

Therapeutic Options for Patients with Metastatic Hormone-Sensitive Prostate Cancer (mHSPC)

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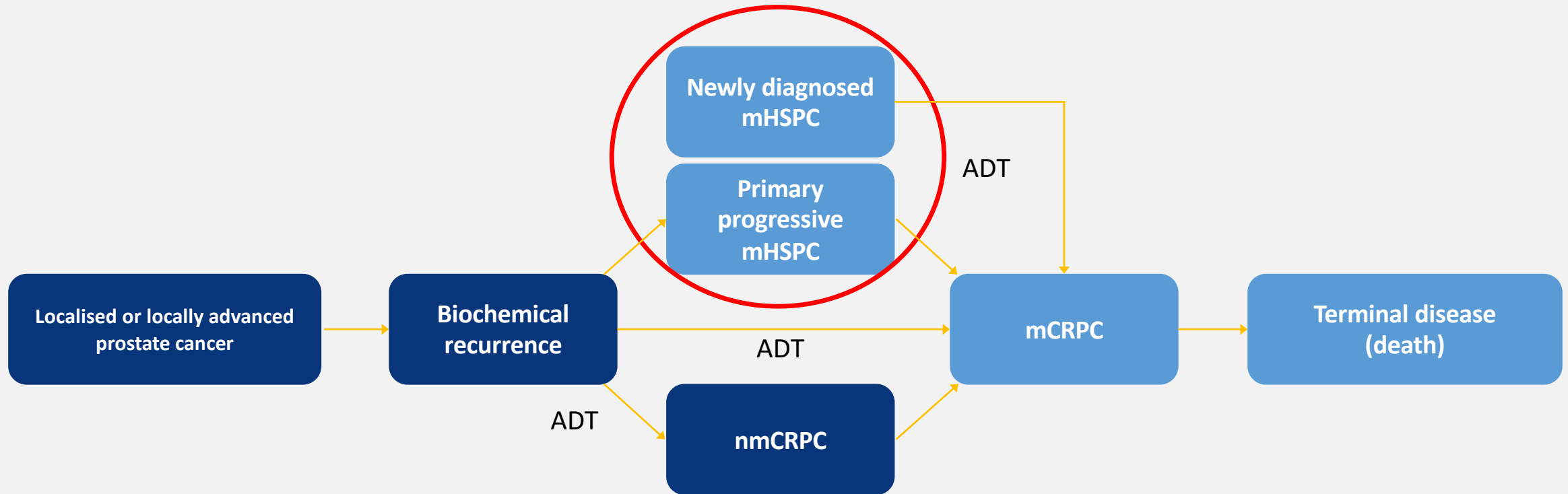
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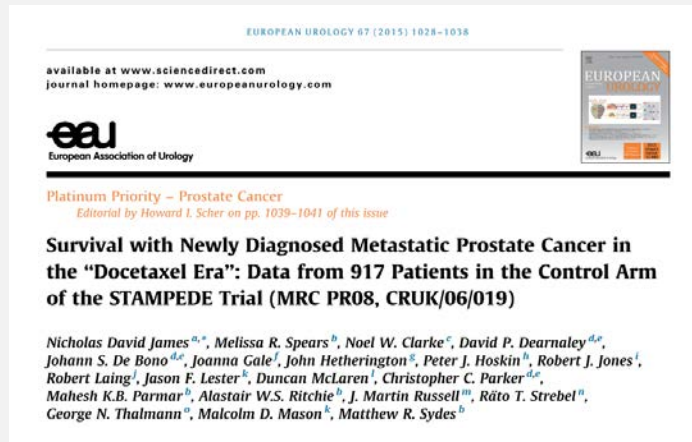
The prostate cancer landscape



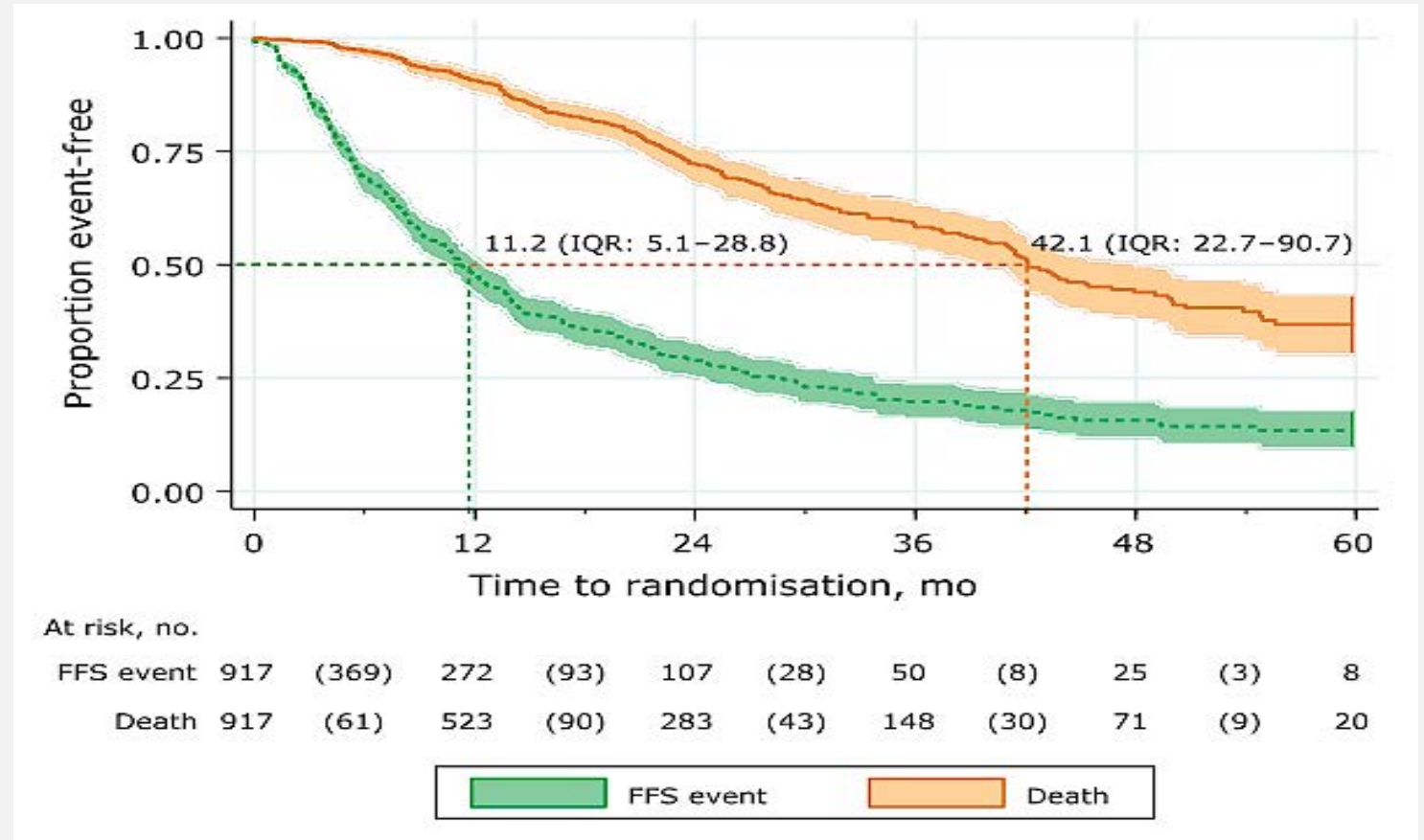
Almost all will progress to mCRPC and die of prostate cancer

STAMPEDE control arm (ADT)

FFS and OS



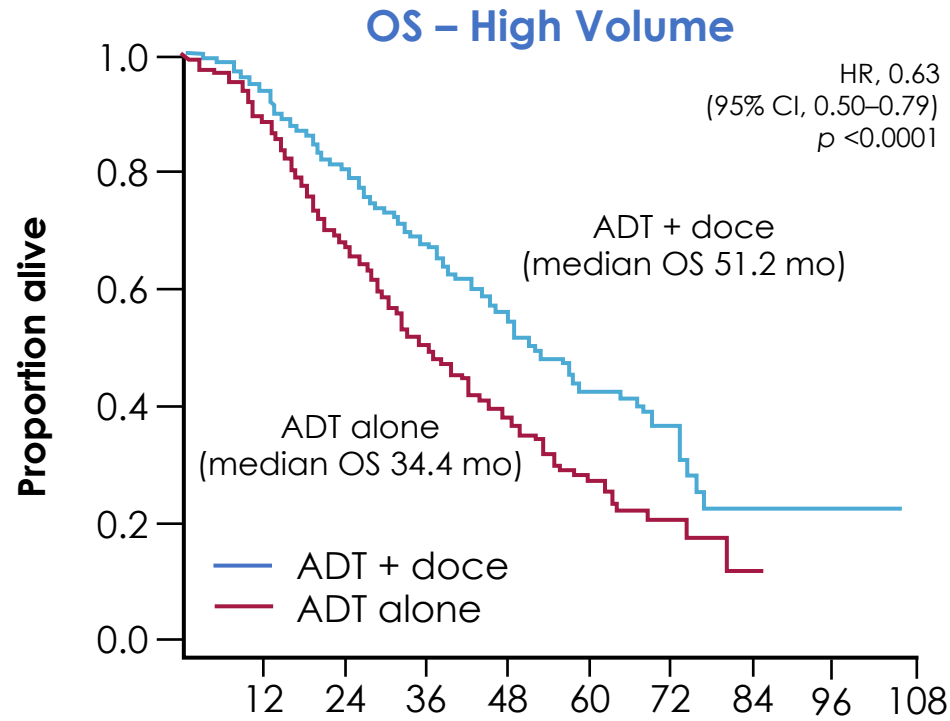
- 917 men with newly diagnosed metastatic PCa treated with ADT only (control arm)



FFS, failure-free survival; OS: overall survival ; ADT: androgen deprivation therapy; IQR, interquartile range.

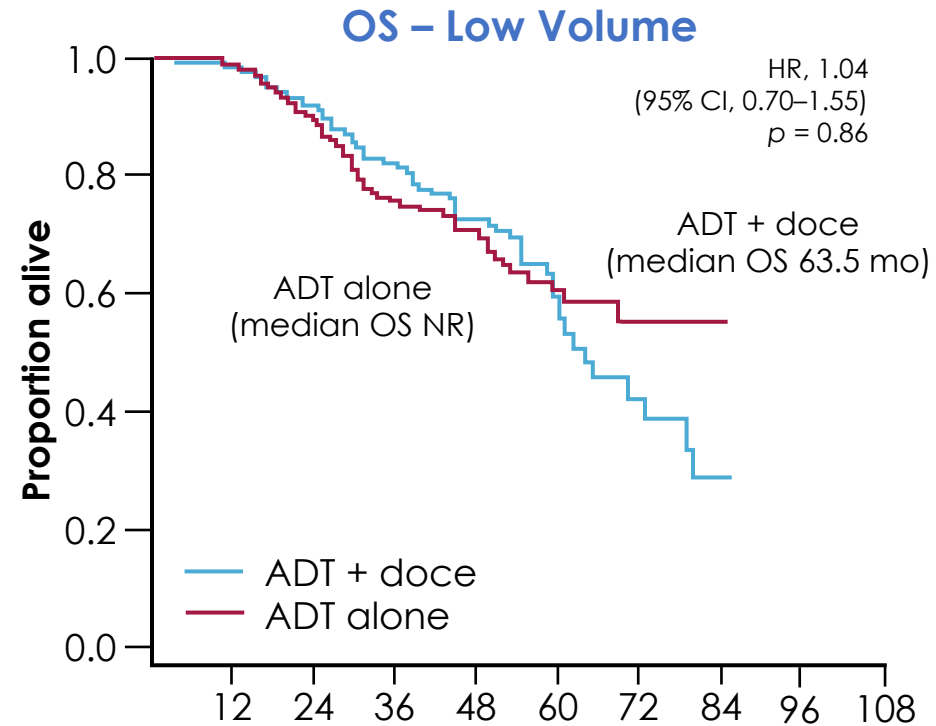
Can we do better?

