BIOLOGIA E TRATTAMENTO
RADIANTE CURATIVO DELLA
MALATTIA OLIGOMETASTATICA

VIRTUAL
26 MARZO 2021

Perspectives on Oligometastatic and Oligoprogressive Prostate Cancer

Ospedale San Gerardo

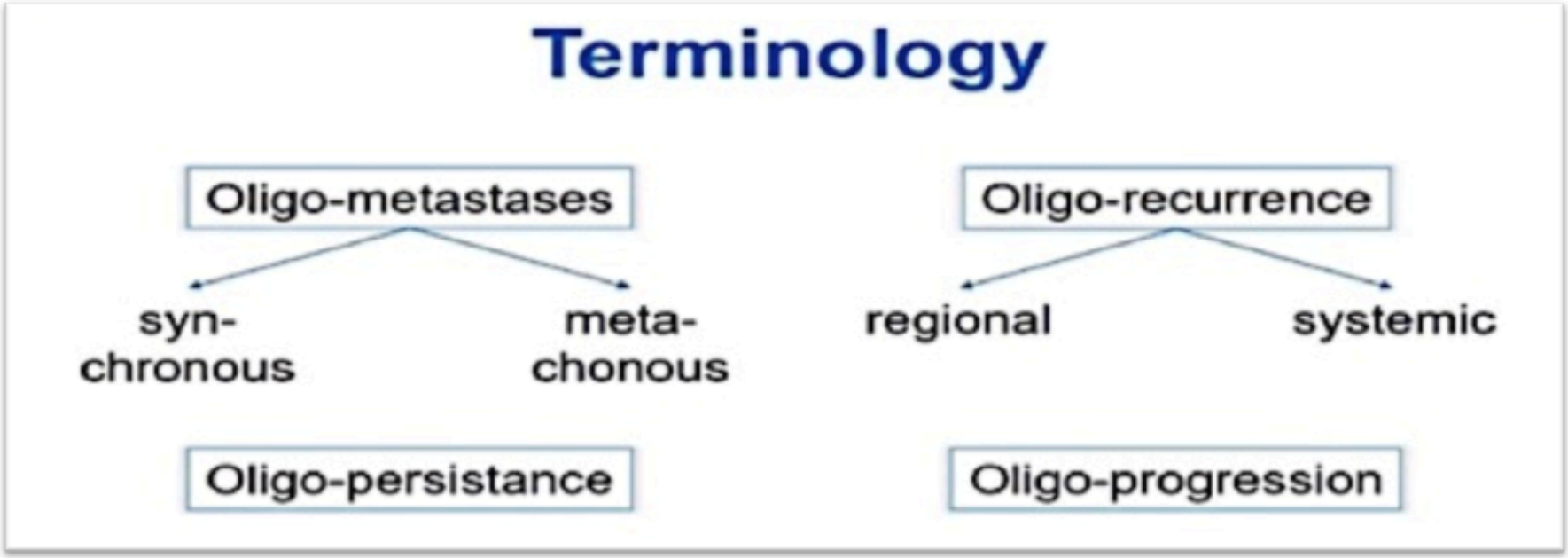
S. Arcangeli

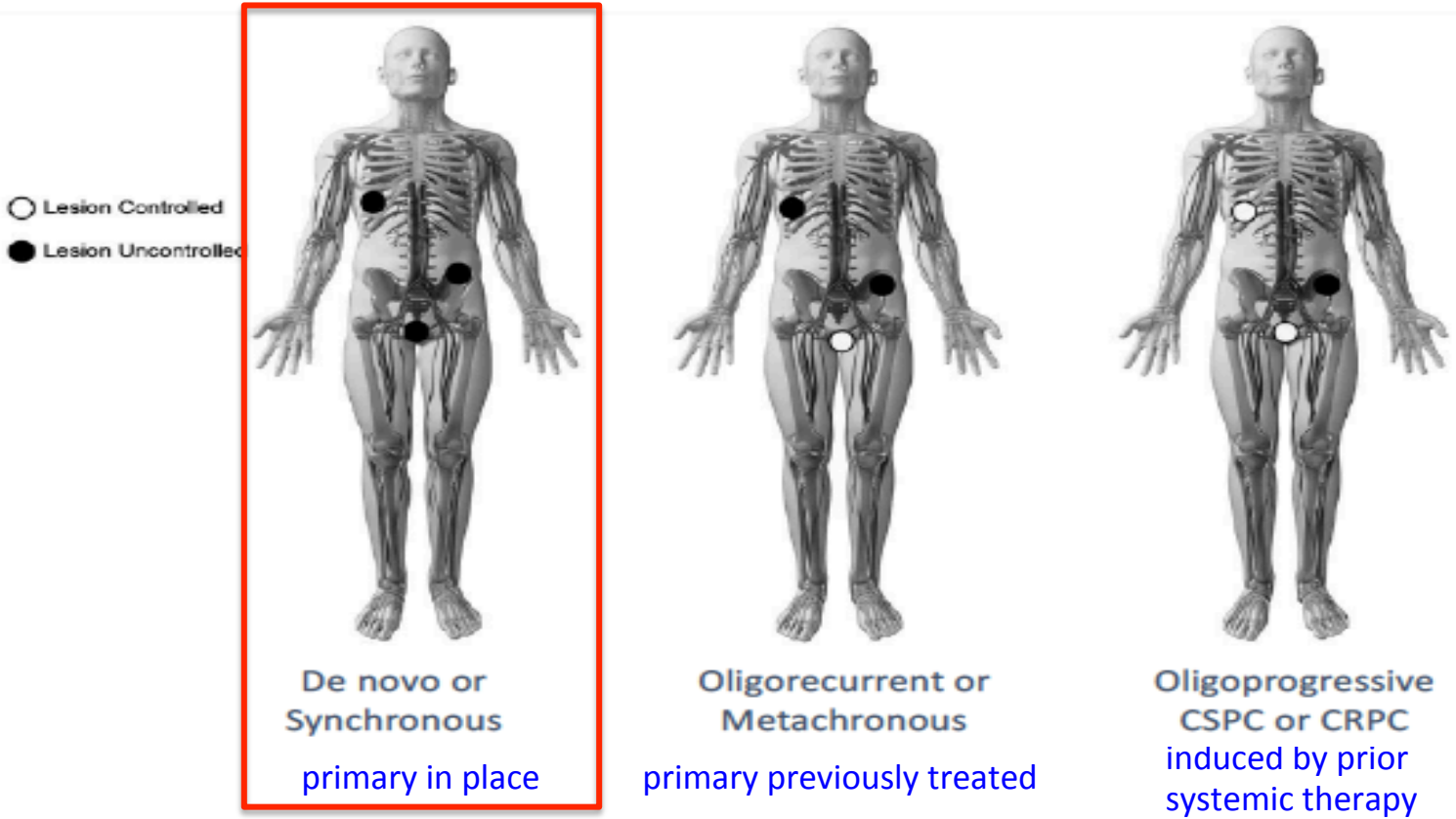
UNIVERSITÀ DEGLI STUDI DI MILANO BICOCCA

Disclosures

- **Janssen Cilag** (honoraria, advisory board, speaker)
- **Astellas Pharma** (honoraria, advisory board, speaker)
- **IPSEN** (honoraria, advisory board)

...oligomeanings




Lesion Controlled
Lesion Uncontrolled
De novo or Synchronous
primary in place
Oligorecurrent or Metachronous
primary previously treated
Oligoprogressive CSPC or CRPC
induced by prior systemic therapy

mCSPC with OS as Primary Endpoint

Study; Total No. (enrollment period)	Experimental Treatment Arm	Survival
GETUG-AFU15[1]; 385 (Oct 2004 to Dec 2008)	Docetaxel	0.88 (0.68-1.14); $P = .3$
CHAARTED[3]; 790 (July 2006 to July 2012)	Docetaxel	0.72 (0.59-C… $P = .001$
STAMPEDE-C[3]; 1,817 (Oct 2005 to Mar 2013)	Docetaxel	$P = .005$
STAMPEDE-A[4]; 1,002 (Nov 2011 to Jan 2014)	Abi…	$P < .001$
LATITUDE[5]; 1,1… (Feb 201…		…66 (0.56-.78); $P < .0001$
ENZAM… (Mar…	…utamide	0.67 (0.52-0.86); $P = .002$
TITAN[7]; … July 2…	Apalutamide	0.67 (0.51-0.89); $P = .005$

Practice-changing trials

…but

The benefit of the combination of DOC or ARTA is uncertain

- **in patients with low volume disease* (GETUG-AFU15 and CHAARTED trials)**
- **in older patients* (≥ 70-75 yrs): in the STAMPEDE, ENZAMET, LATITUDE, and TITAN trials**

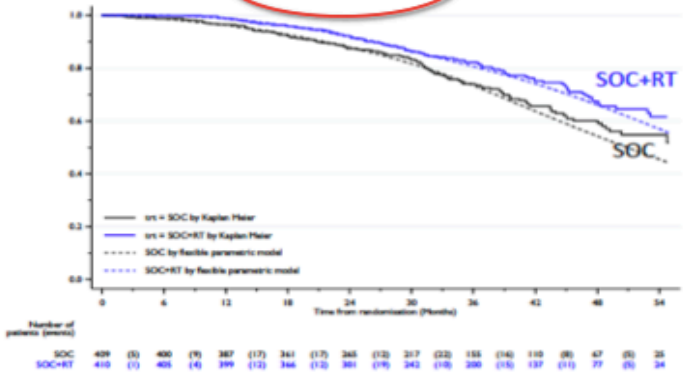
*the 95% CI for the OS HRs crossed 1

Evidences supporting the role of local treatment in mCSPC

Radiotherapy to the primary tumour for newly diagnosed, metastatic prostate cancer (STAMPEDE): a randomised controlled phase 3 trial

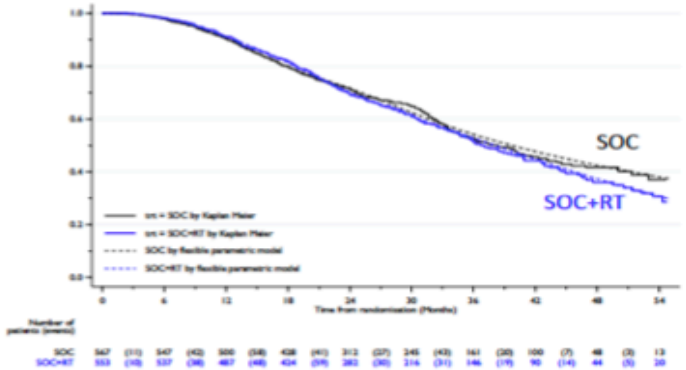
Overall survival: metastatic burden subgroup analysis

