Evaluating Outcome and Prognostic Factors in Low-Volume Stage IV Hormone-Sensitive Prostate Cancer (mHSPC): Cross-Sectional Study of Real-World Data

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Background:

Stage IV prostate cancer, according to the 8th AJCC-TNM classification, includes metastases to pelvic (N1) or abdominal lymph nodes (M1a) and bone (M1b). There is limited data on the effectiveness of adding docetaxel and/or ARTA to ADT in mHSPC patients classified as stage IV due to N1 status. Additionally, the benefits of these treatments in M1 low-volume disease, particularly in nodal-only (M1a) or bone (M1b) involvement, remain unclear.

Methods:

We conducted a retrospective cross-sectional study of 126 patients diagnosed with stage IV mHSPC low-volume disease, based on CHAARTED criteria. Patient characteristics, treatment outcomes, and prognostic factors were analyzed.

Results:

Table 1: Baseline clinical characteristics of the patients stratified by metastatic site

	N1 (no. 7)		M1a (no. 28)		M1b (no. 91)		p-value
	N	(%)	N	(%)	N	(%)	
Age, median (range, 25-75%)	71.56 (70.88-72.77)		69.5 (64.62-75.37)		69.70 (64.85 – 74.16)		0.52
No biopsy	0	0	3	11	2	2	0.09
Gleason (range 25-75%)	8 (7-9)		8 (7-9)		8 (7-9)		0.10
De novo M1	NA	NA	21	75	67	74	0.99
Radical surgery	1	14	2	7	9	10	0.89
Radical radiotherapy	2	29	4	14	17	19	0.67
PSA, median (range, 25-75%)	28 (6.9-34.7)		24.7 (7.3 – 56.7)		118.8 (7.7-56.8)		0.49
ADT only	5	71	9	32	8	9	<0.001*
ADT-Docetaxel	1	14	14	50	54	59	0.06
ADT-ARTA	1	14	4	14	28	31	0.17
ADT-Docetaxel-ARTA	0	0	1	3	1	1	0.48
Consolidation radiotherapy	4	57	11	39	22	24	0.14

*=significant P value of <0.05

Abbreviations. ADT: androgen deprivation therapy, ARTA: Androgen receptor targeted agent, M1a: abdominal lymph node metastasis, M1b: other sites of metastasis, mHSPC: metastatic hormone-sensitive prostate cancer, no.: number, N1: pelvic lymph node metastasis, PSA: prostate specific antigen.

Table 3: Univariate and multivariate analysis for PFS by baseline clinical characteristics of stage IV low-volume mHSPC patients

	PFS							
	Univariate				Multivariate			
Covariate	HR	95% CI-L	95% CI-H	p-value	HR	95% CI-L	95% CI-H	p-value
Age >70	1.26	0.56	2..82	0.572				
Gleason ≥ 8	0.36	0.12	1.06	0.063				
PSA ≥ 25	2.65	1.13	6.22	0.025*	2.80	1.19	6.56	0.0179*
De novo M	0.48	0.21	1.09	0.08				
N1	0.52	0.07	3.96	0.529				
M1a	0.47	0.14	1.59	0.227				
M1b	2.23	0.76	6.54	0.145				
cRT	0.12	0.02	0.87	0.036*	0.11	0.02	0.80	0.029*

*=significant P value of <0.05

ADT: androgen deprivation therapy, ARTA: Androgen receptor targeted agent, CI: confidence interval, cRT: consolidation prostate radiotherapy, H: high, HR: hazard ratio, L: low, M1a: abdominal lymph node metastasis, M1b: other sites of metastasis, M: metastases, mHSPC: metastatic hormone-sensitive prostate cancer, N1: pelvic lymph node metastasis, PFS: progression-free survival, PSA: Prostate specific antigen.

Conclusion:

- Our preliminary analysis highlights baseline PSA as an independent prognostic factor in stage IV low-volume metastatic prostate cancer.
- The lack of consensus on optimal treatment for each subcategory underscores the need for additional real-world studies and clinical trials.
- Further follow-up will evaluate the prognostic impact of consolidative radiotherapy (cRT).

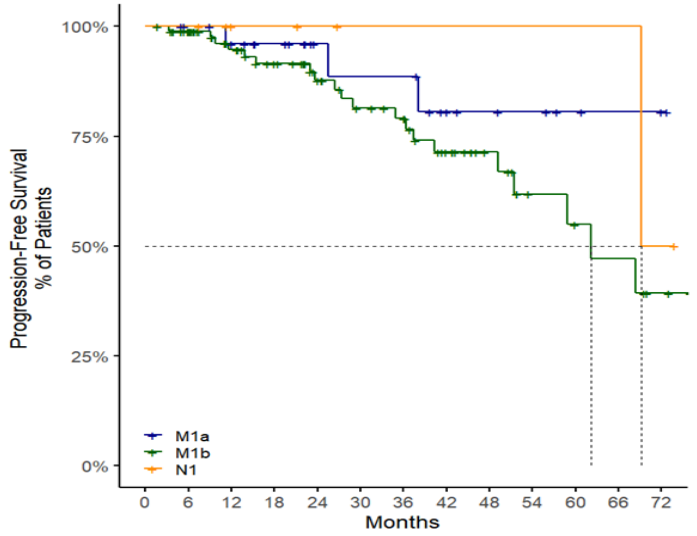

Figure 1: Progression-Free Survival stage IV low-volume mHSPC patients stratified by the metastatic site

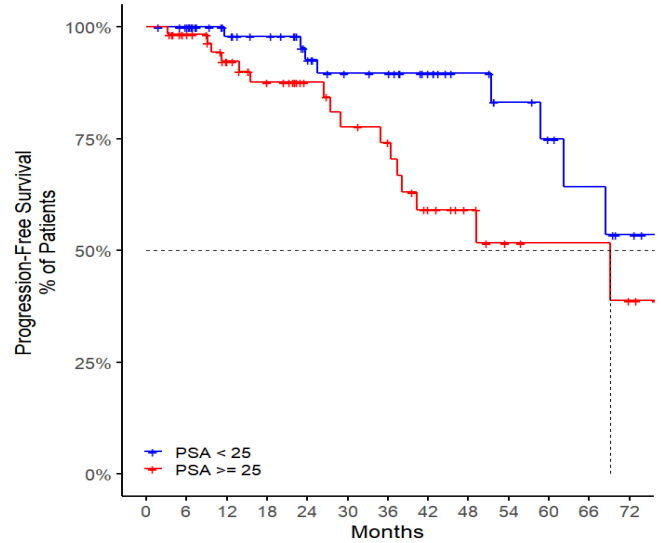

Figure 2: Progression-Free Survival stage IV low-volume mHSPC patients stratified by the baseline PSA

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