CHAARTED: Docetaxel in High vs Low volume HSPC



	OS months									
No. at risk	12	24	36	48	60	72	84	96	108	
ADT + doce	263	239	202	151	91	41	16	5	2	0
ADT alone	250	215	156	104	59	19	9	1	0	0

16.8 months

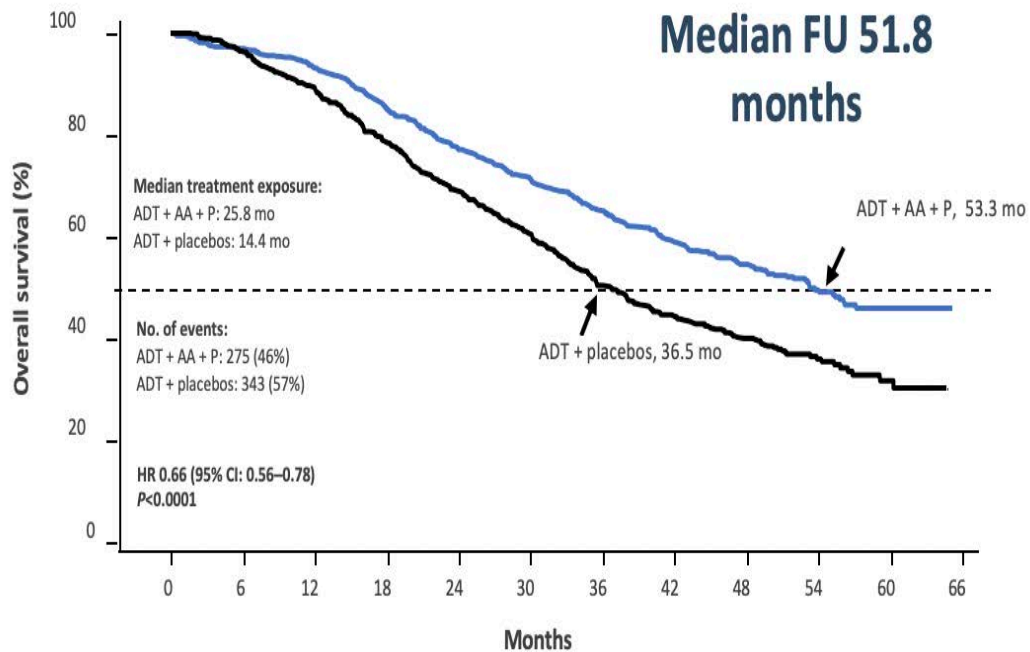


	OS months									
No. at risk	12	24	36	48	60	72	84	96	108	
ADT + doce	134	127	112	94	64	26	12	2	0	0
ADT alone	143	137	122	94	67	26	12	1	0	0

0 months

LATITUDE: Abiraterone in high risk mHSPC

Survival

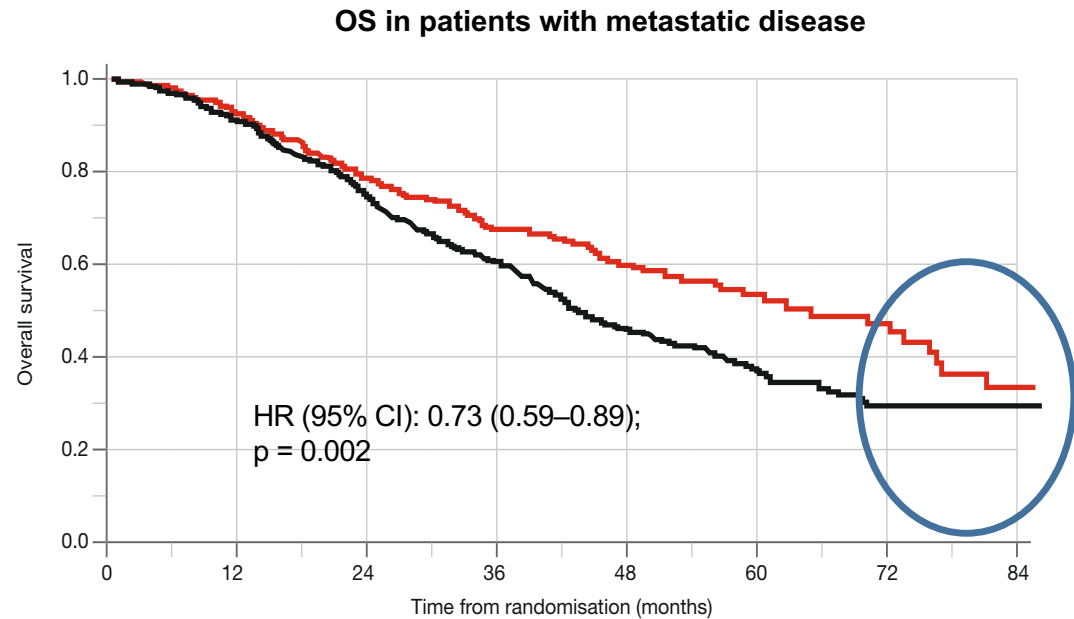


Overall results

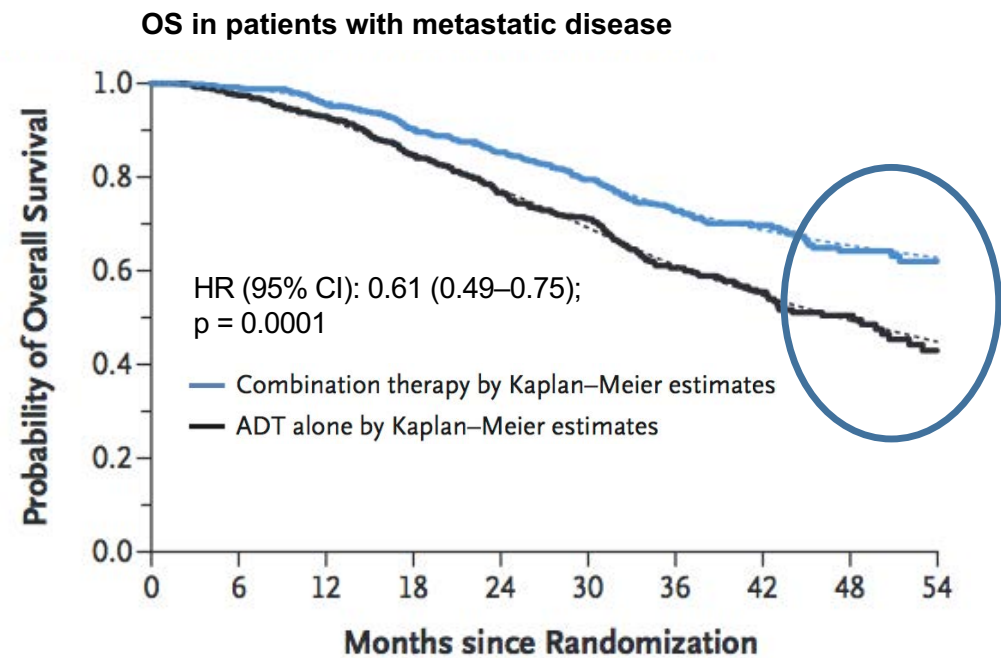
	Abiraterone acetate and prednisone plus ADT (n=597)		Placebos plus ADT (n=602)		Hazard ratio (95% CI)	p value
	Events	Median, months	Events	Median, months		
Primary endpoint						
Overall survival	275 (46%)	53.3 (48.2-NR)	343 (57%)	36.5 (33.5-40.0)	0.66 (0.56-0.78)	<0.0001
Secondary endpoints						
Pain progression	245 (41%)	47.4 (33.2-NR)	292 (49%)	16.6 (11.1-24.0)	0.72 (0.61-0.86)	0.00024
Skeletal-related event*	132 (22%)	NR (NR-NR)	150 (25%)	NR (NR-NR)	0.75 (0.60-0.95)	0.0181
Chemotherapy initiation†	150 (25%)	NR (62.6-NR)	218 (36%)	57.6 (38.2-NR)	0.51 (0.41-0.63)	<0.0001
Subsequent prostate cancer therapy	248 (42%)	54.9 (45.4-NR)	355 (59%)	21.2 (18.6-23.5)	0.45 (0.38-0.53)	<0.0001
Prostate-specific antigen progression	273 (46%)	33.3 (29.4-46.1)	448 (74%)	7.4 (7.2-9.2)	0.31 (0.27-0.36)	<0.0001
Exploratory endpoint						
Secondary progression-free survival‡	267 (45%)	53.3 (44.7-58.1)	336 (56%)	30.1 (26.2-33.4)	0.58 (0.49-0.68)	<0.0001

