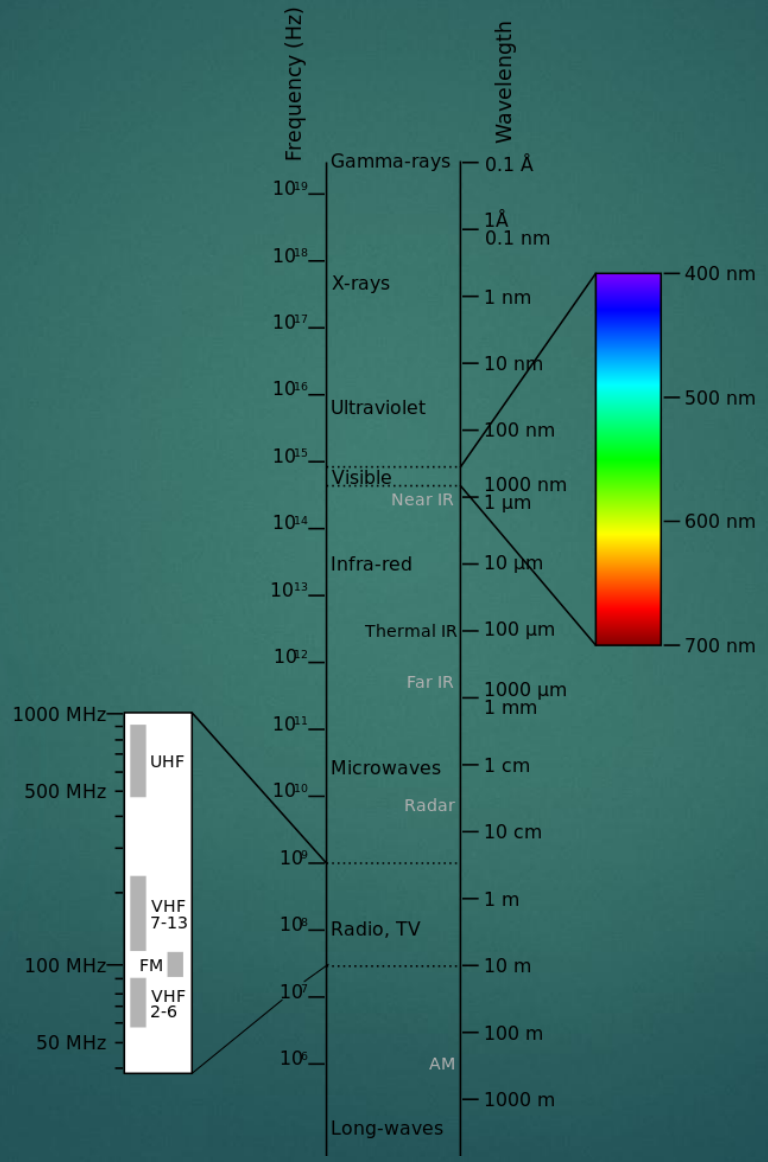
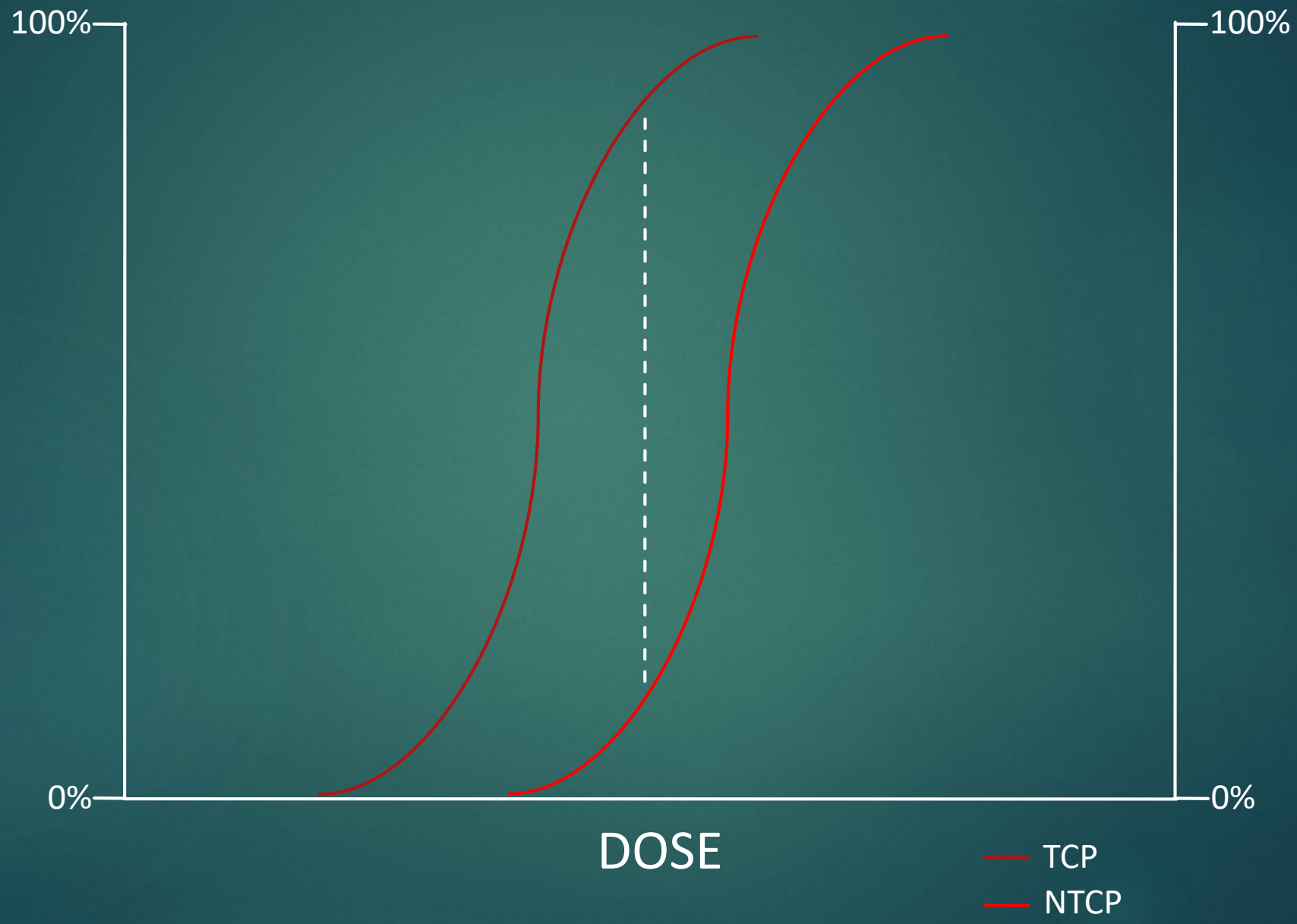
Radiation (The old and never changing)