Low burden



HR: 0 68 (95% CI 0 52-0 90), p=0 007
3 year OS (%): SOC = 73%
SOC+RT = 81%

High burden

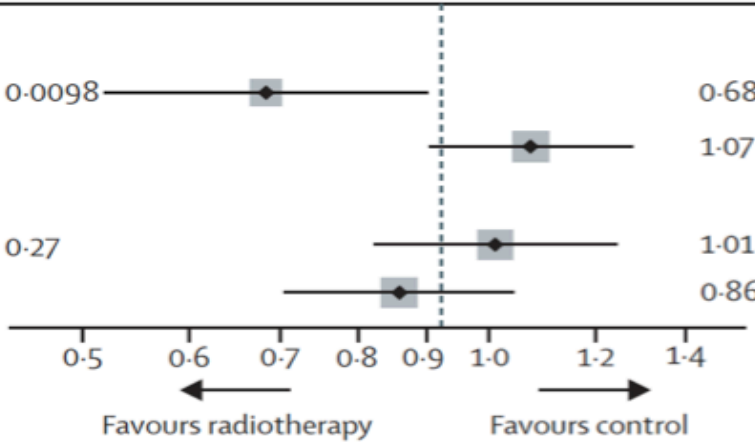


HR: 1 07 (95% CI 0 90-1 28), p=0 420
3 year OS (%): SOC = 54%
SOC+RT = 53%

Radiotherapy to the primary tumour for newly diagnosed, metastatic prostate cancer (STAMPEDE): a randomised controlled phase 3 trial

A

	Control	Radiotherapy	Interaction p value	HR (95% CI)
	Deaths/N	Deaths/N		
Metastatic burden				
Low burden	116/409	90/410	0·0098	0·68 (0·52–0·90)
High burden	252/567	257/553		1·07 (0·90–1·28)
Radiotherapy schedule				
Weekly	179/482	182/497	0·27	1·01 (0·82–1·25)
Daily	212/547	188/535		0·86 (0·71–1·05)



National Comprehensive Cancer Network®

NCCN Guidelines Version 2.2021
Prostate Cancer

NCCN Guidelines Index
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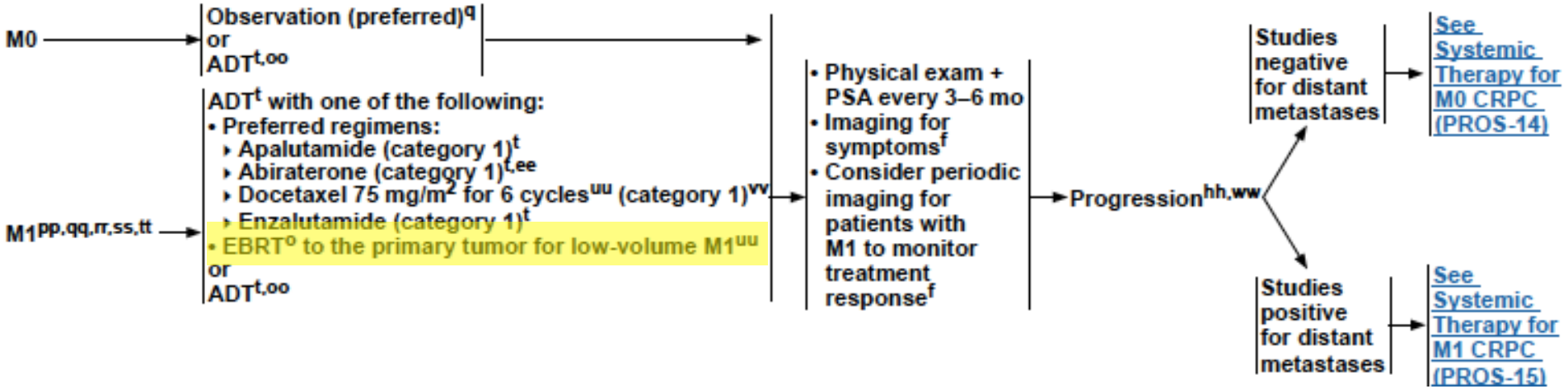
Discussion

SYSTEMIC THERAPY FOR CASTRATION-NAÏVE PROSTATE CANCER[nn]



Oligometastatic state and "Disease Burden"

- **"Low-volume"** (CHAARTED)
  - **Exclusion**: Either of the following: (a) ≥4 bone mets on bone scan, with ≥1 outside the vertebral bodies or pelvis or (b) visceral mets

- **"Low-risk"** (LATITUDE)
  - **Exclusion**: Any two of the following: (a) ≥3 bone mets on bone scan, (b) Gleason score ≥8, or (c) Visceral mets

Kyriakopolous et al. JCO 2018
Hoyle et al. Eur Urol 2019

Is Low Volume/Low Risk = Oligometastatic?

…NO ! 

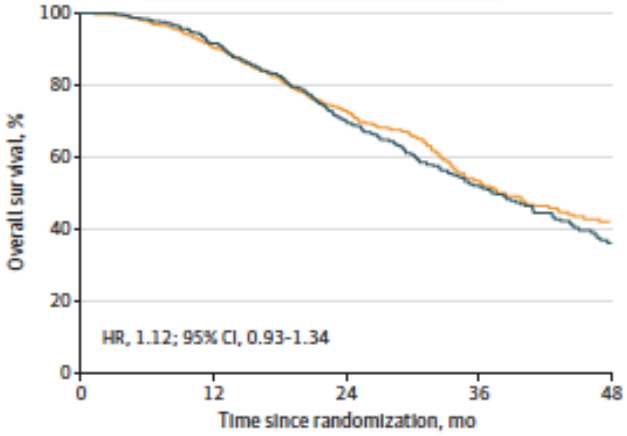
Low metastatic burden disease is sometimes known as oligometastatic. Although this term is widely used, it is imprecise and potentially misleading because it implies only a small number of metastases. Patients with low metastatic burden disease, according to the CHAARTED definition, may have an unlimited number of metastases provided they are confined to lymph nodes and the axial skeleton.

JAMA Oncology | Original Investigation

Association of Bone Metastatic Burden With Survival Benefit From Prostate Radiotherapy in Patients With Newly Diagnosed Metastatic Prostate Cancer

A Secondary Analysis of a Randomized Clinical Trial

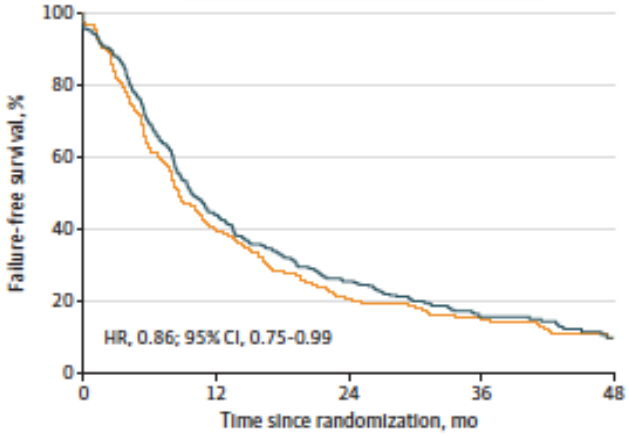
C Overall survival in ≥4 bone metastases (±NRLN) subcohort



No. at risk (events)

SOC	512	(47)	452	(83)	281	(64)	147	(25)	45
SOC+RT	498	(41)	441	(96)	260	(58)	136	(30)	38

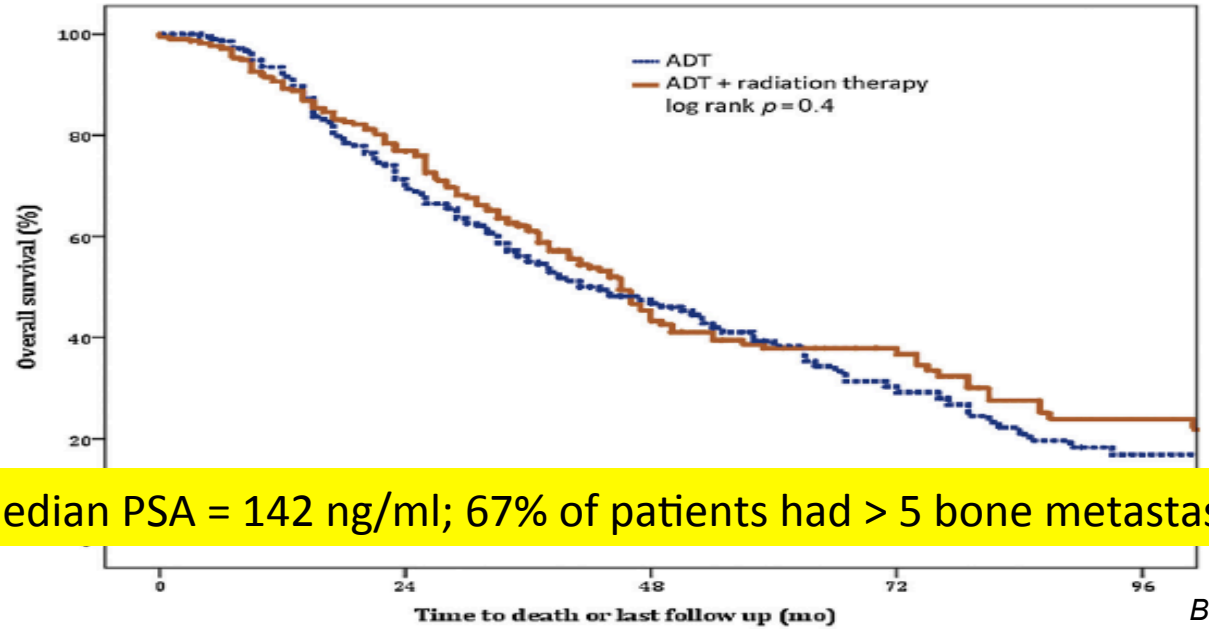
D Failure-free survival in ≥4 bone metastases (±NRLN) subcohort



No. at risk (events)

SOC	512	(301)	201	(90)	69	(15)	36	(8)	8
SOC+RT	498	(276)	212	(84)	89	(28)	34	(8)	9

Effect on Survival of Androgen Deprivation Therapy Alone Compared to Androgen Deprivation Therapy Combined with Concurrent Radiation Therapy to the Prostate in Patients with Primary Bone Metastatic Prostate Cancer in a Prospective Randomised Clinical Trial: Data from the HORRAD Trial



Median PSA = 142 ng/ml; 67% of patients had > 5 bone metastases

Boevè et al. Eur Urol. 2018

New Metastatic Burden Classification

(with Conventional Imaging)

- **Low-burden**
  - NRLN or ≤ 3 or fewer bone metastases ± NRLN regardless of axial or extra axial location and without any visceral metastasis