STAMPEDE: Same results with Docetaxel and Abiraterone

ADT + Docetaxel M1¹
27% risk reduction



SOC + Abiraterone M1²
39% risk reduction

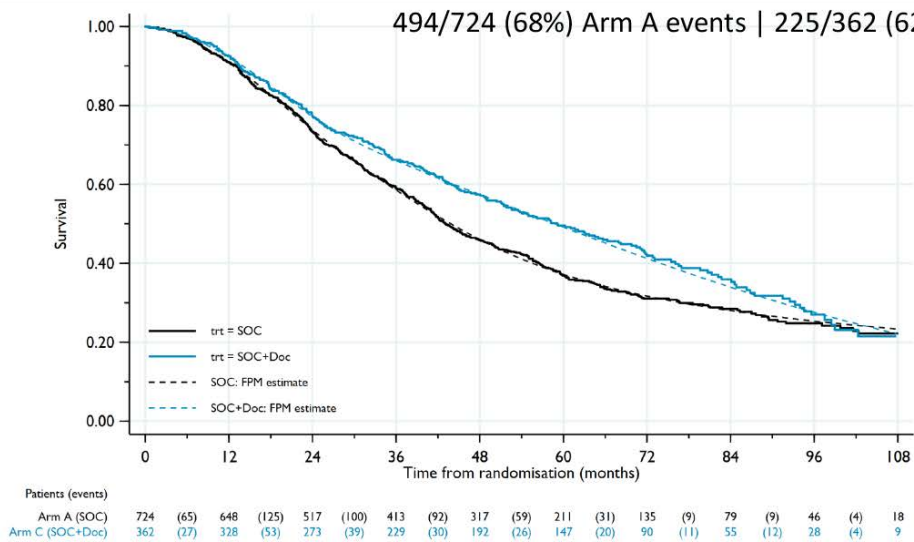


1. James ND, et al. Eur Urol. 2015;67:1028-38.

2. James ND, et al. N Engl J Med. 2017;377:338-51.

STAMPEDE: Doce + SOC vs SOC — Overall Survival

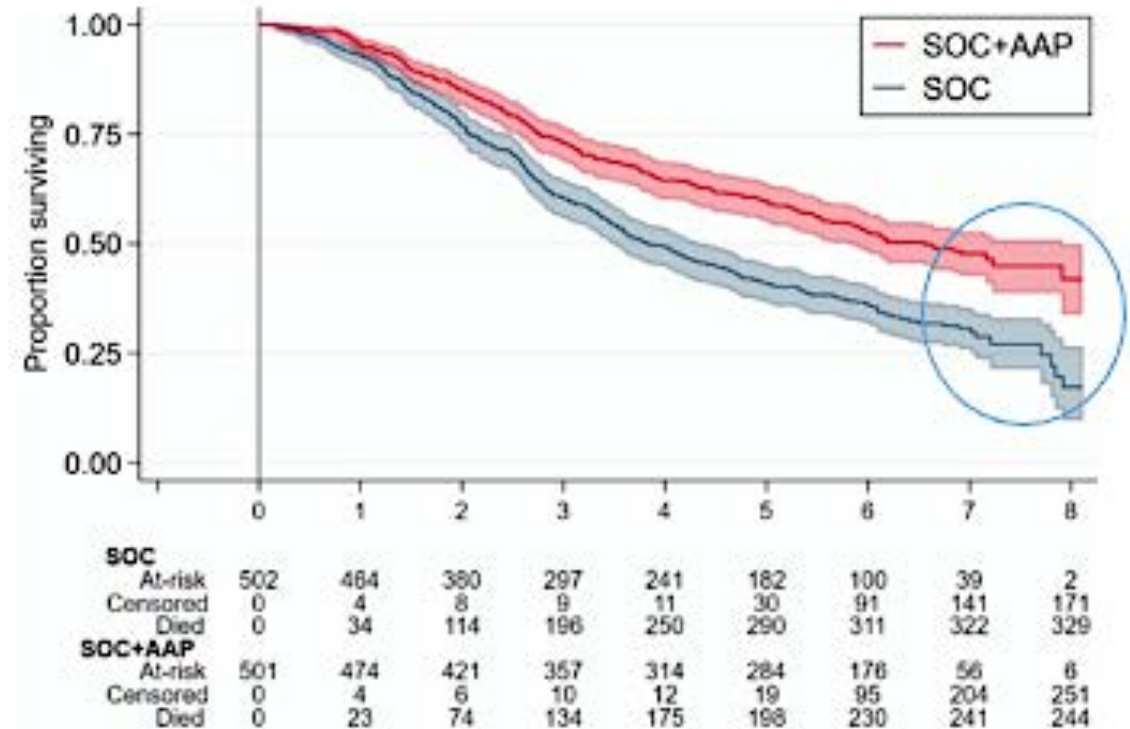
Overall Survival: All Patients¹



HR 0.81
95% CI 0.69 – 0.95
P = 0.009
Non-PH 0.016

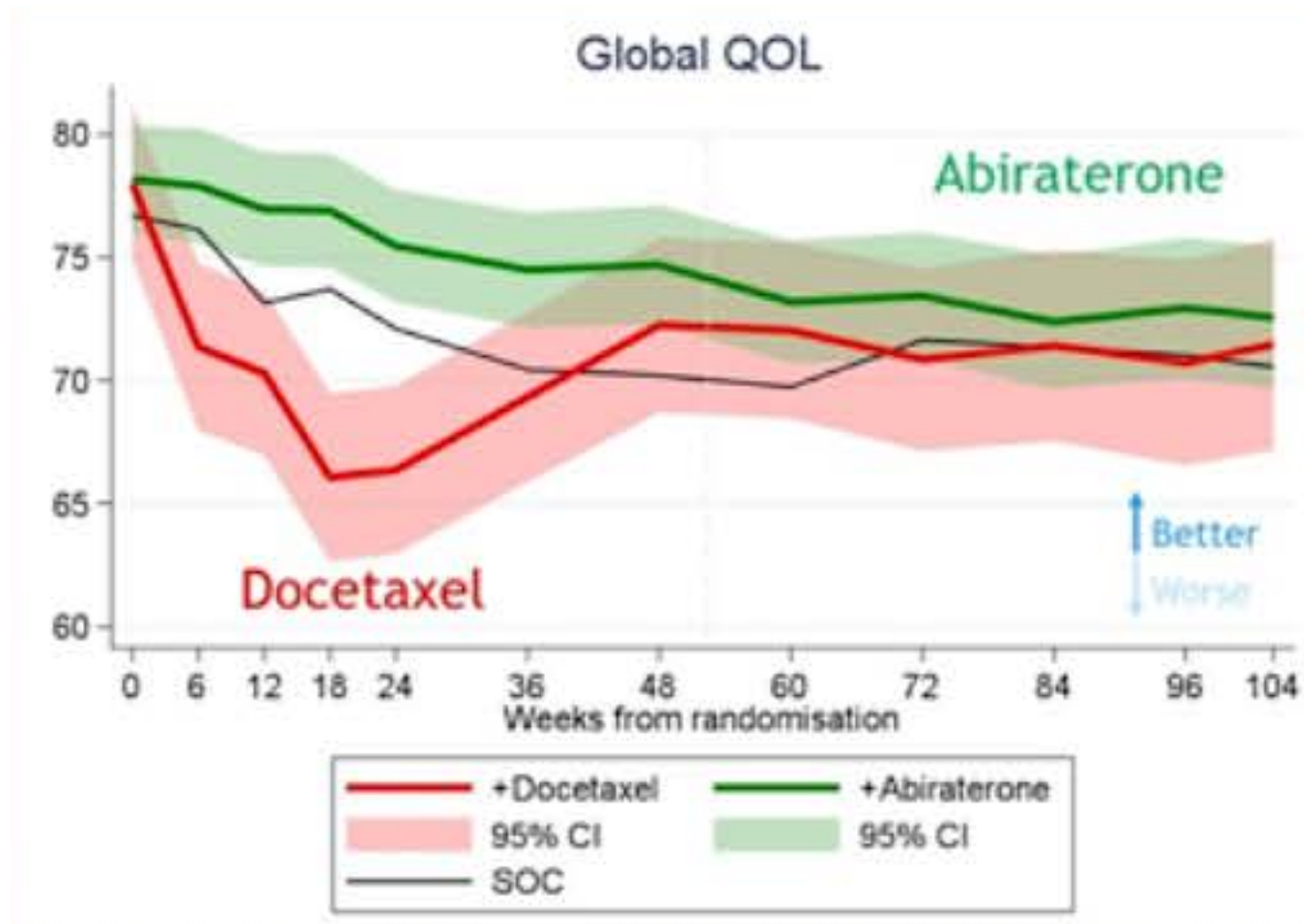
5-yr survival:
A 37%
C 49%

RMST difference at 120 months:
6.0 months
95% CI (0.7-11.4)
P = 0.028



¹Clarke NW et al. ESMO 2019;Abstract 2348.

Comparative QOL randomized contemporaneously to docetaxel or abiraterone in the STAMPEDE trial



TITAN: Apalutamide in all-comers mHSPC

“All-comer” patient population

Key Eligibility Criteria

Castration sensitive
Distant metastatic disease by ≥ 1 lesion on BS
ECOG PS 0 or 1

On-Study Requirement

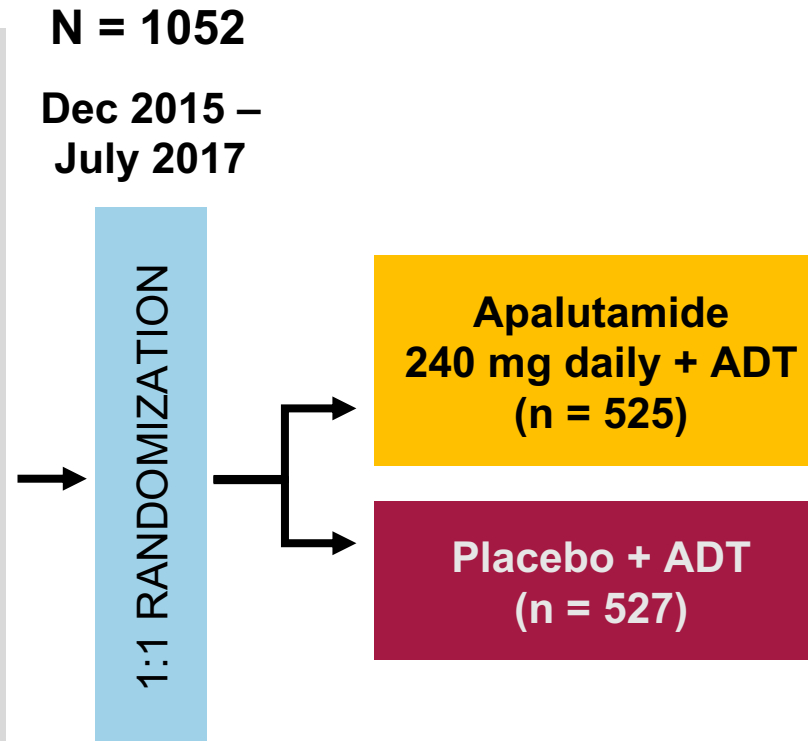
Continuous ADT

Permitted

Prior docetaxel
ADT ≤ 6 mo for mHSPC or ≤ 3 yr for local disease
Local treatment completed ≥ 1 yr prior

Stratifications

Gleason score at diagnosis (≤ 7 vs. ≥ 8)
Region (NA and EU vs. all other countries)
Prior docetaxel (yes vs. no)



Dual primary endpoints

- OS
- rPFS

Secondary endpoints

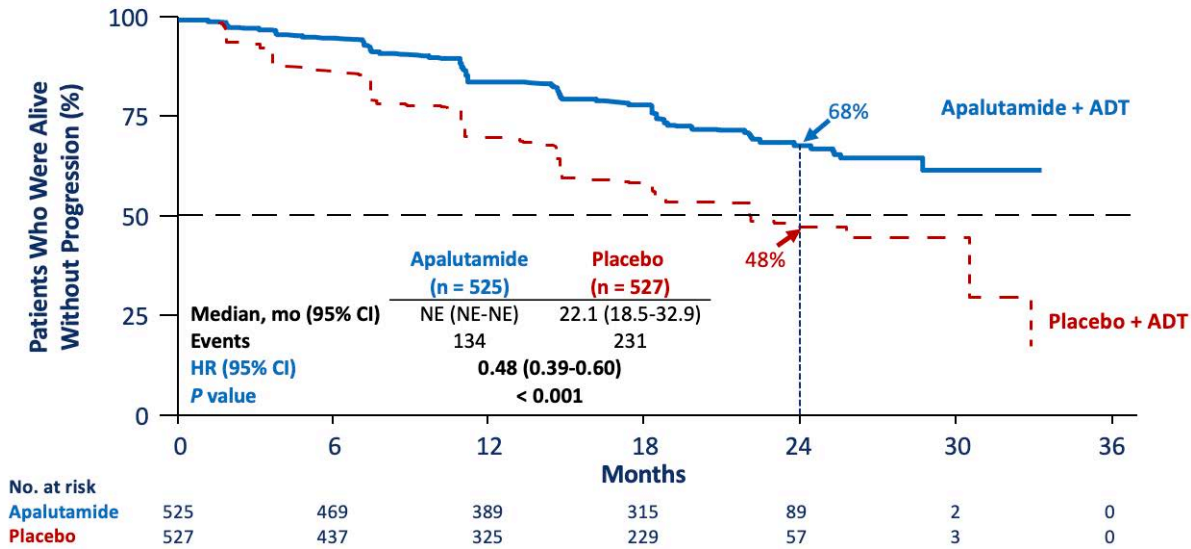
- Time to cytotoxic chemotherapy
- Time to pain progression
- Time to chronic opioid use
- Time to skeletal-related event

