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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$\leq$0.2ng/ml and $\geq$1 risk factor (pT3/4, Gleason 7-10, positive margins or pre-op PSA$\geq$10ng/ml) were randomised $\leq$22wk after surgery to aRT or Obs+sRT for PSA failure (PSA$\geq$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 >1200 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-non-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-non-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% vs 2.7% (p = 0.008), and RTOG Grade 3/4 urethral stricture was reported at any time in 8% vs 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 FFDM. Adjuvant RT after RP increases risk of urinary morbidity. An observation policy with sRT for PSA failure should be the current standard after RP.

Clinical trial identification: ISRCTN 40814031.

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