- **High-burden**
  - All the others

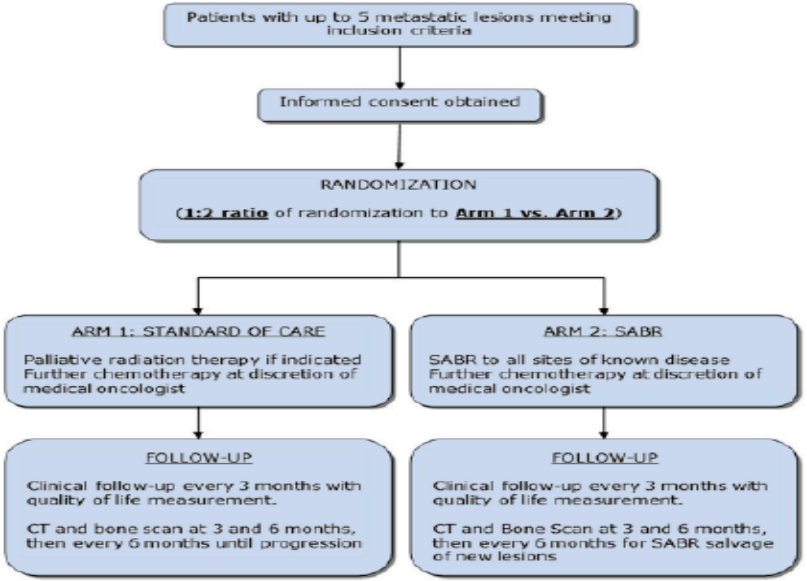
Ali et al. JAMA Oncology 2021

Stereotactic ablative radiotherapy for comprehensive treatment of oligometastatic tumors (SABR-COMET): Study protocol for a randomized phase II trial

STUDY PROTOCOL

BMC Cancer

David A Palma[1*], Cornelis J A Haasbeek[2], George B Rodrigues[1], Max Dahele[2], Michael Lock[1], Brian Yaremko[1], Robert Olson[3], Mitchell Liu[3], Jason Panarotto[4], Gwendolyn H M J Griffioen[2], Stewart Gaede[1], Ben Slotman[2] and Suresh Senan[2]



INCLUSION CRITERIA:

- Controlled primary tumor
- Up to 3 mts in any organ/system
- Total number of mts ≤ 5
- life expectancy > 6 months
- No CT 4 weeks prior, during or 2 weeks after RT

20% prostate cancer patients

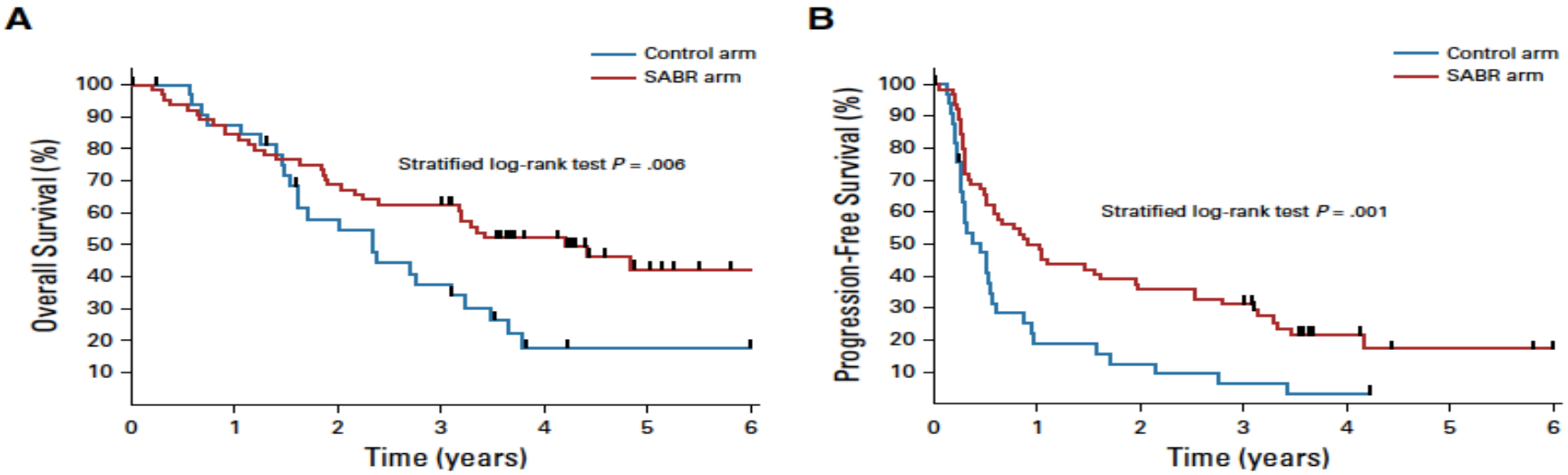
Palma *et al. BMC Cancer* 2012, **12**:305

Baseline Patient Characteristics

Characteristic	All Patients (n=99)	Control Arm (n=33)	SABR Arm (n=66)	p-value
Number of Metastases – n(%)				0.591
1	42 (42.4)	12 (36.4)	30 (45.5)	
2	32 (32.3)	13 (39.4)	19 (28.8)	
3	18 (18.2)	6 (18.2)	12 (18.2)	
4	4 (4.0)	2 (6.1)	2 (3.0)	
5	3 (3.0)	0 (0.0)	3 (4.6)	
Location of Metastases – n(%)				0.181
Adrenal	9 (4.7)	2 (3.1)	7 (5.5)	
Bone	65 (34.0)	20 (31.3)	45 (35.4)	
Liver	19 (10.0)	3 (4.7)	16 (12.6)	
Lung	89 (46.6)	34 (53.1)	55 (43.3)	
Other	9 (4.7)	5 (7.8)	4 (3.2)	

Stereotactic Ablative Radiotherapy for the Comprehensive Treatment of Oligometastatic Cancers: Long-Term Results of the SABR-COMET Phase II Randomized Trial

Median follow up: 51 months



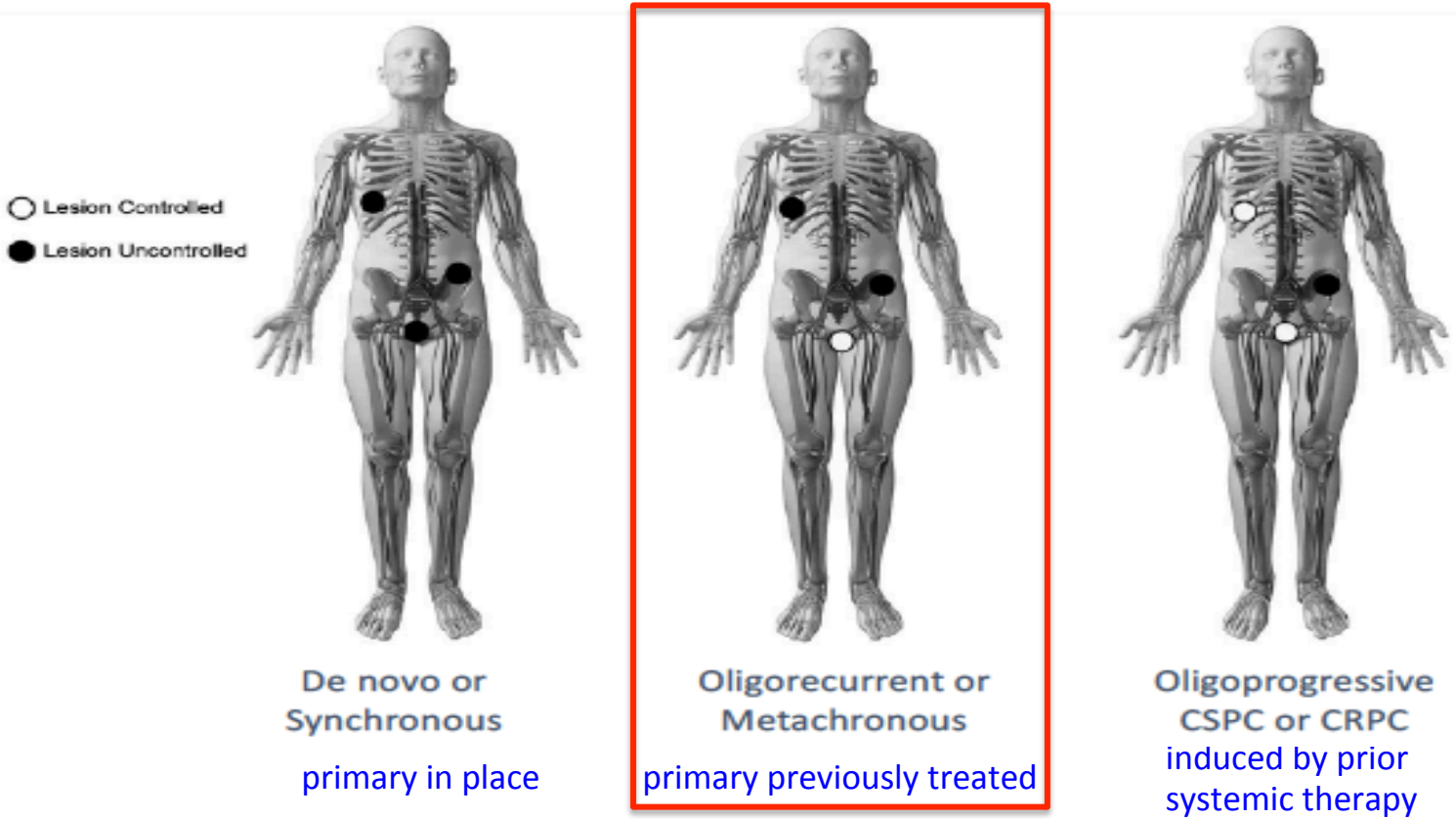
Open Issues

- **RT and abiraterone together ?**

  No concerning safety interaction from the STAMPEDE

- **Any benefit in treating metastatic sites ?**

  The next arm of STAMPEDE (arm M) randomizes patients to systemic therapy and RT to the primary ± metastasis-directed therapy


Lesion Controlled
Lesion Uncontrolled
De novo or Synchronous
primary in place
Oligorecurrent or Metachronous
primary previously treated
Oligoprogressive CSPC or CRPC
induced by prior systemic therapy

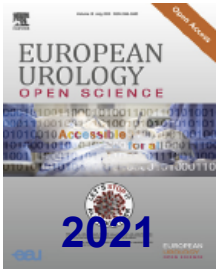
- **The benefit of the combination of DOC or ARTA is uncertain in the subset of men developing metastatic disease after initial local treatment***

*the 95% CI for the OS HRs crossed 1(**GETUG-AFU15, CHAARTED** and **ENZAMET**)

- **75% of patients with recurrence after primary therapy have ≤3 involved sites***

*Singh D, et al. Int J Radiat Oncol Biol Phys. 2004;58:3-10.
Schweizer MT,et al. Ann Oncol. 2013;24:2881-2886.
Sridharan S, et al. Radiother Oncol. 2016;121:98-102.
De Bruycker A, et al. BJU Int. 2017;120:815-821.

