Effects of prostate radiotherapy (RT) on synchronous, metastatic, hormone-sensitive prostate cancer (mHSPC): STOPCAP meta-analysis of individual participant data (IPD)

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Background

Based on the PEACE-1 and STAMPEDE trials, the consensus is that low volume, synchronous mHSPC is treated with prostate RT, an androgen receptor pathway inhibitor (ARPI) and androgen deprivation therapy. Docetaxel, with or without an ARPI, is generally not recommended. To more precisely assess effects of prostate RT, we sought updated IPD from all eligible randomised trials.

Methods

Methods were registered in a protocol (CRD420251038299). Main outcomes are overall survival (OS), progression free-survival (PFS: clinical or radiological progression or death) and symptomatic local events (SLE: TURP, urinary catheterisation, ureteric stent or nephrostomy). We examined prostate RT effects using 2-stage, common-effect meta-analysis. Main effects were based on OS. Interactions were based on PFS (to increase power), then OS if interactions were found. Absolute effects were derived from flexible parametric models. All analyses were adjusted for a core set of covariates.

Results

To date, IPD from PEACE-1 and STAMPEDE are included (88% of eligible men). Overall, prostate RT did not improve OS (HR=0.93, 95% CI 0.85-1.02, p=0.11), but did prolong PFS (HR=0.88, 95% CI 0.81-0.96, p=0.003).

Effects of prostate RT varied by disease volume on PFS and OS (Interaction (Int) p=0.002; p=0.009) and number of bone metastases on PFS and OS (Int p=0.009; p=0.14). Benefits were confined to men with low volume disease, irrespective of docetaxel use. Also, benefits were limited to men with

≤4 bone metastases, particularly if visceral metastases were absent. Effects of prostate RT did not vary clearly by other patient characteristics.

Relative (and absolute effects) on OS by:			
Low volume	HR=0.79, 95% CI 0.67-0.93, p=0.005 (7.7% OS difference at 5 years)	≤4 bone mets	HR=0.84, 95% CI 0.72-0.98, p=0.030 (4.9% OS difference at 5 years)
High volume	HR=1.03, 95% CI 0.92-1.16, p=0.59 (-1.9% OS difference at 5 years)	5+ bone mets	HR=0.98, 95% CI 0.86-1.10, p=0.68 (-0.3% OS difference at 5 years)
Excluding pts that received docetaxel (exploratory)		*Excluding pts with visceral mets (exploratory)*	
Low volume	HR=0.82, 95% CI 0.68-0.99, p=0.037	≤4 bone mets	HR=0.79, 95% CI 0.66-0.95, p=0.014

Conclusions

These data suggest no overall OS benefit in the synchronous mHSPC population, but a 21% relative reduction in risk of death in those with low volume, metastatic disease. We will present updated results, including IPD from HORRAD and the SLE outcome, to refine treatment recommendations for mHSPC.

Funding Acknowledgements: Prostate Cancer UK Transformational Impact Award; 2023 John Black Charitable Foundation – Prostate Cancer Foundation Young Investigator Award.

Conflict of Interests Disclosure Statement: None