Exploratory endpoints

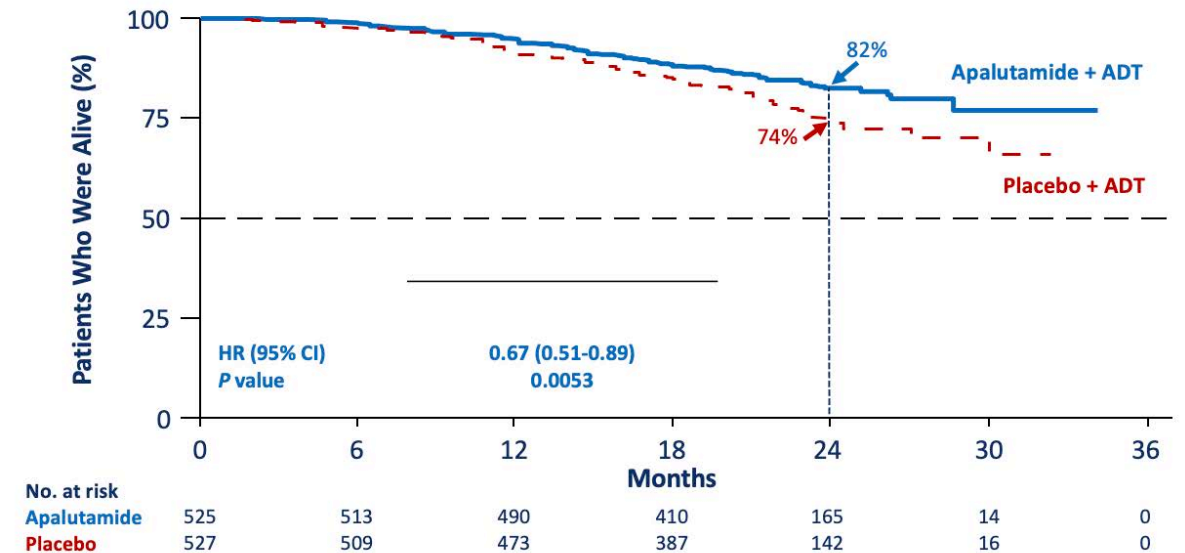
- Time to PSA progression
- PFS2
- Time to symptomatic progression

TITAN: Apalutamide in all-comer mHSPC

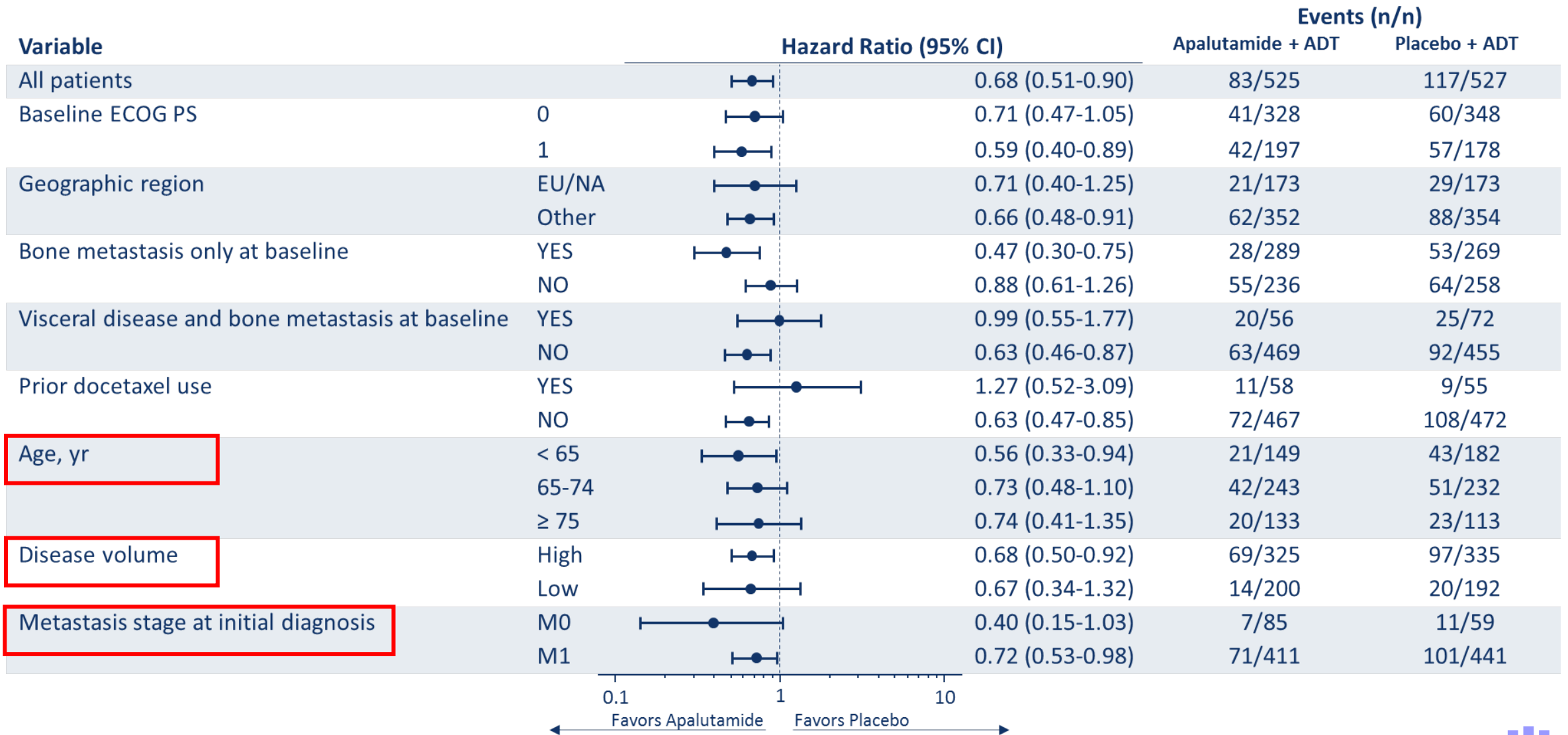
Progression free survival



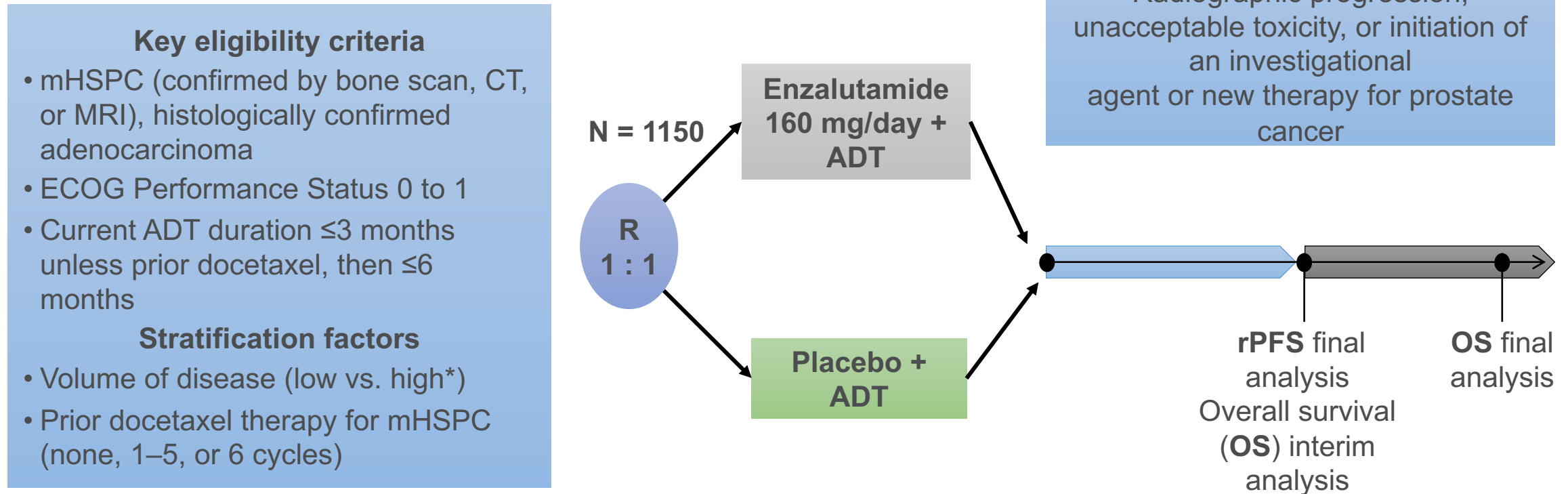
Overall survival



TITAN: Sub-group analysis of overall survival

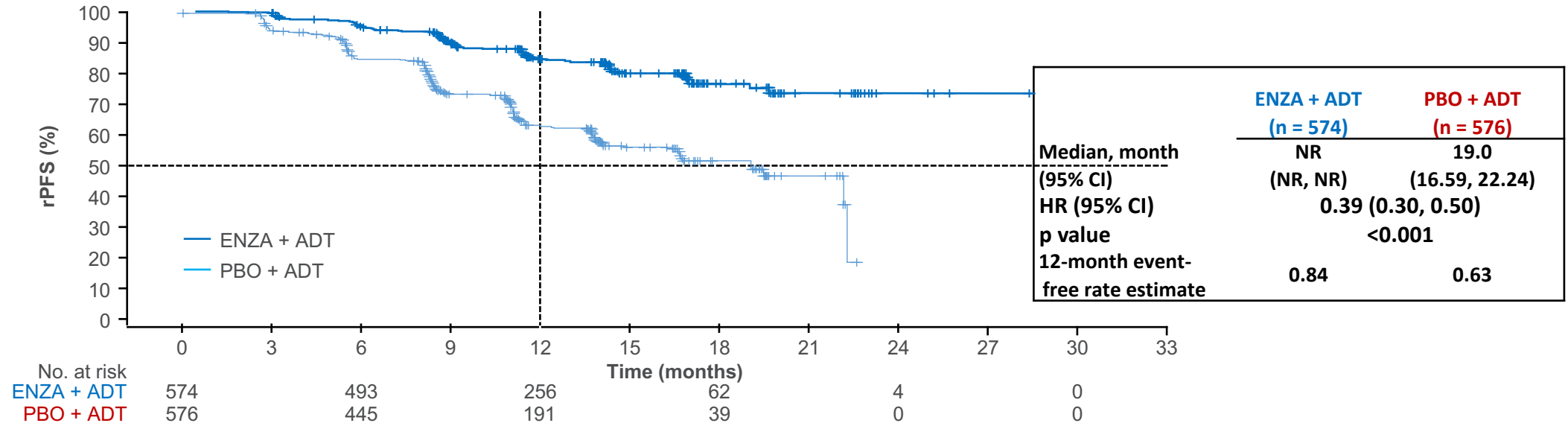


ARCHES Study Design



Armstrong, Andrew J., et al. "ARCHES: a randomized, phase III study of androgen deprivation therapy with enzalutamide or placebo in men with metastatic hormone-sensitive prostate cancer." *Journal of Clinical Oncology* 37.32 (2019): 2974-2986.