What are the data supporting ablative therapy in mCSPC?

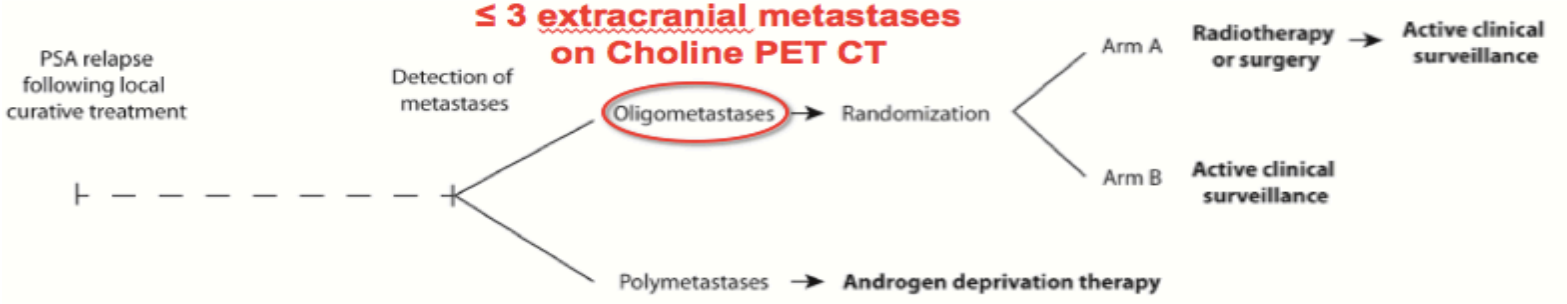


Study	Study Design	Sample size	Follow-up	Intervention	Control	Outcome measure
Kneebone et al (2018) [10]	Single-arm, prospective observational study	57 patients	16.0 (range: 5.0–31.0) mo	Median b-PFS: 11.0 mo (95% CI, 8.1–13.9)	NA	NA
PMID: 31158100	SBRT			l-PFS: 100%		
Bowden et al (2020) [13]	Single-arm, prospective observational study, interim results	199 patients, 176 patients available at last FUP	35.1 (range: 6.5–51.3) mo, including patients lost to FUP	b-PFS: 41/176 (23.3%) at last FUP	NA	NA
PMID: 31199504	SBRT					
Muacevic et al (2013) [17]	Single-arm, prospective observational study	40 patients	10.2 (range: 3.0–48.0) mo	l-PFS:	NA	NA
PMID: 21481619	SRS			At 6 mo: 95.5% (95% CI, 83.0–98.8)		
				At 12 mo: 95.5% (95% CI, 83.0–98.8)		
				At 24 mo: 95.5% (95% CI, 83.0–98.8)		
Siva et al (2018) [11]	Single-arm, prospective observational study	33 patients	24.0 mo	l-PFS:	NA	NA
PMID: 30227924	SABR			At 12 mo: 97.0% (95% CI, 91.0–100.0)		
				At 24 mo: 93.0% (95% CI, 84.0–100.0)		
Ost et al (2018) [3]	Randomized (1:1), prospective	31 patients in both the intervention and the control group ($n = 62$)	36 (IQR: 27.6–45.6) mo	Median b-PFS: 10.0 (80% CI, 8.0–13.0) mo	Median b-PFS: 6.0 (80% CI, 4.0–7.0) mo	b-PFS: HR, 0.53; 80% CI, 0.37–077; $p = 0.03$
PMID: 29240541	MDT vs observation, interim results			l-PFS: 100%	l-PFS: 80.6% (no. of events = 6)	l-PFS: not provided
Phillips et al (2020) [16]	Randomized (2:1), prospective	36 patients in the intervention group and 18 in the control group ($n = 54$)	18.8 (range: 5.8–35.0) mo	Median b-PFS not reached	Median b-PFS: 6.4 mo	b-PFS: HR, 0.31; 95% CI, 0.13–0.75; $p = 0.002$
PMID: 32215577	SBRT vs observation, interim results			b-PFS at 6 mo: 4 events/36, 11%; 95% CI, 3.9–26.1	b-PFS at 6 mo: 9 events/18, 50%; 95% CI, 29.1–70.9	b-PFS at 6 mo: $p = 0.005$
				l-PFS at 6 mo: 98.9% (1 event)	l-PFS: not provided	l-PFS: not provided

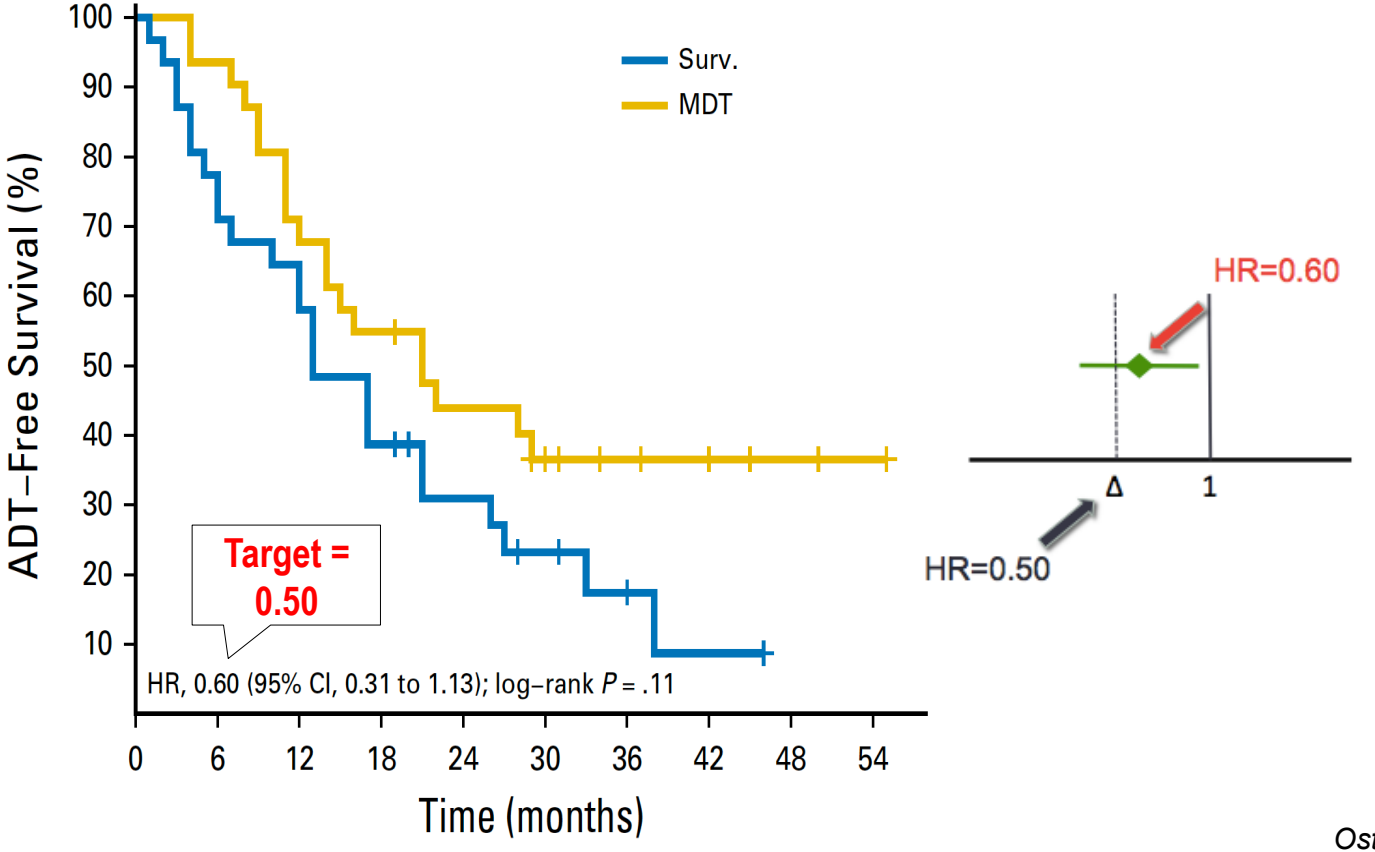
STUDY PROTOCOL Open Access

Surveillance or metastasis-directed Therapy for OligoMetastatic Prostate cancer recurrence (STOMP): study protocol for a randomized phase II trial

Karel Decaestecker[1], Gert De Meerleer[2], Filip Ameye[3], Valerie Fonteyne[2], Bieke Lambert[4], Steven Joniau[5], Louke Delrue[6], Ignace Billiet[7], Wim Duthoy[8], Sarah Junius[9], Wouter Huysse[6], Nicolaas Lumen[1] and Piet Ost[2*]



Reasons to start ADT: local progression, symptomatic progression or polymetastatic progression



Ost et al. JCO 2018

Table 2. Indications for Starting Androgen Deprivation Therapy

Indication	Surveillance (n = 31)	Metastasis-Directed Therapy (n = 31)
Not started yet	6 (19)	12 (39)
Polymetastatic progression	16 (55)	19 (61)
Local progression	6 (23)	0 (0)
Symptomatic progression	3 (10)*	0 (0)

NOTE. Data are presented as No. (%).
*Two patients with symptomatic progression also showed local and polymetastatic progression.

