Risk of Death Before and After Metastasis in High-Risk Localised and Locally Advanced Prostate Cancer Patients Undergoing Radical Prostatectomy or Radiotherapy as Primary Treatment in the United States: a Retrospective Study

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INTRODUCTION

- Despite available treatments such as radical prostatectomy (RP) or radiotherapy (RT), with/without androgen deprivation therapy (± ADT), patients with high-risk localised or locally advanced prostate cancer (HR-LPC/LAPC) are at high risk of disease progression, specifically to metastasis[1,2]
- There is a lack of data on the change in risk of death after metastasis in patients with HR-LPC/LAPC following treatment with RP or RT ± ADT

OBJECTIVES

- Analyse the characteristics of patients with HR-LPC/LAPC undergoing RP or RT ± ADT prior to metastasis
- Examine the change in pre- and post-metastasis risk of death in patients with HR-LPC/LAPC undergoing either RP or RT ± ADT as primary treatment

METHODS

- The ConcertAI Patient360™ database[3] was used for this real-world, observational, retrospective study
  - The database, which is predominantly derived from medical oncologist practices across the United States, was searched from January 2000 to October 2022 for individuals aged ≥18 years
- Patients with HR-LPC/LAPC (based on National Comprehensive Cancer Network [NCCN] criteria[4]) who underwent RP or RT ± ADT (gonadotropin-releasing hormone agonist or antagonist) were identified
- Pre-metastasis survival was defined as time from treatment to either death or censoring at the date of diagnosis of metastatic disease, or date of last activity for patients without a recorded date of death or metastatic disease
- Post-metastasis survival (PMS) was defined as the time from diagnosis of metastatic disease to either death or censoring at the date of last activity for patients without a recorded date of death
- Pre- and post-metastasis survival were analysed using Kaplan-Meier methods to determine 5-year mortality rates
- 5-year standardised mortality ratios (SMR) were calculated as the ratio of observed 5-year mortality rate in patients with HR-LPC/LAPC treated with either RP or RT ± ADT to the age-weighted mortality rate for the general male population in the United States[5]

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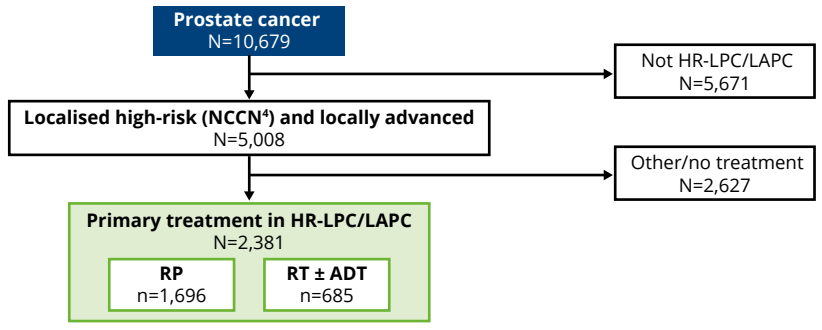
RESULTS

Patients

- The pre-metastasis cohort included 2,381 HR-LPC/LAPC patients who underwent primary treatment (Figure 1)

FIGURE 1: Patient cohorts



- At the time of primary treatment and at metastasis diagnosis, patients treated with RP were younger and showed a longer PMS than those treated with RT ± ADT (Table 1)
- During follow-up (median 7.5 years), approximately half of the patients in both treatment groups developed metastasis
- Important prognostic factors were not disclosed in a large proportion of the patients (data not shown)

TABLE 1: Patient characteristics and PMS

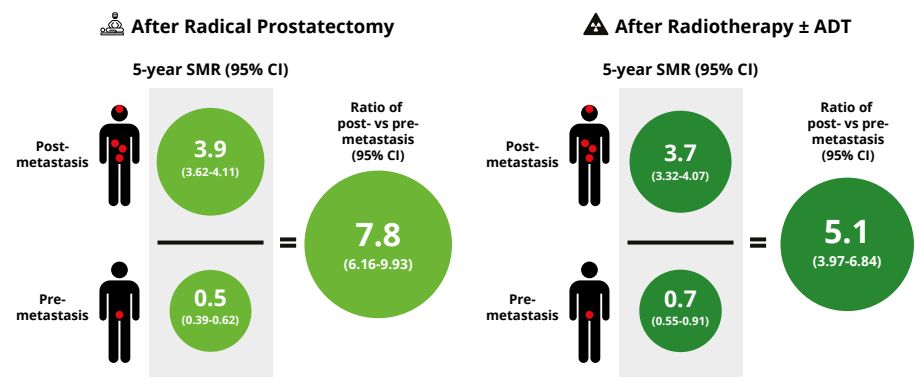
	RP	RT ± ADT
N	1,696	685
Median follow-up, yrs	8.4 (4.6-13.4)	6.1 (3.1-10.1)
Median age		
At primary treatment, yrs	63.0 (57.0-68.0)	68.0 (62.0-73.0)
At metastasis, yrs	69.0 (64.0-75.0)	73.0 (67.0-78.0)
Metastasis		
Metastasis, n (%)	885 (52.2)	346 (50.5)

Parenthetical values are interquartile range unless otherwise noted.

Risk of death

- The pre- and post-metastasis mortality rates at 5 years post treatment were lower for patients treated with RP than for those treated with RT ± ADT (Figure 2 and Table 2)
- In both treatment groups, the 5-year pre-metastasis SMR was significantly lower than 1 (ie, lower than the age-weighted observed mortality for the general male population in the United States)

FIGURE 2: The relative risk of death after metastasis increased by 8-fold in patients treated with RP and by 5-fold in patients treated with RT ± ADT



CI, confidence interval.

TABLE 2: 5-year mortality rates and age-weighted US mortality rates

Mortality rate (95% CI)	RP	RT ± ADT
Pre-metastasis		
5-year patient cohort mortality	0.04 (0.03-0.05)	0.08 (0.06-0.11)
5-year age-weighted US mortality	0.08 (0.08-0.08)	0.11 (0.11-0.12)
Post-metastasis		
5-year patient cohort mortality	0.53 (0.50-0.57)	0.61 (0.55-0.67)
5-year age-weighted US mortality	0.14 (0.14-0.14)	0.17 (0.16-0.17)

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KEY TAKEAWAY

The risk of death in patients with HR-LPC/LAPC significantly increased after metastasis, suggesting that therapies that delay disease progression in this setting may improve overall survival

CONCLUSIONS

Pre- and post-metastasis mortality was lower in the RP group; however, we cannot rule out the possibility that this finding is not due to differences in patient populations (eg, age and missing data on comorbidities)

5-year mortality after metastasis for both RP and RT ± ADT groups was lower than that of the general US male population, as shown in previous studies[5] and likely explained by factors such as the lower comorbidity, higher socioeconomic status, and better access to healthcare of treated patients with prostate cancer

Since study data come predominantly from oncology practices, likely explaining the bias of very high metastasis rates, future research can consider alternative data sources (ie, data from urology practices) to further investigate this topic

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DISCLOSURES

The authors report relationships/financial interest in/relative to as follows: **SF**: Astellas Pharma, AstraZeneca, Janssen Biotech, Bayer, Pfizer, Sanofi, Myovant Sciences, Merck, and Exact Sciences; **CM**: Great Debates & Updates in Genitourinary Oncology HMP Global Learning Network and European Association of Urology; **LF**, **FS**, **NB**, **DL**, **LY**, and **FP** are employees of Janssen and may hold stock in Johnson & Johnson.

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