Timing of radiotherapy (RT) after radical prostatectomy (RP): First results from the RADICALS RT randomised controlled trial (RCT) [NCT00541047]


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Background: The optimal timing of RT after RP for prostate cancer (PCa) is uncertain. RADICALS-RT compared the efficacy and safety of adjuvant RT (aRT) versus an observation policy with salvage RT for PSA failure (Obs+sRT).

Methods: Patients with post-op PSA ≤0.2ng/ml and ≥1 risk factor (pT3/4, Gleason 7-10, positive margins or pre-op PSA >10ng/ml) were randomised ≤22wk after surgery to aRT or Obs+sRT for PSA failure (PSA≥0.1ng/ml or 3 consecutive rises).
Stratification factors were Gleason score, margin status, RT schedule (52.5Gy/20f, 66Gy/33f) and centre. The primary outcome measure (OM) was freedom-from-distant metastases (FFDM) with >120 pts needed for 80% power to detect an improvement from 90% to 95% at 10yr with aRT. It is too early to present results on the primary OM, but we present secondary OMs: bPFS (any of PSA ≥0.4ng/ml post-RT, PSA >2.0ng/ml at any time, local/distant progression, deferred HT, PCa death), freedom-from-protocol hormone therapy (HT), safety (RTOG scale), and patient reported OMs (ICSmaleSF). Standard survival analysis methods were used.

Results: 1396 pts were randomised (697 aRT, 699 Obs + sRT) from Oct-2007 to Dec-2016 (82% UK, 13% Denmark, 4% Canada, 1% Ireland). Median follow-up is 5yr. 93% (649/697) aRT started RT within 5mo; 33% (228/699) Obs + sRT started RT by 8yr after randomisation; 26% (166/649) aRT and 31% (71/228) Obs + sRT reported HT with their RT. With 169 events, bPFS at 5yr was 85% v 88% for aRT and Obs + sRT, respectively; HR = 1.10 (95%CI 0.81-1.49, p = 0.56). Freedom-from-protocol HT at 5yr was 92% v 94% (HR = 1.24, 95%CI 0.76-2.01, p = 0.39). Self-reported urinary incontinence was worse at 1yr in 5.3% v 2.7% (p = 0.088), and ETOC Grade ≥3 urethral stricture was reported at any time in 8% v 5% (p = 0.03), for aRT & Obs + sRT, respectively.

Conclusions: First results from RADICALS-RT do not show a benefit for aRT after RP in this patient group. Further follow-up is needed to report on long-term OMs, including FFDL. Adjuvant RT after RP increases risk of urinary morbidity. An observational policy with sRT for PSA failure should be the current standard after RP.

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