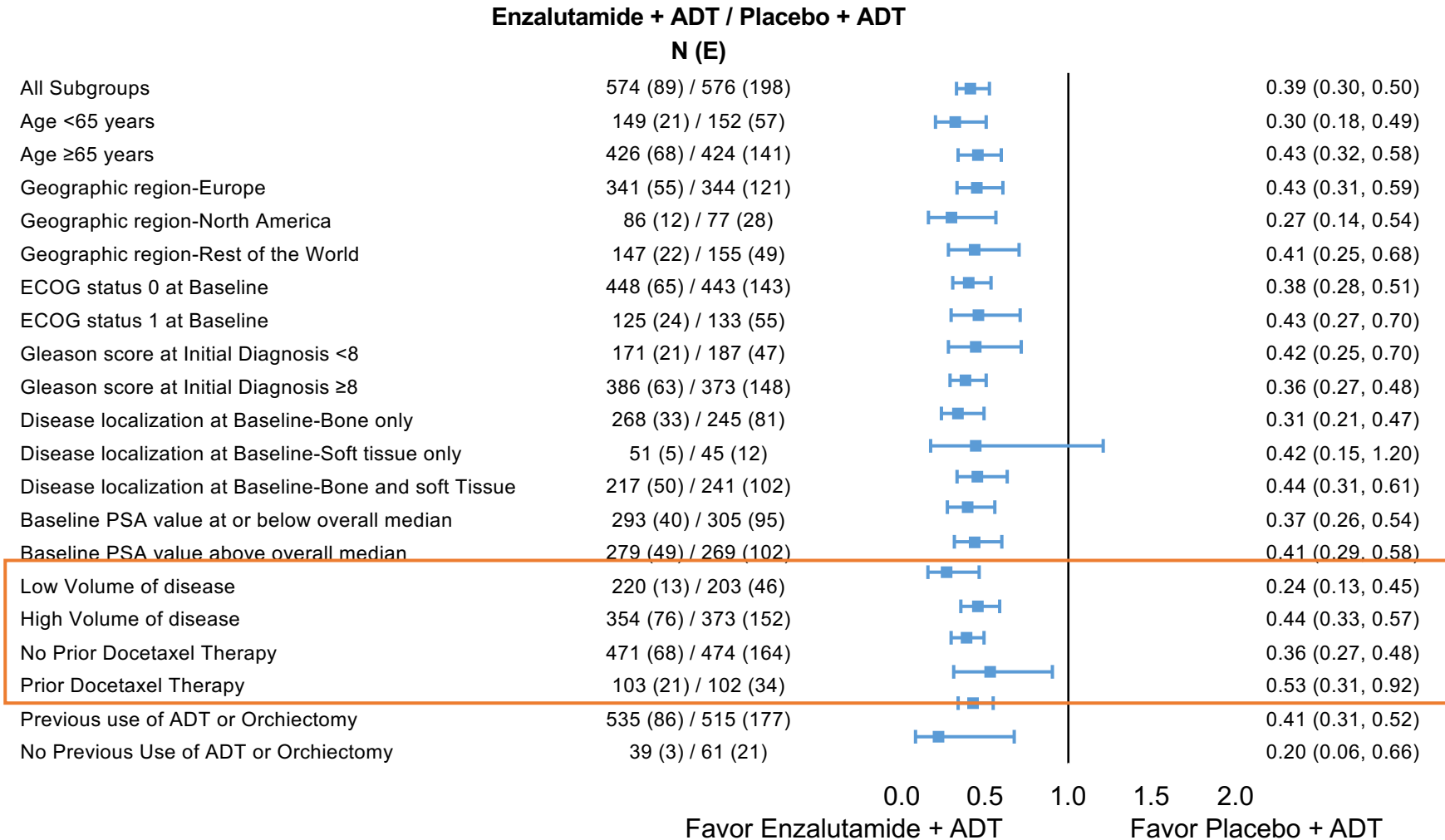
ARCHES: Primary endpoint — rPFS



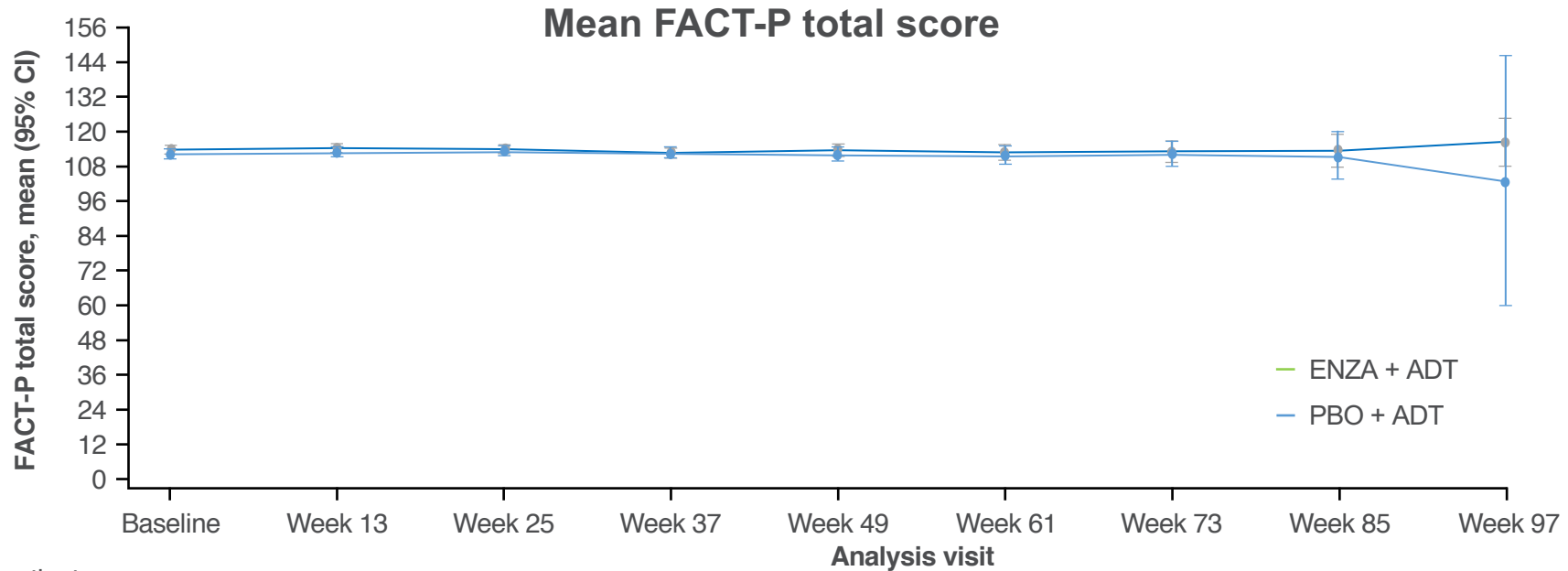
Enzalutamide with ADT significantly reduced the risk of metastatic progression or death over time versus placebo plus ADT in men with mHSPC

- Median follow-up time is 14.4 months; median duration of therapy was 12.8 (range 0.2–26.6) months for enzalutamide + ADT and 11.6 (range 0.2–24.6) months for placebo + ADT

ARCHES: Subgroup analysis of rPFS



ARCHES: Quality of life over time

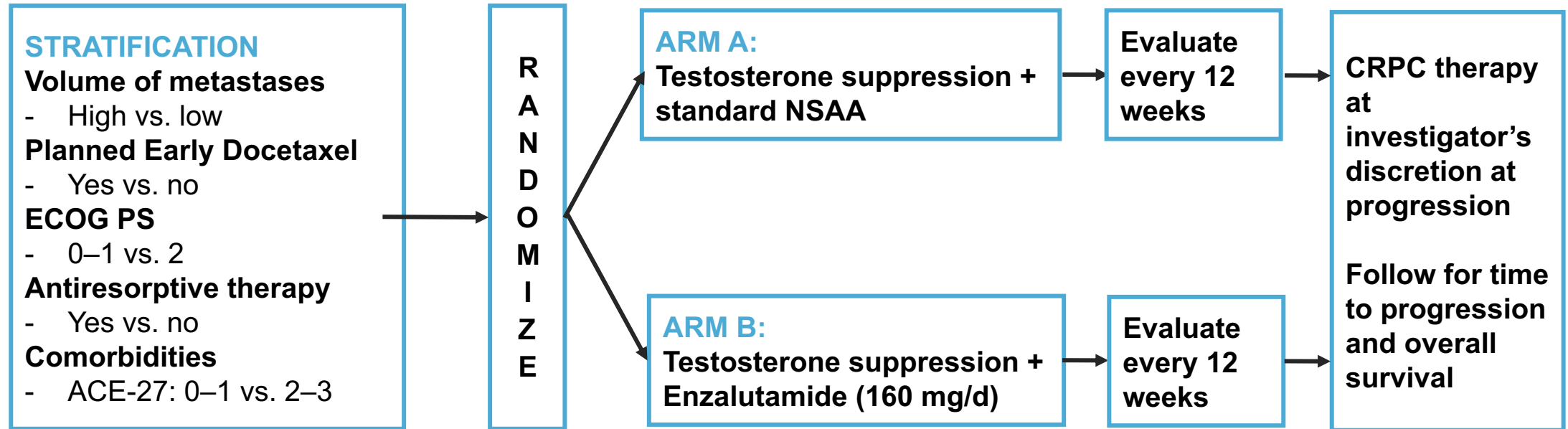


No. of patients	Baseline	Week 13	Week 25	Week 37	Week 49	Week 61	Week 73	Week 85	Week 97
PBO + ADT	553	529	487	429	298	191	101	36	6
ENZA + ADT	550	533	499	474	349	236	128	51	18

Mean Functional Assessment of Cancer Therapy-Prostate (FACT-P) total score (global indicator of quality of life), was high at baseline for both treatment groups, and remained high over time.