- Cause damage to tumor cells destroying ability to further divide/grow
- Minimize damage to adjacent normal tissue to avoid side-effects

Radiation Mechanism



THERAPEUTIC RATIO

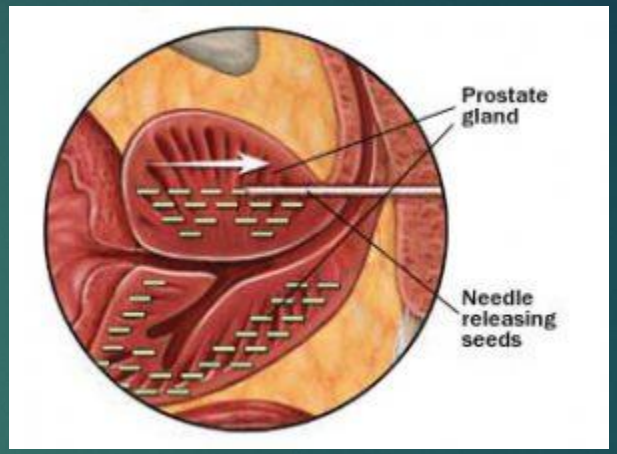


Radiotherapy Options

- Brachytherapy (seeds)
- EBRT
- Hypofractionated EBRT
- SBRT
- Proton therapy

EBRT

Proton Therapy



Brachytherapy

Cyberknife (SBRT only)