Ost et al. JCO 2018

JAMA Oncology | Original Investigation

Outcomes of Observation vs Stereotactic Ablative Radiation for Oligometastatic Prostate Cancer
The ORIOLE Phase 2 Randomized Clinical Trial

POPULATION

54 Men

Adult men with recurrent, hormone-sensitive prostate cancer and 1-3 metastases detectable by conventional imaging

Median age: 68 y

SETTINGS / LOCATIONS

3 Radiation treatment facilities in 2 US locations

INTERVENTION

54 Patients randomized

36 Stereotactic radiotherapy

Stereotactic ablative radiotherapy (SABR) to all metastases

18 Observation

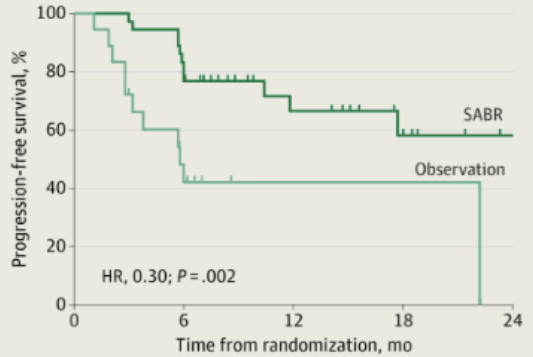
Observation only for 6 mo

PRIMARY OUTCOME

Progression of disease measured by any of the following: prostate-specific antigen testing, conventional imaging, symptomatic progression, androgen deprivation therapy initiation for any reason, death

FINDINGS

Progression of disease at 6 mo was less common with SABR compared with observation (19% vs 61%; *P* = .005)



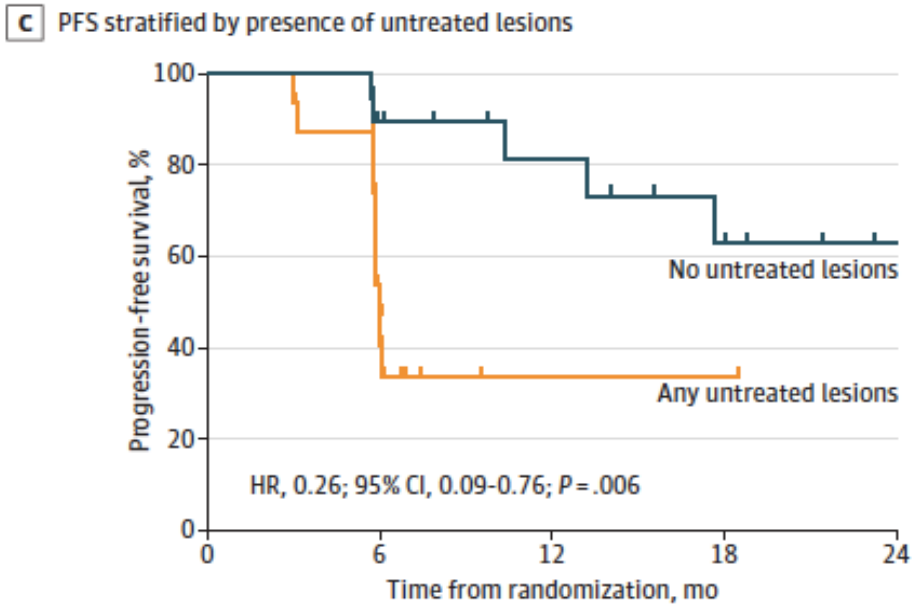
Proportion of patients with progression at 6 mo

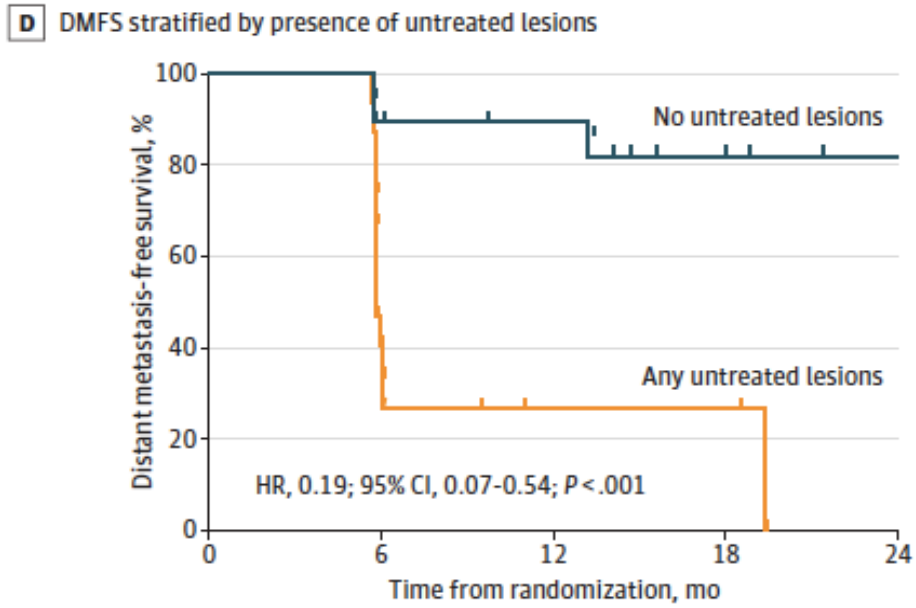
Stereotactic radiotherapy: **19%**

Observation: **61%**

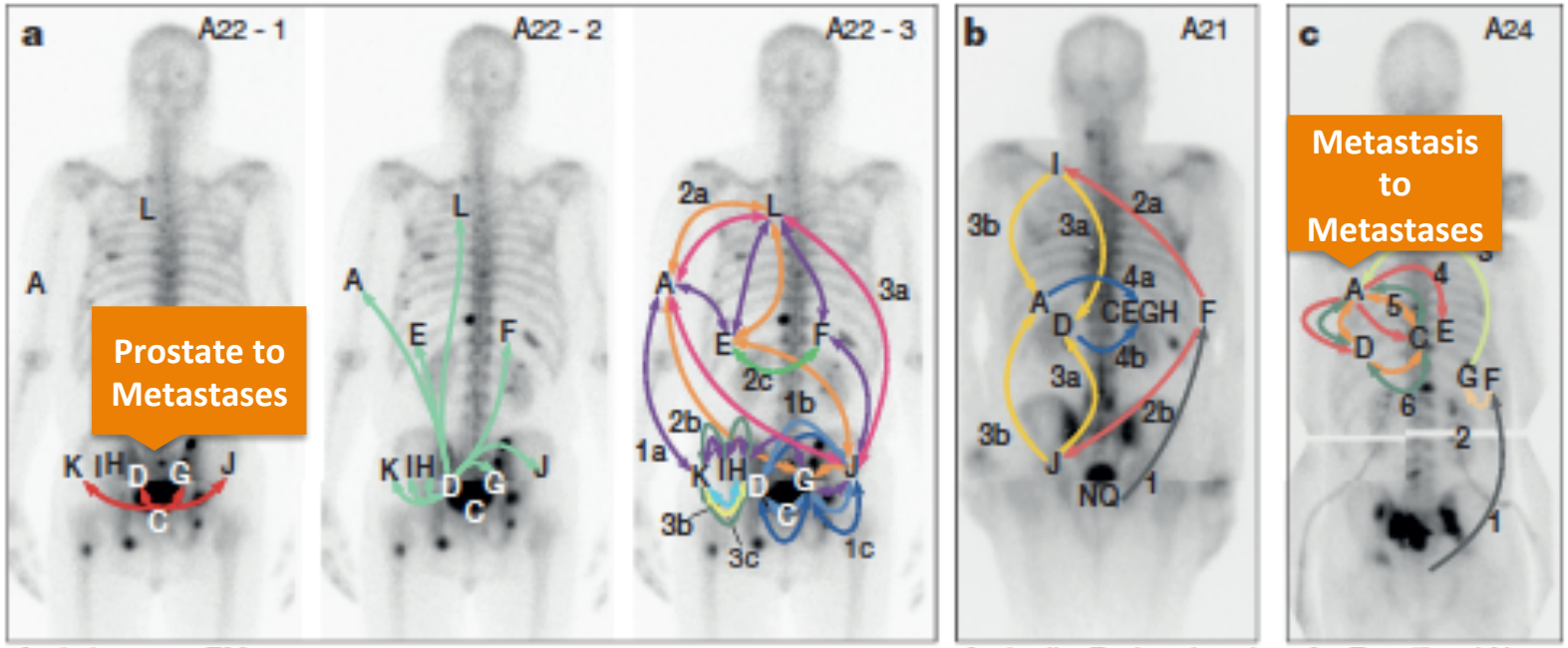
PSMA-targeted PET-CT after randomization

45% had lesions not included in RT fields





Phillips et al. JAMA 2020



A - L. humerus BM
D - Sem. vesicle
C - Prostate
E - L. adrenal

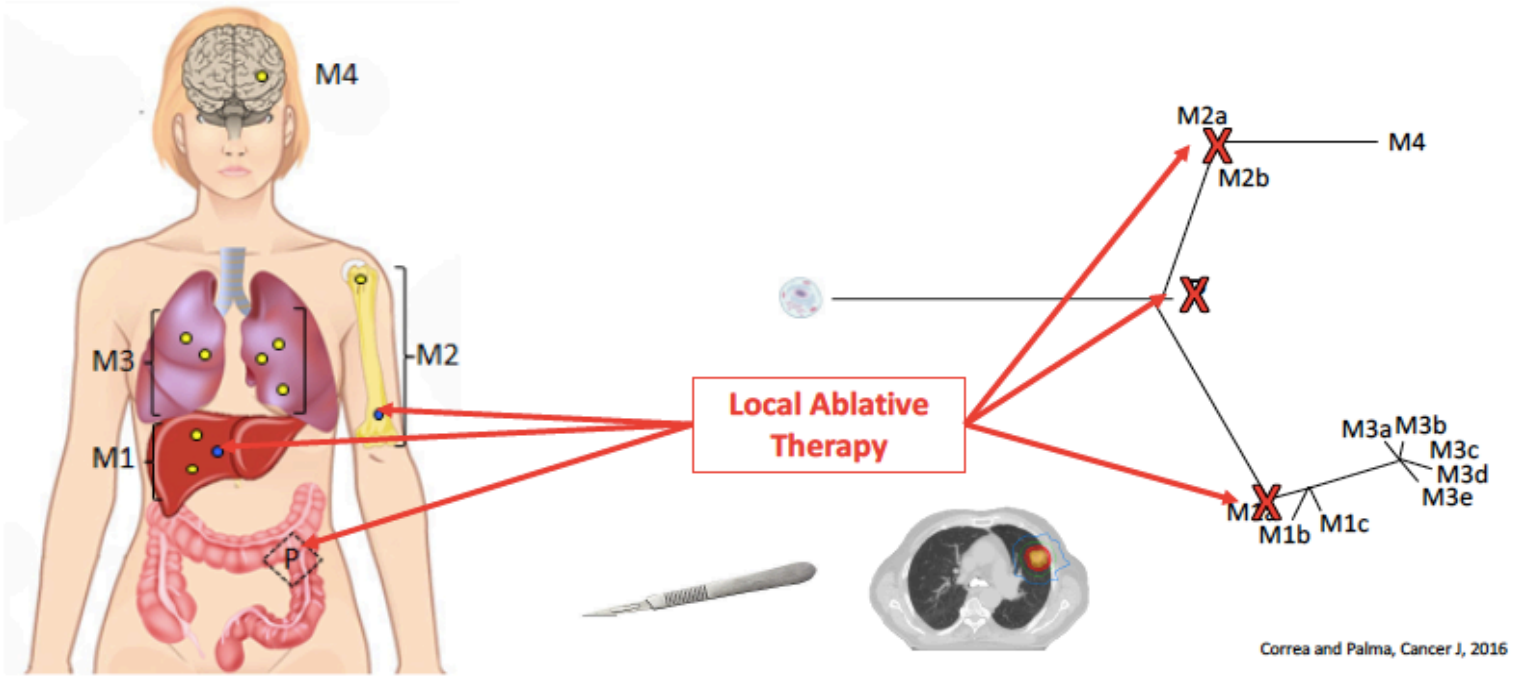
F - R. adrenal
G - Bladder
H - Pelvic LN
I - L. pelvic LN

J - R. pelvic LN
K - L. pelvic LN
L - L. media. LN

A - L. rib
C - Liver
E - Liver
G - Liver
H - Liver
D - L. adrenal
F - R. rib nod.
I - L. clavicle
J - L. iliac crest
N - GL5 EPE
Q - GL3/5

A - R. axillary LN
C - R. diaphragm
D - R. rib
E - Xiphoid
F - L. lobe liver
G - Falciform ligam.