ENZAMET: Enzalutamide in mHSPC

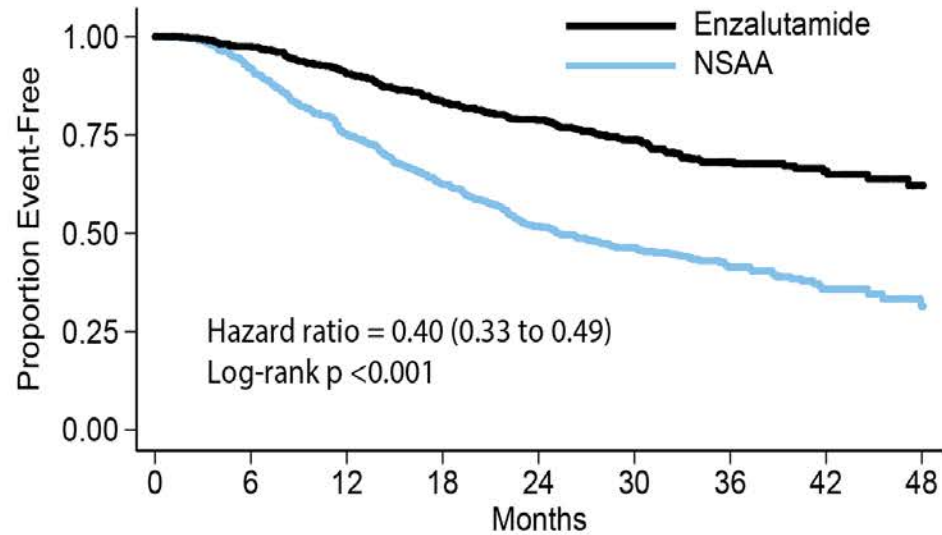
“All-comer” patient population



- Prior to randomization, testosterone suppression up to 12 weeks and 2 cycles of docetaxel were allowed
- Intermittent ADT and cyproterone were not allowed
- High volume: visceral metastases and/or 4 or more bone metastases (at least one beyond pelvis and vertebral column)

ENZAMET: Enzalutamide in all-comers

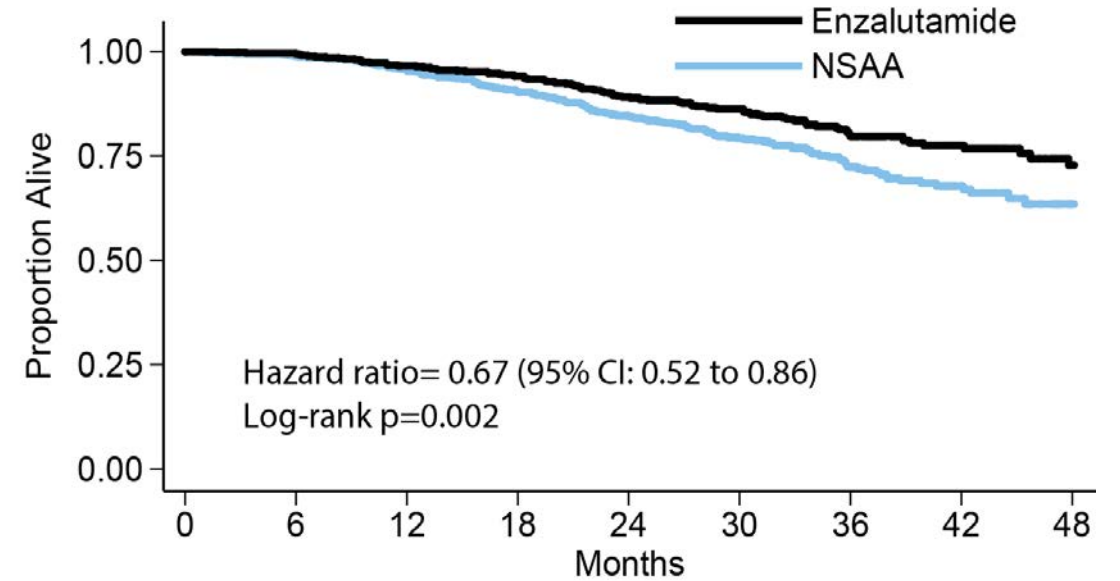
Progression free survival



Number at risk

NSAA	562	512	418	346	272	182	96	50	17
Enzalutamide	563	547	507	468	424	284	156	84	36

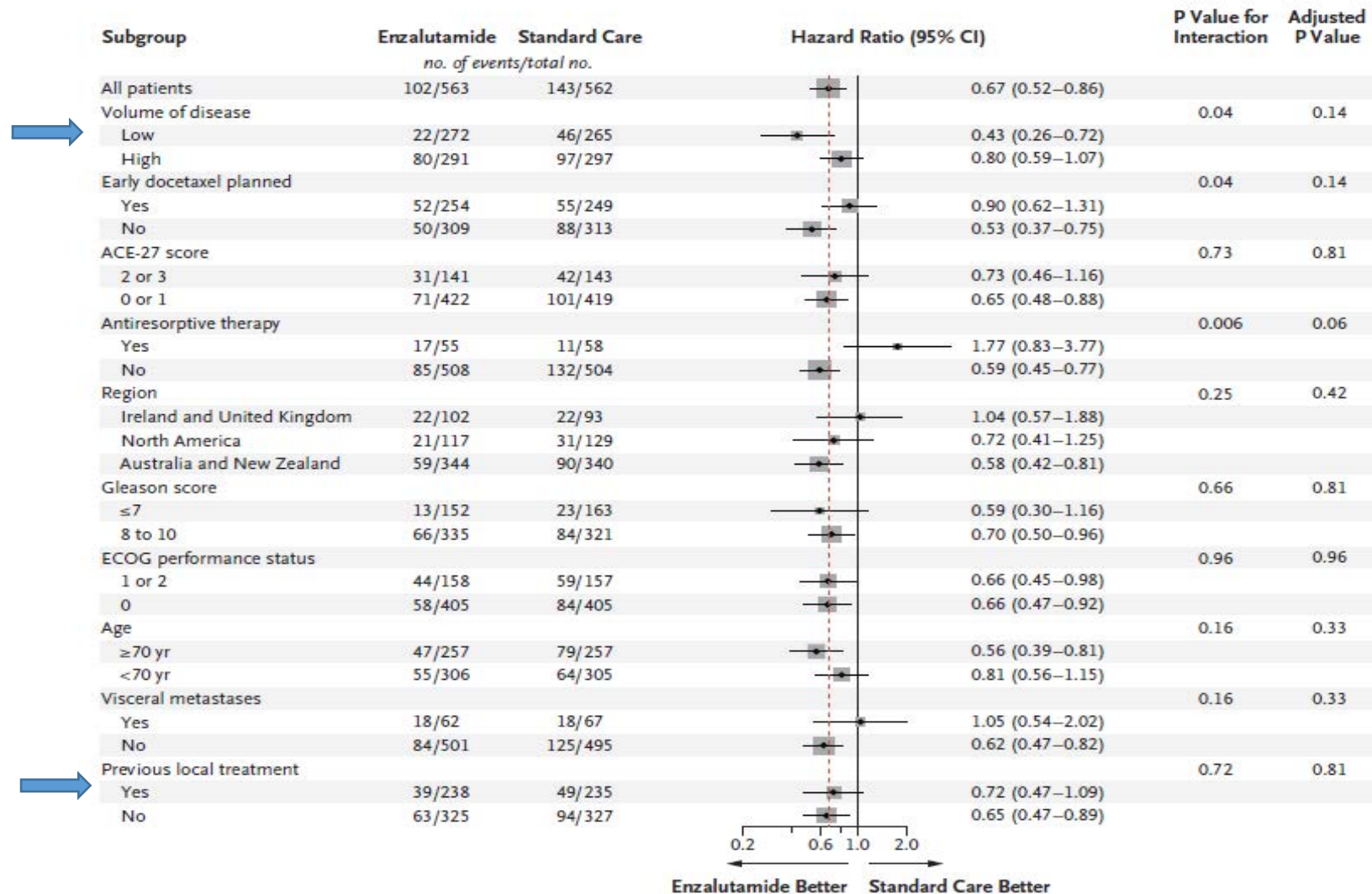
Overall survival



Number at risk

NSAA	562	551	531	501	452	311	174	86	32
Enzalutamide	563	558	541	527	480	340	189	106	45

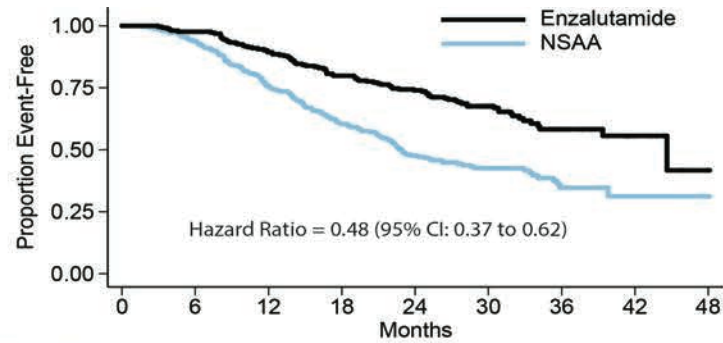
ENZAMET: Sub-group analysis of overall survival



Davis, Ian D., et al. "Enzalutamide with standard first-line therapy in metastatic prostate cancer." *New England Journal of Medicine* 381.2 (2019): 121-131.

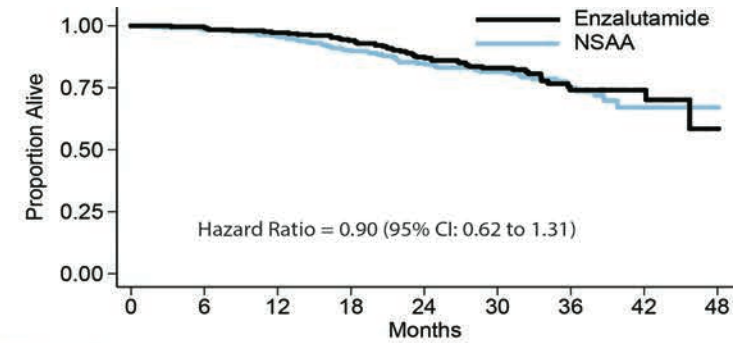
ENZAMET: Concurrent Docetaxel

Testosterone Suppression
+
Docetaxel
N=503
(71% High Volume)



Number at risk

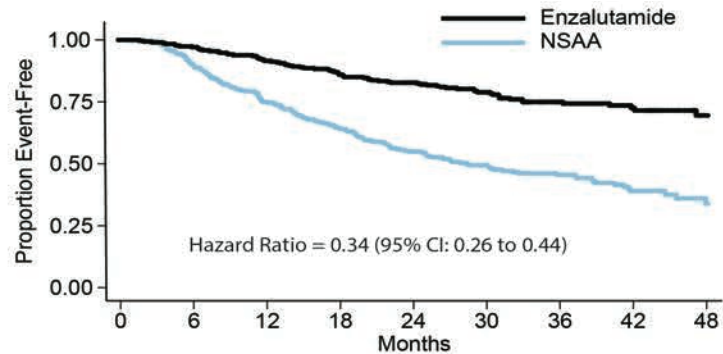
NSAA	249	230	185	148	112	73	21	6	1
Enzalutamide	254	248	226	202	178	109	35	12	2