LOW RISK
Gleason ≤6
Prostate confined disease
PSA <10

INTERMEDIATE RISK
Gleason 7
Prostate confined disease
PSA 10-20

HIGH RISK
Gleason ≥8
Involvement of seminal vesicle or lymph nodes
PSA >20

Active Surveillance

Prostatectomy (surgery)

Brachytherapy (seeds)

External Beam Radiation (EBRT)

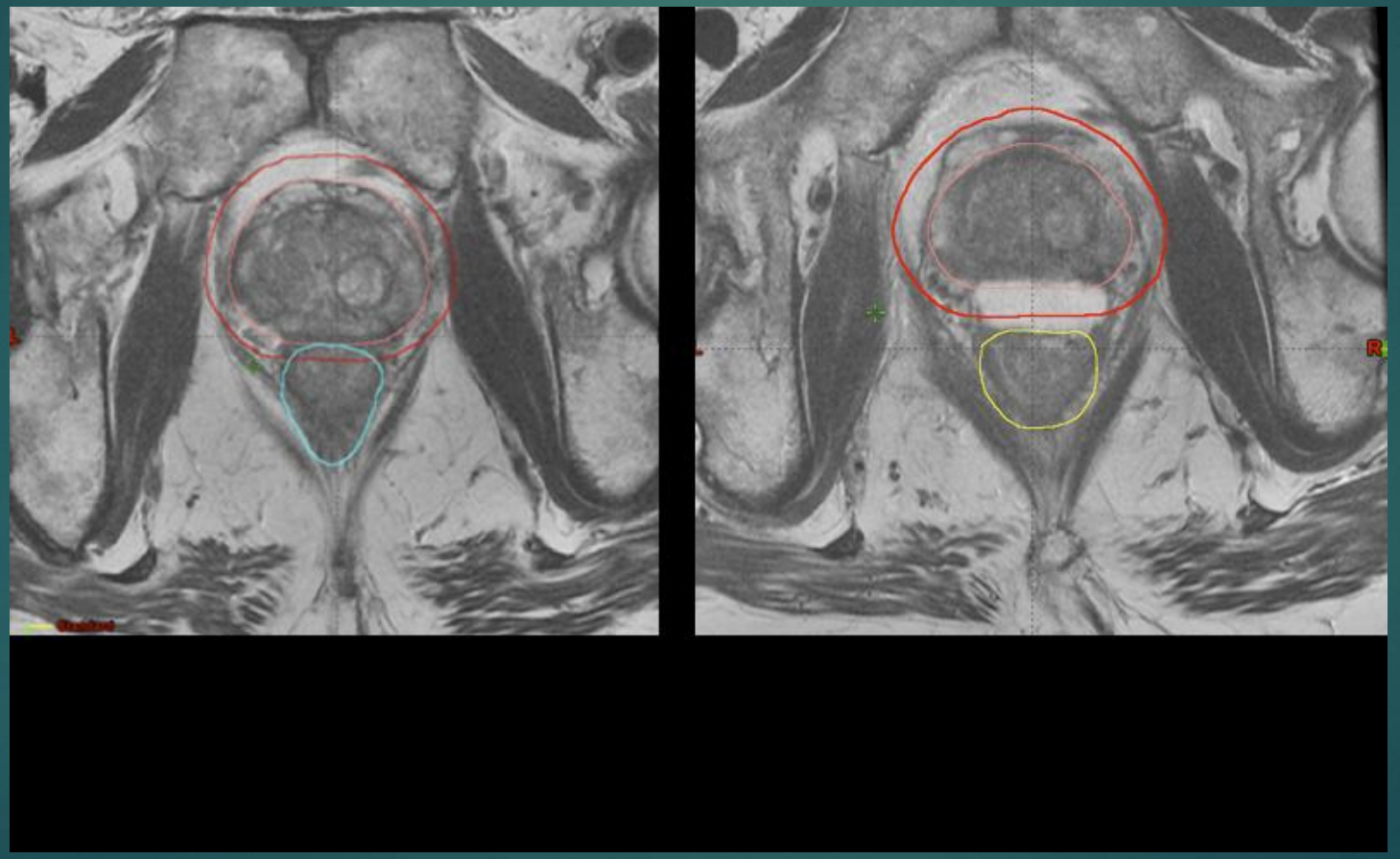
Hormone Therapy

EBRT + Brachytherapy

SBRT

- Data limited (but rapidly growing)
- Relatively short follow up in the data
- Delivers high dose (~40 Gy) in 5 treatments given twice per week
- Main concerns are rectal and bladder neck toxicities
  - Published toxicity rates are low and comparable to “standard” treatments

