Radiotherapy

Advances, Clinical trials, Clinical care

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• Early Cancers
• Locally Advanced Cancers
• Metastatic Cancers
Early Cancers

Decrease Toxicity

• Eliminate unnecessary treatment
  • DCIS, Early cancers of the Breast and Prostate

• Improved treatment planning
  • More accurate CTV delineation
    • Informed by patterns of failure and AI
  • Quantitative Imaging

• Novel Technology
  • FLASH, Non-ionizing modalities
Locally Advanced Cancers

Improve tumor control

• *Higher doses, Smarter delivery*
  • Accuracy, not just precision!
• *Drugs added to RT*
• *Novel subatomic particles*
• *Non-ionizing modalities*
• *Radiopharmaceuticals*
Metastatic Cancers

• Immunotherapies and RT
  • Radiation as “fire-starter”
• Radiopharmaceuticals and Radioligands
• Oligometastases (???)
Quality Assurance in Radiotherapy

• Clinical Trials
  • Radiation is the study question
  • Radiation is the backbone therapy

• NCI-Funded Clinical Trials Networks
  • RTOG, COG, GOG, etc.
  • Consolidated as NCTN and NCORP

• NCI-Funded QA Centers
  • RPC, QARC, ITC, RTOG-QA
  • Coordinated under ATC
  • Consolidated as IROC
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