Number at risk

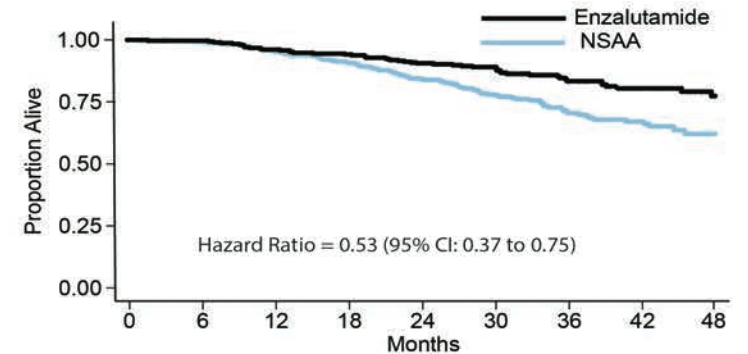
NSAA	249	241	235	220	203	135	56	13	2
Enzalutamide	254	252	246	238	210	139	54	19	3

Testosterone Suppression
+
No Docetaxel
N=622
(37% High Volume)



Number at risk

NSAA	313	282	233	198	160	109	75	44	16
Enzalutamide	309	299	281	266	246	175	121	72	34



Number at risk

NSAA	313	310	296	281	249	176	118	73	30
Enzalutamide	309	306	295	289	270	201	135	87	42

Adverse events reported with the 4 agents

CHAARTED

Docetaxel (n = 390)

Any grade 3–5 AE	29.6%
Completion of 6 cycles	86%
Allergic reaction	2.1%
Fatigue	4.1%
Neutropenia	12.1%
Febrile neutropenia	6.1%
Infection with neutropenia	2.3%
Anemia	1.3%
Neuropathy	0.5%

LATITUDE

Abiraterone (N = 597)

Placebo (N = 602)

Any grade 3–5 AE	63%	48%
Any AE leading to discontinuation	12%	10%
Hypertension	20%	~10%
Hypokalemia	11%	~1%
Fatigue	2%	2%
Cardiac disorder (any)	~4%	~1%
Hyperglycemia	~4%	3%
Endocrine disorders	NR	NR
ALT increased	~5%	1%
AST increased	~4%	1%

ARCHES

Enzalutamide (N = 572)

Placebo (N = 574)

Any grade 3–5 AE	24.3%	25.6%
Any AE leading to discontinuation	7.2%	5.2%
Hypertension	3.3%	1.7%
Neutropenia	0.3%	0.3%
Hot flashes	0.3%	0%
Fatigue	0.9%	1%
Convulsion/seizure	0.3%	0.3%
Cognitive/memory impairment or delirium	0.7%	0%

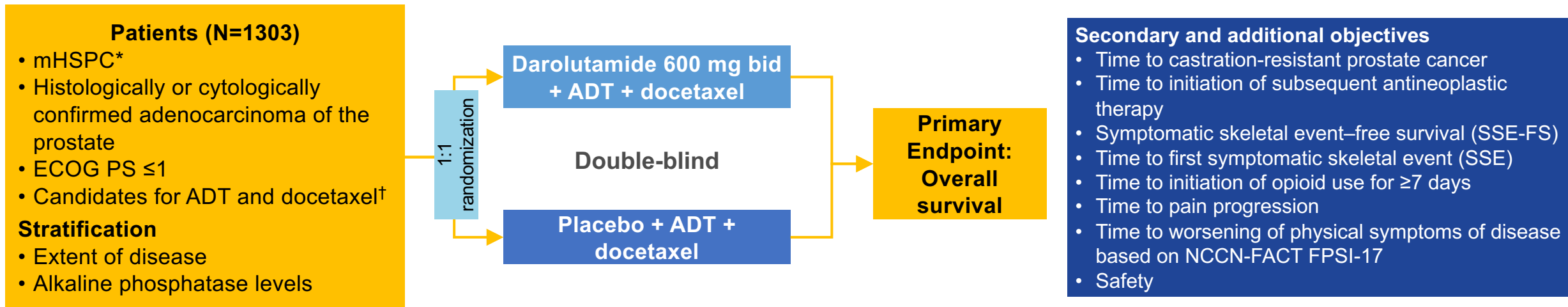
Apalutamide (N = 524)

Placebo (N = 527)

Any grade 3–4 AE	42.2%	40.8%
Any AE leading to discontinuation	8%	5.3%
Fatigue	8.4%	9.1%
Rash	6.3%	0.6%
Bone pain	1.1%	1.7%
Anemia	1.7%	3.2%
Back pain	2.3%	2.7%
Anemia	1.1%	1.9%

Maximizing therapy for mHSPC

ARASENS Phase III Trial Design



Background treatments:

- ADT at investigators' choice (including orchiectomy)
- Docetaxel: 6 cycles (in combination with prednisone/prednisolone at the discretion of the investigator) to be administered after randomization

Enrolment completed in June 2018

ADT alone is sub-optimal for mHSPC

	2013	2015	2016	2017	2017	2019	2019	2019
	GETUG-AFU 15¹ (N = 385)	CHAARTED² (N = 790)	STAMPEDE³ (N = 592)	STAMPEDE⁴ (N = 1,917)	LATITUDE⁵ (N = 1,199)	ARCHES⁶ (N = 1,150)	TITAN⁷ (N = 1,052)	ENZAMET⁸ (N = 1,125)
Agent	Doce (vs PBO)	Doce (vs PBO)	Doce (arm C)	AAP (arm G)	AAP (vs PBO)	ENZA (vs PBO)	APA (vs PBO)	ENZA (vs NSAA)
Primary end point: HR (CI)	OS: 1.01 (0.75–1.36) p = 0.955	OS: 0.72 (0.59–0.89) p = 0.0018	OS: 0.78 (0.66–0.93) p = 0.006	OS: 0.61 (0.4–0.75) p < 0.0001	OS: 0.66 (0.56–0.78) p < 0.0001 rPFS: 0.46 (0.39–0.54) p < 0.0001	rPFS: 0.39 (0.30–0.50) p < 0.001	OS: 0.67 (0.51–0.89) p = 0.005 rPFS: 0.48 (0.39–0.60) p < 0.001	OS: 0.67 (0.52–0.86) p = 0.002

Doce, docetaxel; OS, overall survival; rPFS, radiographic progression-free survival; NSAA, nonsteroidal antiandrogen

Not a head-to-head trial comparison

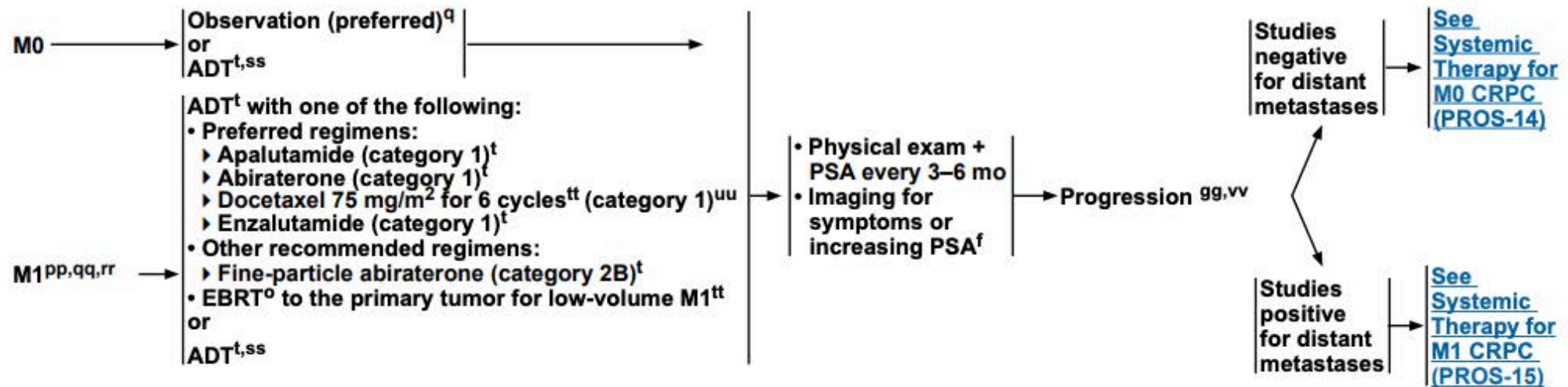
Broad Patient Populations

1. Gravis G, et al. *Lancet Oncol* 2013;14:149;
2. Kyriakopoulos CE, et al. *J Clin Oncol* 2018;36:1080;
3. James ND, et al. *Lancet* 2016;387:1163;

4. James ND, et al. *N Engl J Med* 2017;377:338;
5. Fizazi K, et al. *Lancet Oncol* 2019;20:686;
6. Armstrong AJ, et al. *J Clin Oncol* 2019;37:2974;

1. Chi KN, et al. *N Engl J Med* 2019;381:13;
2. Davis ID, et al. *N Engl J Med* 2019;381:121

SYSTEMIC THERAPY FOR CASTRATION-NAIVE PROSTATE CANCER^{oo}

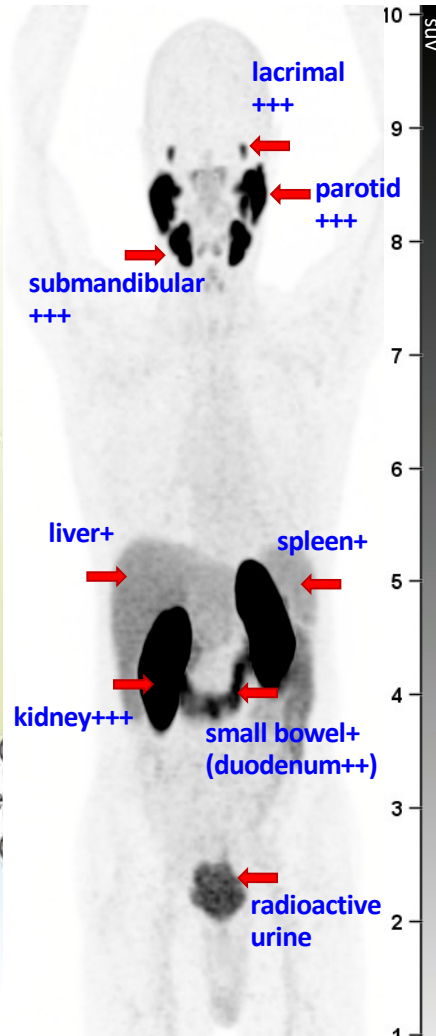
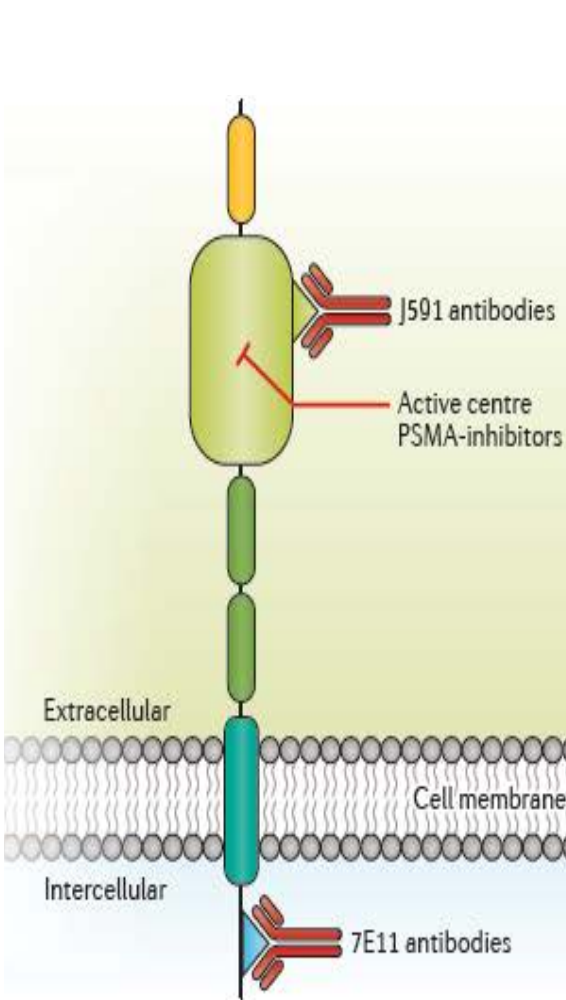