SpaceOAR



Moderate hypofractionation

- 20-28 daily treatments (compared to 40 treatments that we have historically done)
- Greater convenience for patients
- Equal efficacy and toxicity

Trial, Predominant Risk Group	Conventional Dose, Gy	Hypofractionated Dose	Median Follow-up	Cancer Control Conclusions	Toxicity Comparison
PROFIT[3] (N = 1,206), intermediate risk	78	60 Gy given in 3-Gy fractions	6 years	Moderate hypofractionation noninferior to standard	Overall, no significant differences except that GI toxicity more acute for moderate hypofractionation but more later for standard fractionation
Regina Elena National Cancer Institute[4] (N = 168), mostly high risk	80	62 Gy given in 3.1-Gy fractions	9 years	Moderate hypofractionation not superior to standard	Overall, toxicity similar, but greater macroscopic hematuria for moderate hypofractionation ($P = .009$)
RTOG 0415[5] (N = 1,115), low to intermediate risk	73.8	70 Gy given in 2.5-Gy fractions	5.8 years	Moderate hypofractionation noninferior to standard	More grade 2 GU and GI late toxicity for moderate hypofractionation but not grade 3
CHHiP[1] (N = 3,216), intermediate risk	74	60 Gy given in 3-Gy fractions and 57 Gy given in 3-Gy fractions	62 months	Moderate hypofractionation given in 3 Gy × 20 fractions is noninferior to standard	Overall, no significant differences in toxicity, although patterns of toxicity different, with more acute toxicity for the hypofractionated group and more later toxicity for the standard fractionated group
HYPRO[6,7] (N = 820), high risk	78	64.6 Gy given in 3.4-Gy fractions in 3 fractions/week	60 months	Moderate hypofractionation not superior to standard	Noninferiority of moderate hypofractionation could not be excluded, and late grade 3 or worse toxicity significantly higher for moderate hypofractionation ($P = .021$)
FCCC,[8] (N = 303), mostly high risk	76	70.2 Gy given in 2.7-Gy fractions	68.4 months	Moderate hypofractionation not superior to standard	No differences in late toxicity, although for patients with preexisting urinary symptoms, greater incidence of late grade 2 or higher GU toxicity
MD Anderson[9] Cancer Center (N = 203), intermediate risk	75.6	72 Gy given in 2.4-Gy fractions	6 years	Moderate hypofractionation not superior to standard	Nonsignificant increase in late GI toxicity for moderate hypofractionation; toxicity associated with rectal irradiation dose distribution

University of Cincinnati Multidisciplinary Clinic

Health Care

UC Health launches cancer clinic for men

Enlarge

UC Health's new prostate cancer clinic team includes, from left, Dr. Tim Struve, Dr. Sadha Verma and Dr. Abhinav Sidana.
COLLEEN KELLEY/UNIVERSITY OF CINCINNATI

MDC clinic details

- Only clinic of its kind in Cincinnati
- Unique opportunity for patients to get a "well-rounded" approach to their prostate cancer
- Generally held on the 3rd Friday of the month in the afternoon
- Conference held prior to the clinic to review all patients
  - Attendees include: Urologist, Radiation Oncologist, Nurse practitioner, RN, Uro-radiologist, and residents
- All patients are thoroughly discussed to reach consensus best approach
- Patients are then seen by the urologist and radiation oncologist in a single 1 hour visit

Value of MDC clinic

- Good opportunity for second opinion
- "One-stop shop"
- Potential to expand treatment options such as focal therapy or clinical trials
- No competition between radiation oncologist and urologist for patients. The goal is an UNBIASED opinion and to be a resource for the community.