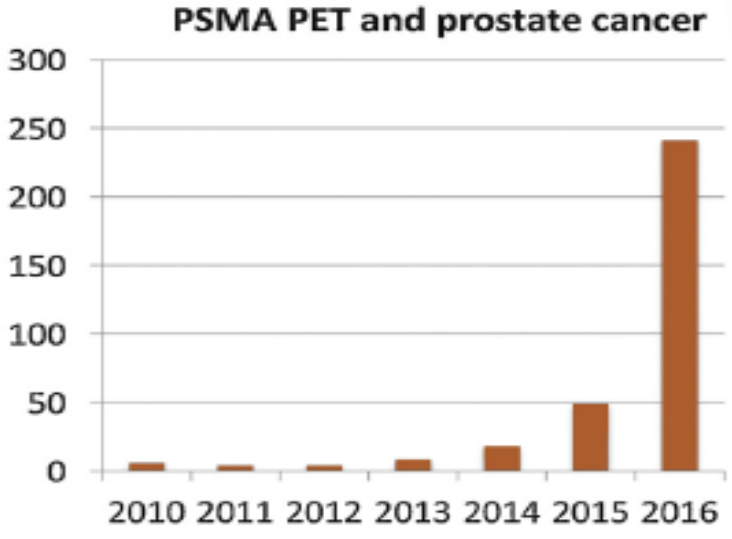
Potential Effect of Locally Ablative Therapy

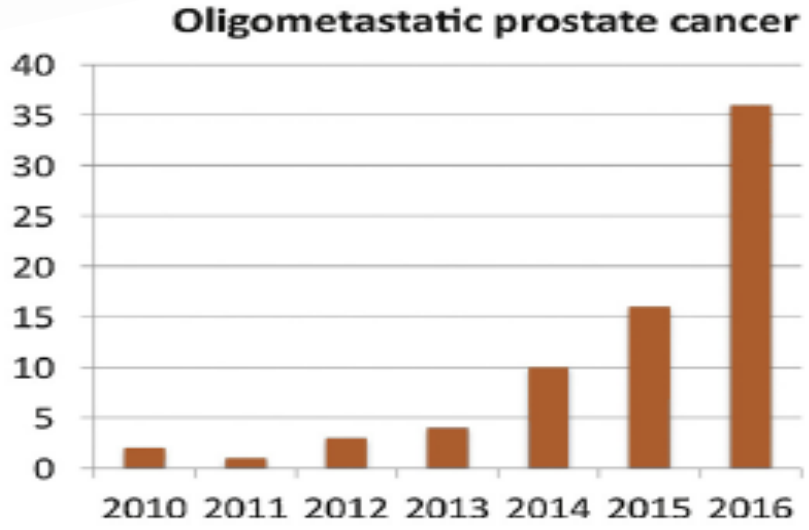


Correa and Palma, Cancer J, 2016

"Gotta Catch 'em All", or Do We? *Pokemet* Approach to Metastatic Prostate Cancer

Declan G. Murphy [a,b,c,*], *Christopher L. [illegible]y* [d], *Bertrand Tombal* [e]





Number of cells versus volume calculation

Assuming pure cancer cells (which we know is not true)

$4/3\ \pi\ r^3$

one cell - 10 um^3 = volume = 500 um^3

1 mm tumor = 1000 um = 2093 um^3 / 500 = 1 million cells

2 mm tumor = 2000 um = volume = 4,000,000,000 um^3 /500 = 8 million cells

3 mm tumor = 3000 um = volume = 13,500,000,000 um^3 / 500 = 27 million cells

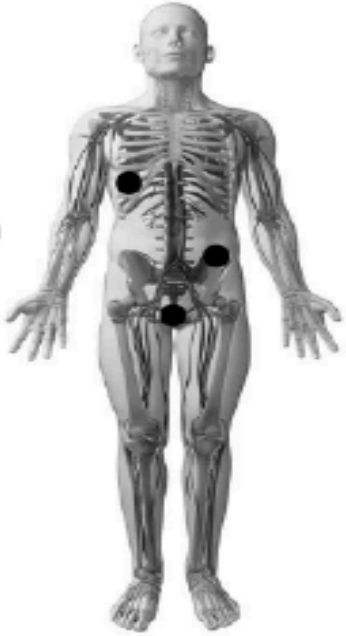
PSMA DETECTION

10mm tumor = 10000 um = volume = 500000000000 um^3 / 500 = 1,000,000,000 = 1 billion cells

PSA value	PSMA results
0.2-0.49 ng/mL	30% Positive/70% Negative
0.5-0.99 ng/mL	60% Positive/40% Negative
1.0-3.9 ng/mL	80% Positive/20% Negative
> 4 ng/mL	90% Positive/10% Negative

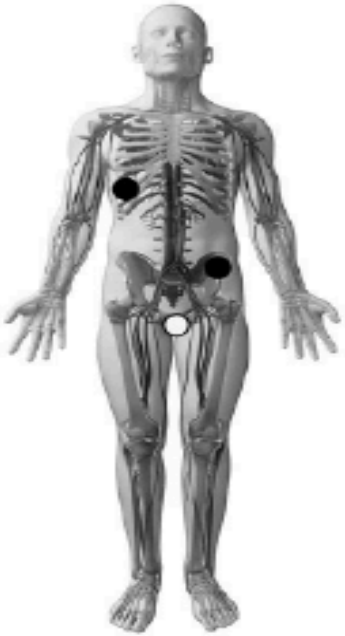
Courtesy Dr. K. Pienta

Lesion Controlled
Lesion Uncontrolled



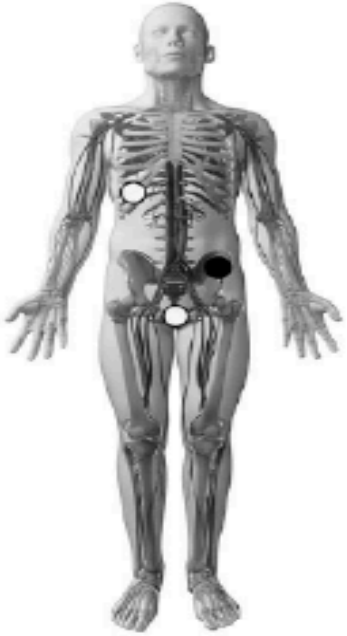
De novo or Synchronous

primary in place



Oligorecurrent or Metachronous

primary previously treated



Oligoprogressive CSPC or CRPC

induced by prior systemic therapy

In progression during ADT

AUA/ASTRO/SUO Guideline

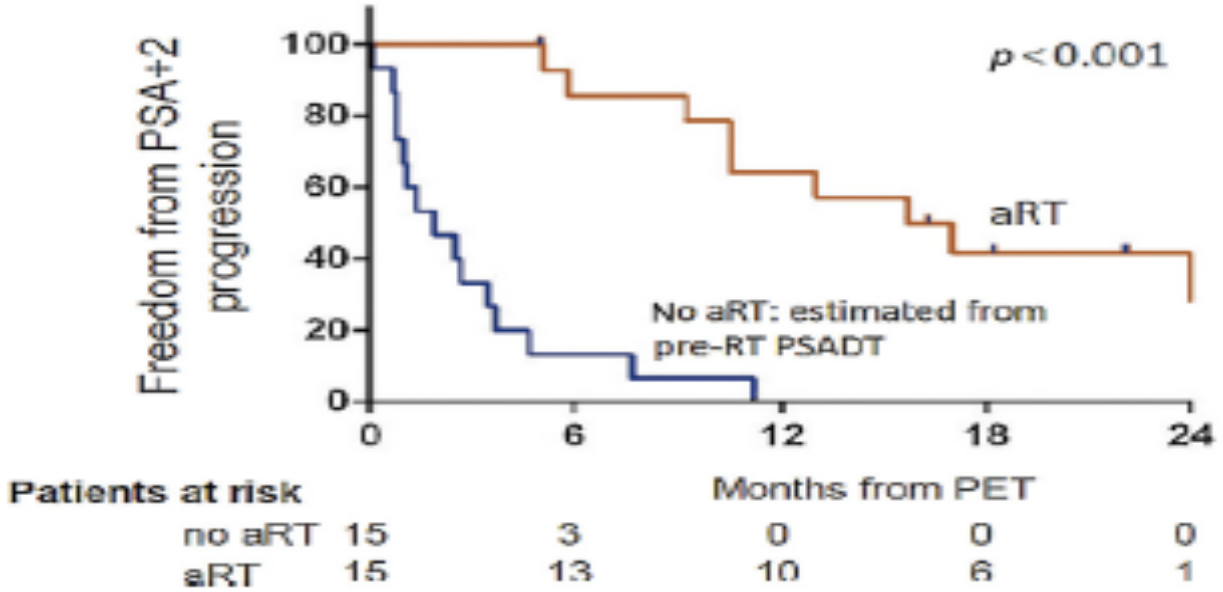
ADVANCED PROSTATE CANCER:
AUA/ASTRO/SUO GUIDELINE
2020

Treatment

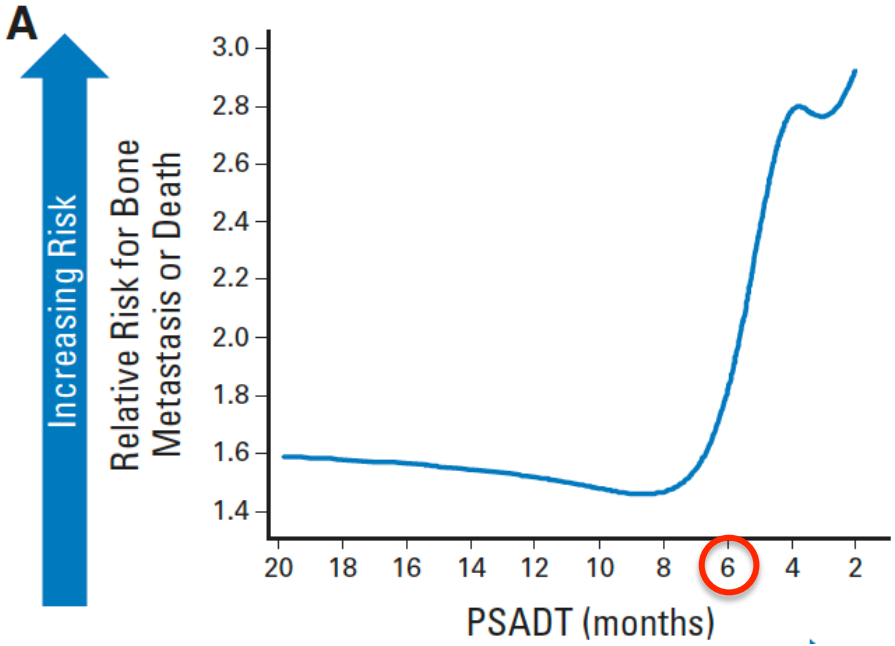
27. In newly diagnosed mCRPC patients, clinicians should offer continued ADT with abiraterone acetate plus prednisone, docetaxel, or enzalutamide. (Strong Recommendation; Evidence Level: Grade A [abiraterone acetate plus prednisone and enzalutamide]/B [docetaxel])