Systemic Therapy Low Risk/Volume	Systemic Therapy High Risk/Volume
Apalutamide (TITAN) Level 1, Strong	
Enzalutamide (ARCHES, ENZAMET) Level 1, Strong	
	Abiraterone with prednisone (LATITUDE) Level 1, Strong
	Docetaxel (CHAARTED) Level 1, Strong

Canadian guidelines

So A et al. *Can Urol Assoc J* 2020

Diagnosing metastases earlier and more precisely Prostate specific membrane antigen (PSMA)



Sensitivity, Specificity, and Predictors of Positive ⁶⁸Ga-Prostate-specific Membrane Antigen Positron Emission Tomography in Advanced Prostate Cancer: A Systematic Review and Meta-analysis

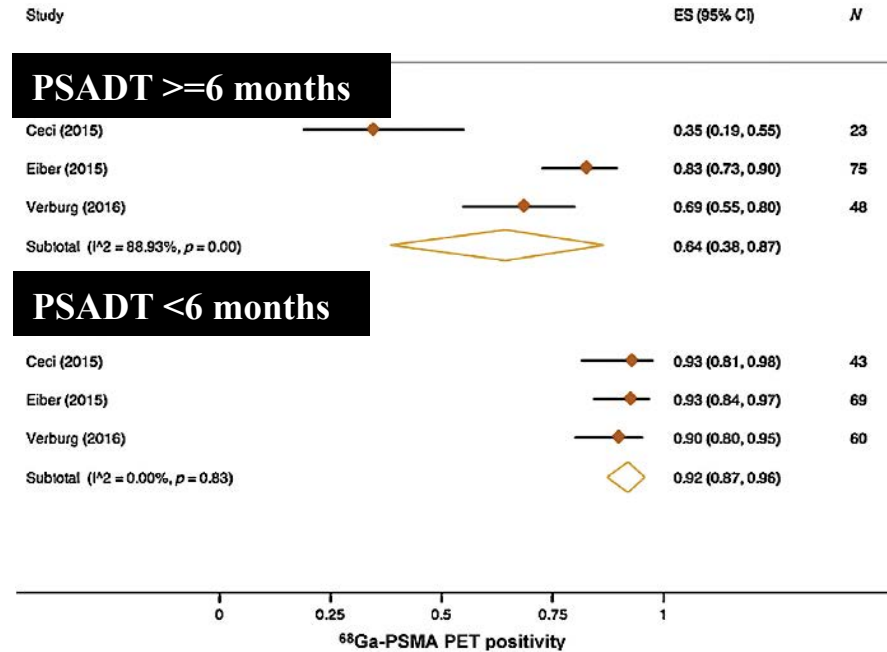
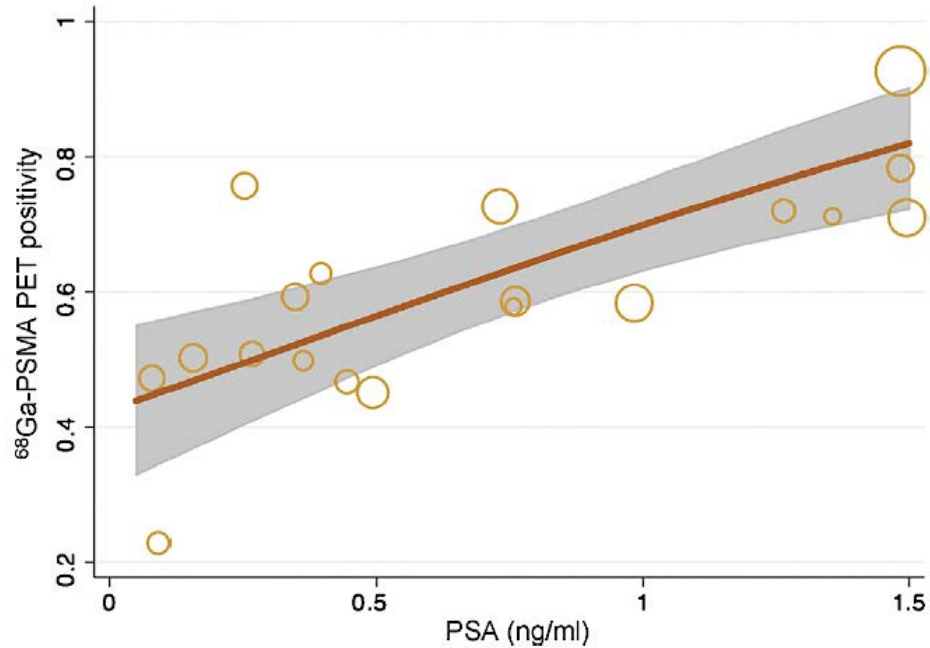


Table 2 – Studies with histopathologic correlation data for ⁶⁸Ga PSMA PET-positive lesions included in pooled analysis

Study	Study type	Staging setting	HP type	Patients with HP (n)	Per patient		Lesions with HP (n)	Per lesion	
					SS (%)	SP (%)		SS (%)	SP (%)
[29]	Retrospective cohort	Primary	Extended primary LND	30	33	100	608	64	93
[36]	Retrospective analysis	Mixed	Template primary and secondary LND	34	91	67	71	- ^a	- ^a
[38]	Retrospective analysis	Primary	Template primary LND	130	66	99	734	74	99
[41]	Retrospective comparison	Recurrence	Template secondary LND	28	100	0	308	87	93
[43]	Retrospective cohort	Mixed	Template primary and secondary LND	17	- ^a	- ^a	213	94	99

HP = histopathology; LND = lymph node dissection; SS = sensitivity; SP = specificity.

^a Not included in the pooled analysis as data points did not meet the inclusion criteria.

FDA NEWS RELEASE

FDA Approves First PSMA-Targeted PET Imaging Drug for Men with Prostate Cancer

The approval was granted to the University of California–San Francisco (UCSF) and UC–Los Angeles (UCLA).

^{68}Ga -PSMA-11 is indicated for

suspected metastatic disease at the time of initial staging prior to definitive therapy,

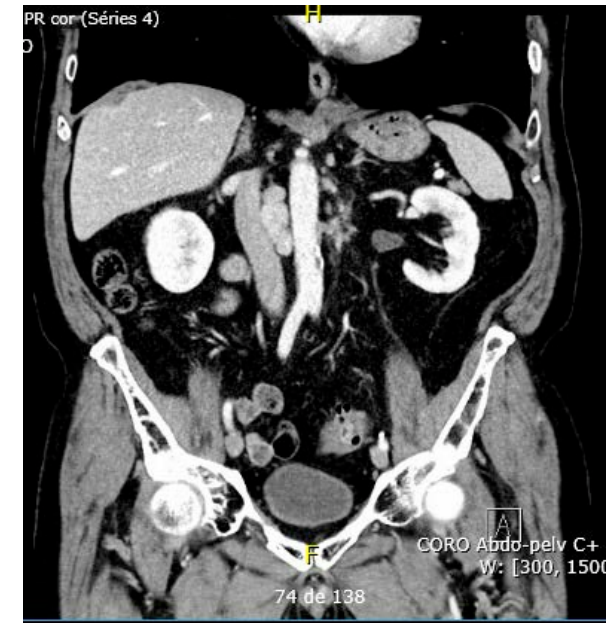
and for suspected recurrence based on elevated serum prostate-specific antigen (PSA) levels.

Conclusions

- Patients with mHSPC are at high risk of rapid progression to mCRPC and early death
- Treating ALL patients beyond ADT is the new standard of care for mHSPC
 - First generation anti-androgens and CAB are not enough
- Effective agents are now available and should be used in patients with mHSPC who are destined to suffer and die **OF** prostate cancer
- Work ongoing to determine the benefit of combining NHT with Chemotherapy as well as other agents
- Improved imaging may further improve outcome

Case 1

- 51 year-old musician complains of lower back pain
- Found to have an indurated prostate and PSA of 48
- Biopsy reveals Gleason 4+4 prostate cancer in 12/12 biopsies
- Imaging reveal multiple bone mets
- Abdominal CT reveals enlarged lymph nodes
- Patient seen and options discussed
- Prefers avoiding chemotherapy given international travel plans for concerts
- Patient started on ADT and apalutamide 240 mg/day



Case 1 continued

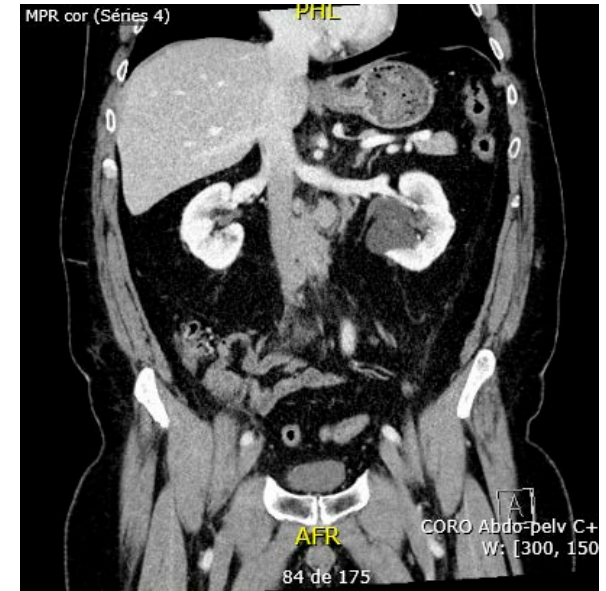
- After 6 months PSA is 0.1
- Patient develops a mild rash in his chest treated with topical steroids
- Resolves without change in dosage
- Patient last seen in December 2020 and PSA remains 0.1 1 year after starting therapy

Case 2

- 68 year old patient treated for cT3, Gleason 4+3 prostate cancer, PSA 18
- Received Radiation therapy + 6 months of ADT 4 years ago
- PSA nadir 0.8 6 months after radiation
- PSA rises to 3.5 2 years later
- Bone scan and CT abdomen and chest within normal limits
- Patient sexually active and declines ADT
- Patient travels 6 months to Florida
- Upon returning PSA is 23

Case 2 continued

- Bone scan reveals multiple new lesions suspicious of mets
- CT abdomen shows multiple retroperitoneal nodes
- Patient started on ADT and enzalutamide 160 mg/day
- PSA declines to 0.4 after 3 months
- Patient complains of fatigue and difficulty in concentrating that interferes with his work
- Enza dose reduced to 120 mg per day and patient feels much better
- PSA continues to decline to 0.2 and remains stable 18 months after starting ADT + Enza



Thank you!



University of Montreal Hospital center