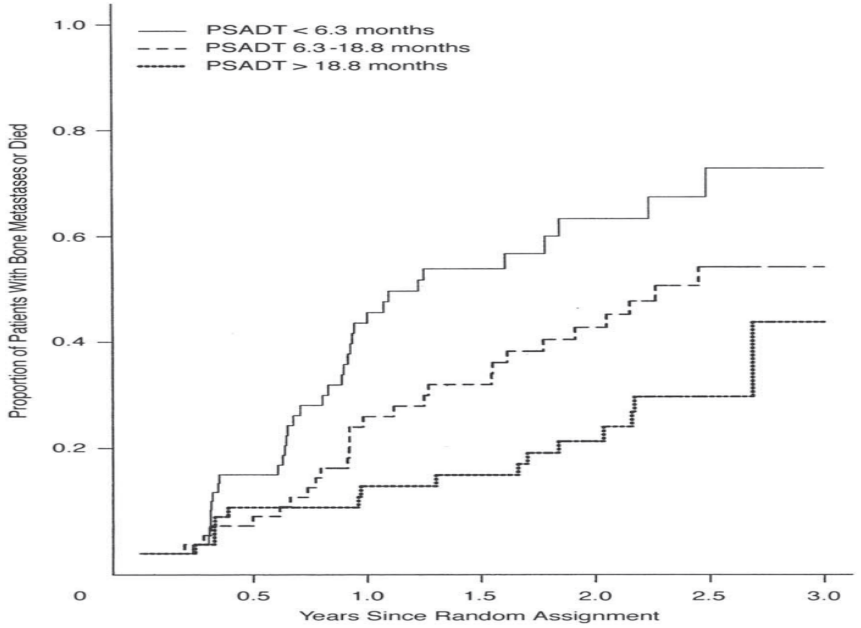
Can Local Ablative Radiotherapy Revert Castration-resistant Prostate Cancer to an Earlier Stage of Disease?

Fabian Lohaus [a,b,c], Klaus Zöphel [c,e], Steffen Löck [b,c,a], Manfred Wirth [g,h], Jörg Kotzerke [c,e], Mechthild Krause [a,b,c,f,h], Michael Baumann [a,b,d,f,h], Esther G.C. Troost [a,b,c,f,h], Tobias Hölscher [a,b,]*



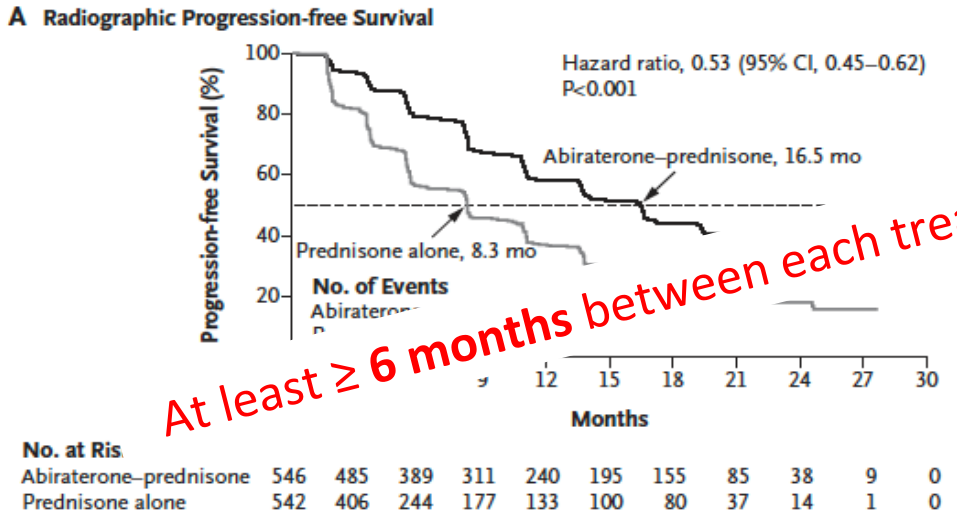
Which patients could benefit adding RT to ADT ?

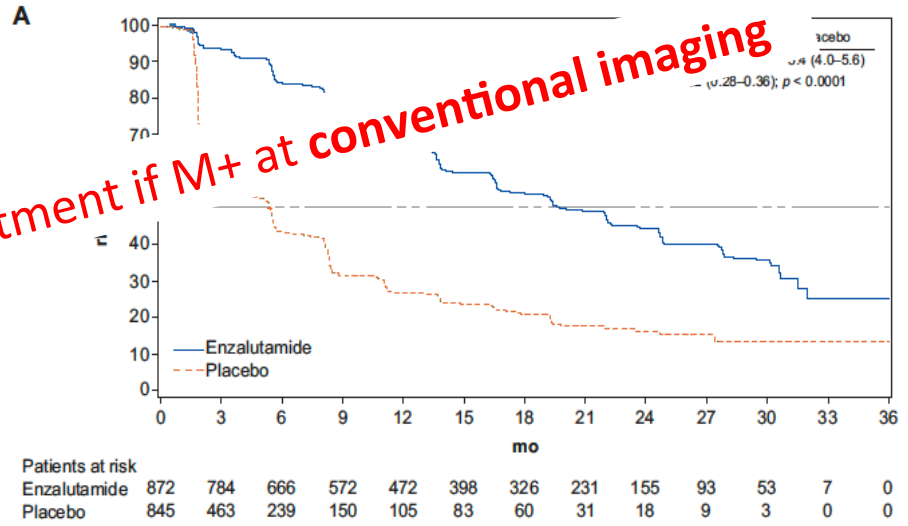




Smith MR et al. J Clin Oncol 2013;31:3800-06

How long SBRT is repeatable with the aim of delaying systemic therapy ?





At least ≥ **6 months** between each treatment if M+ at **conventional imaging**

Ryan CJ et al, Lancet Oncol 2015
Beer TM et al, Eur Urol 2017

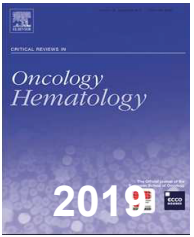
How long SBRT is repeatable with the aim of delaying systemic therapy ?

CT and Bone scan negative, **PET-CT positive**

	SPARTAN	PROSPER	ARAMIS
MFS - Experimental arm	40.5 mos	36.6 mos	40.4 mos
MFS – Placebo	16.2 mos	14.7 mos	18.4 mos

More than **one year** between each treatment

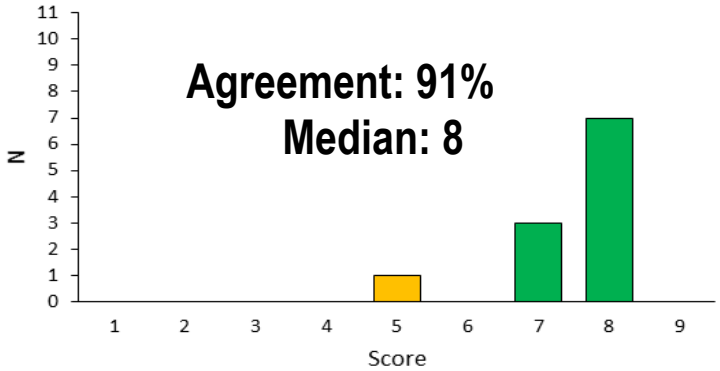
Smith MR et al, NEJM 2018
Hussain M et al, NEJM 2018
Fizazi K et al. NEJM 2019



Consensus statements on ablative radiotherapy for oligometastatic prostate cancer: A position paper of Italian Association of Radiotherapy and Clinical Oncology (AIRO)

Statement 3.1

In an asymptomatic or minimally symptomatic oligometastatic mCRPC patient, with a PSA doubling time > 6 months, time to castration resistant phenotype > 12 months, oligometastasis detected by metabolic imaging, radiotherapy with radical intent to metastatic sites could be offered as alternative to androgen receptor target agent to differ systemic treatment



D'Angelillo et al. CROH 2019

In progression during DOC or ARTA

New Opportunities in mCRPC

- **Precision Medicine: PARPi**
- **Theragnostics: ^{177}Lu-PSMA-617**

VOLUME 34 · NUMBER 12 · APRIL 20, 2016

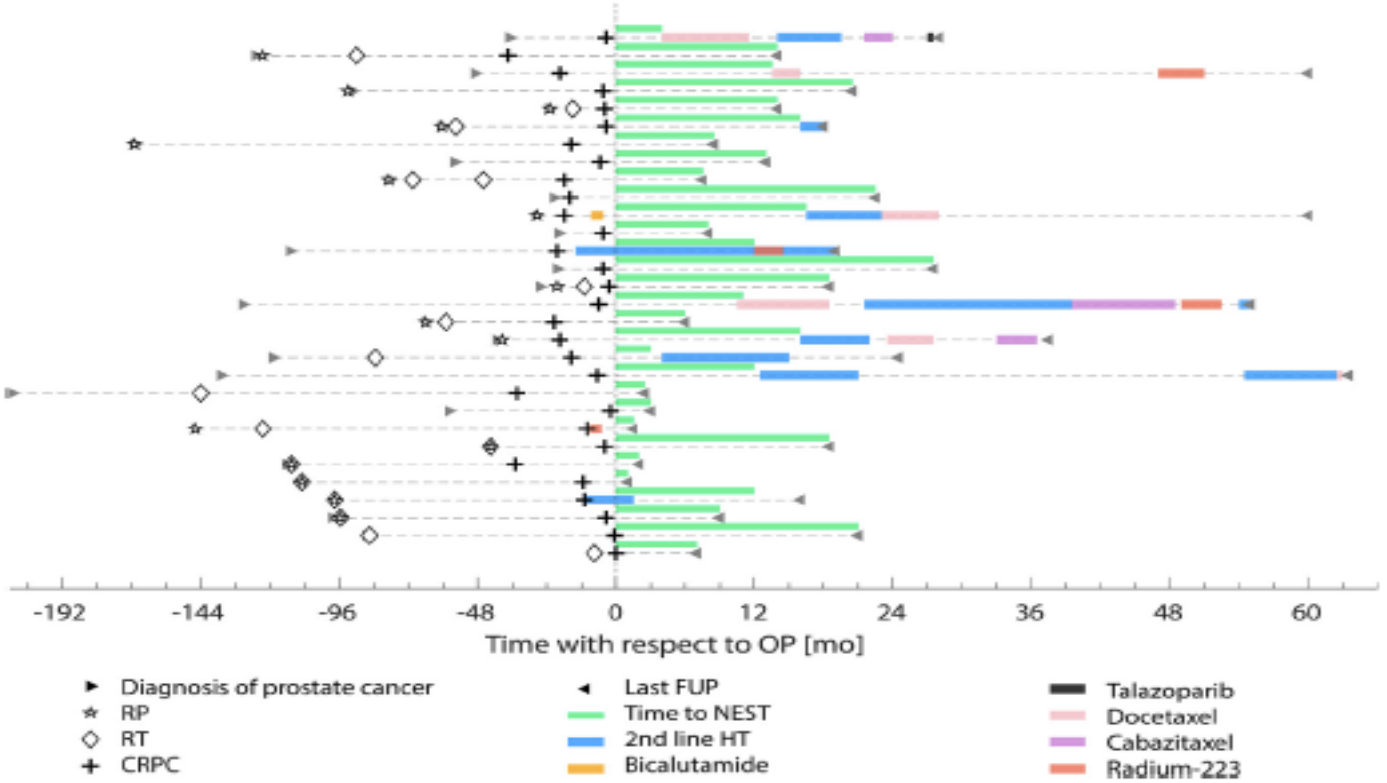
JOURNAL OF CLINICAL ONCOLOGY

SPECIAL ARTICLE

Trial Design and Objectives for Castration-Resistant Prostate Cancer: Updated Recommendations From the Prostate Cancer Clinical Trials Working Group 3

RECOMMENDATION FROM THE PROSTATE CANCER CLINICAL WORKING GROUP 3 (2016):

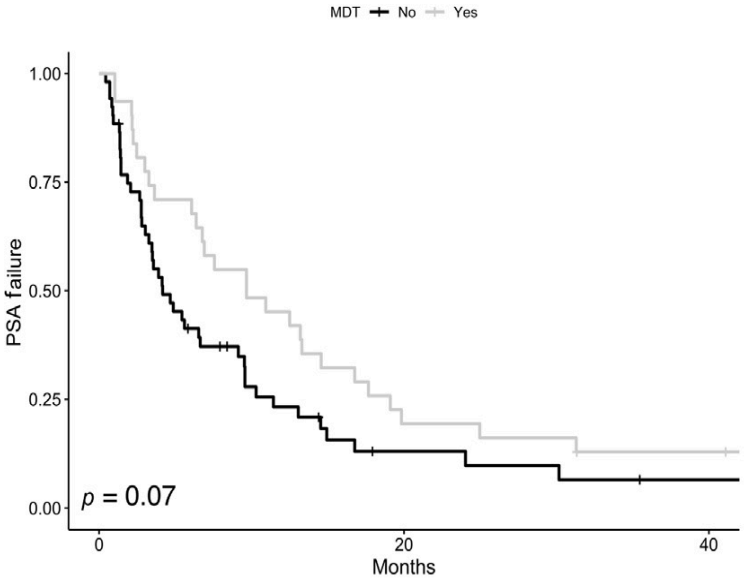
In cases in which multiple sites of disease continue to respond but one to two sites grow, focal therapy such as radiation or surgery could be administered to the resistant site(s) and systemic therapy continued.

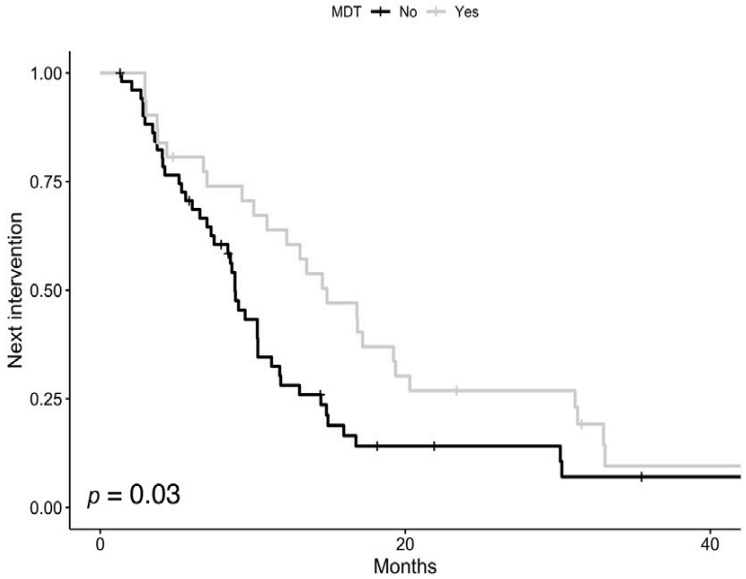


median NEST-free survival of 16 mo

Berghen et al. Eur Urol. 2019

Metastasis-directed Therapy Prolongs Efficacy of Systemic Therapy and Improves Clinical Outcomes in Oligoprogressive Castration-resistant Prostate Cancer





Deek et al. Eur Urol Oncol 2020

Metastasis-directed stereotactic radiotherapy for oligoprogressive castration-resistant prostate cancer: a multicenter study

World Journal of Urology **2019**

Luca Triggiani[1] · Rosario Mazzola[2] · Stefano Maria Magrini[1] · Gianluca Ingrosso[3] · Paolo Borghetti[1] · Fabio Trippa[4] · Andrea Lancia[3] · Beatrice Detti[5] · Giulio Francolini[5] · Fabio Matrone[6] · Roberto Bortolus[6] · Giuseppe Fanetti[6] · Ernesto Maranzano[4] · Francesco Pasqualetti[9] · Fabiola Paiar[9] · Marco Lorenzo Bonù[1] · Alessandro Magli[10] · Alessio Bruni[11] · Ercole Mazzeo[11] · Ciro Franzese[12] · Marta Scorsetti[12,14] · Filippo Alongi[1,2] Barbara Alicja Jereczek-Fossa[7,8] · Piet Ost[13] · Michela Buglione[1]

RESEARCH Open Access

Radiotherapy in metastatic castration resistant prostate cancer patients with oligo-progression during abiraterone-enzalutamide treatment: a mono-institutional experience

Radiation Oncology (2019) 14:205

Maurizio Valeriani[1*], Luca Marinelli[1], Serena Macrini[2], Chiara Reverberi[1], Anna Maria Aschelter[2], Vitaliana De Sanctis[1], Paolo Marchetti[2], Lidia Tronnolone[1] and Mattia Falchetto Osti[1]

Stereotactic ablative radiotherapy in castration-resistant prostate cancer patients with oligoprogression during androgen receptor-targeted therapy

G. Ingrosso[1] · B. Detti[2] · A. Fodor[3] · S. Caini[4] · S. Borghesi[5] · L. Triggiani[6] · F. Trippa[7] · D. Russo[8] · A. Bruni[9] · G. Francolini[2] · A. Lancia[10] · L. Marinelli[11] · N. Di Muzio[3] · L. Livi[2] · S. M. Magrini[6] · E. Maranzano[7] · D. Musio[8] · C. Aristei[1] · M. Valeriani[11]

Clinical and Translational Oncology **2021**

Berghen *et al. BMC Cancer* (2020) 20:457
https://doi.org/10.1186/s12885-020-06853-x

BMC Cancer

STUDY PROTOCOL Open Access

Metastasis-directed therapy in castration-refractory prostate cancer (MEDCARE): a non-randomized phase 2 trial

Charlien Berghen[1*], Steven Joniau[2], Kato Rans[1], Gaëtan Devos[2], Kenneth Poels[1], Koen Slabbaert[3], Herlinde Dumez[4], Maarten Albersen[2], Karolien Goffin[5], Karin Haustermans[1] and Gert De Meerleer[1]

Primary endpoint: postponement of the start of next-line systemic treatment (NEST)

Open Issues in Oligometastatic Disease

- ✓ **Does MTD impact clinical outcomes in both synchronous and metachronous or progressive disease ?**

- ✓ **What are valid(ated) endpoints?**
  - Survival
  - Time to polymetastatic progression
  - Time to systemic therapy

Variable Definitions of Oligometastatic Disease in Representative Trials

TABLE 1. Definition of Oligometastatic Disease and Imaging Modalities Used in Representative Studies of Oligometastatic Prostate Cancer

Study	Type	Sample Size, No.	Cutoff for Oligometastases, No.	Location of Metastases	Imaging Modality
Singh et al[5]	R; NA	369	≤ 5	Any	^{99m}Tc bone scan
Berkovic et al[14]	P; SA	24	≤ 3	Bone or LN	^{99m}Tc bone scan, ^{18}F-FDG PET/CT, ^{11}C-choline PET/CT
Schick et al[15]	P; SA	50	≤ 4	NR	^{99m}Tc bone scan, ^{18}F-choline PET/CT, ^{11}C-acetate PET/CT
Decaestecker et al[16]	P; SA	50	≤ 3	Bone or LN	^{18}F-FDG PET/CT, ^{18}F-choline PET/CT
Jereczek-Fossa et al[17]	P; SA	69	≤ 1	LN	^{18}F-FDG PET/CT, ^{11}C-choline PET/CT, CT
Ost et al[18]	P; SA	119	≤ 3	Any	^{18}F-FDG PET/CT, ^{18}F-choline PET/CT
Ost et al[19]	P; RA	62	≤ 3	Any	^{18}F-choline PET/CT

Abbreviations: FDG, 18-fluorodeoxyglucose; LN, lymph node; NA, not applicable; NR, not reported; P, prospective; R, retrospective; RA, randomized; SA, single arm.

Oligometastatic Prostate Cancer: Future Perspectives

Integration of clinical and molecular features

Goals of care should be driven by biology

- Molecular imaging
- ctDNA
- Exosomes
- Seed vs. soil: Biology of tumor + metastatic niche ?