



PAPEL DE LA QUIMIOTERAPIA BASADA EN TAXANOS EN EL CÁNCER DE PRÓSTATA NO METASTÁSICO Y DE ALTO RIESGO

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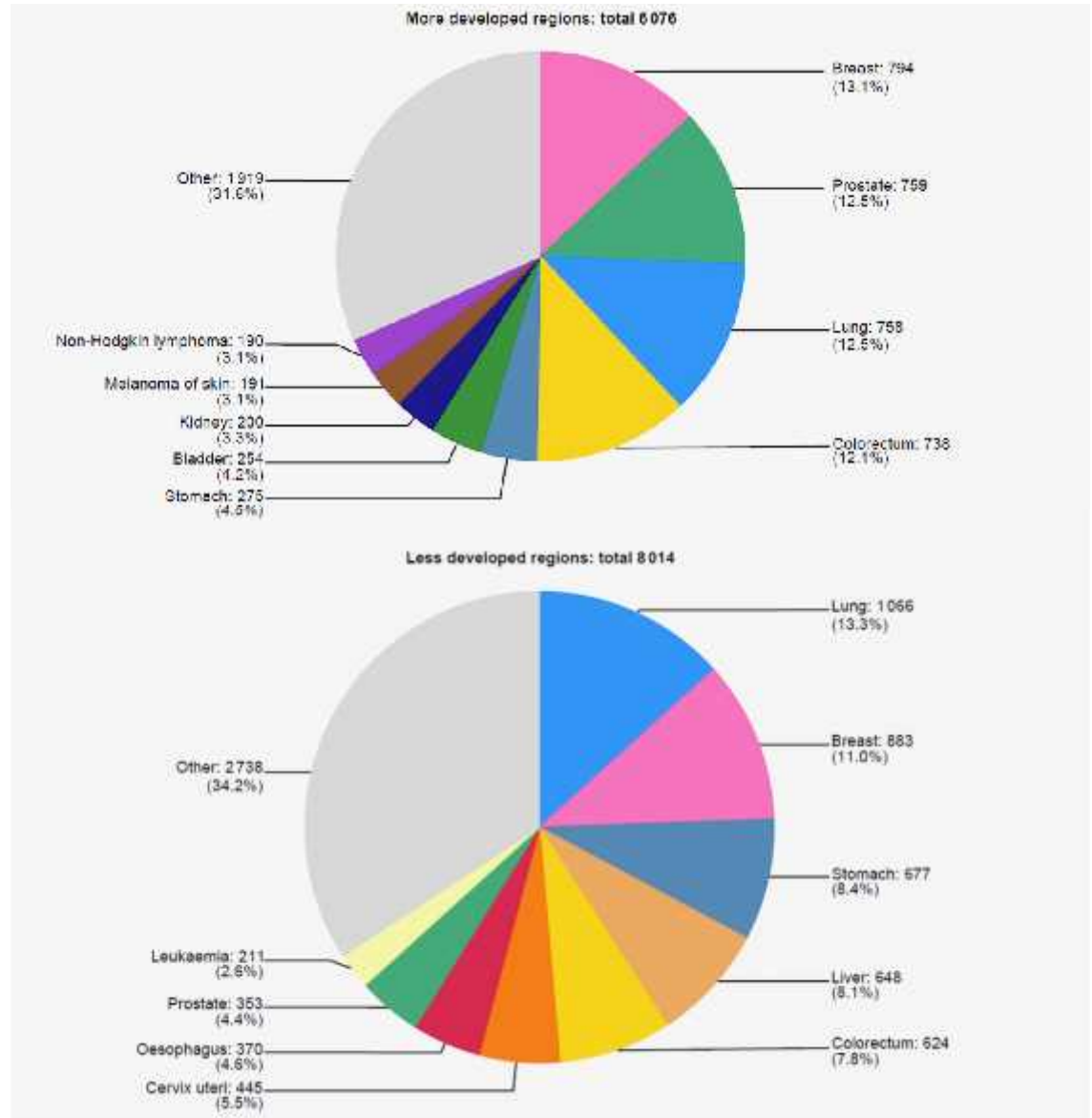


DISCLOSURES

- *Advisory boards*: Sanofi, Janssen, Astellas, Bayer, Roche, Ipsen.
- *Honoraria (speaker)*: Astellas, Sanofi.
- *Travel expenses*: Sanofi, Janssen, Astellas, Bayer.
- *Clinical trials*: Sanofi, Astellas, Bayer, Ipsen, Bavarian-Nordic, Roche.

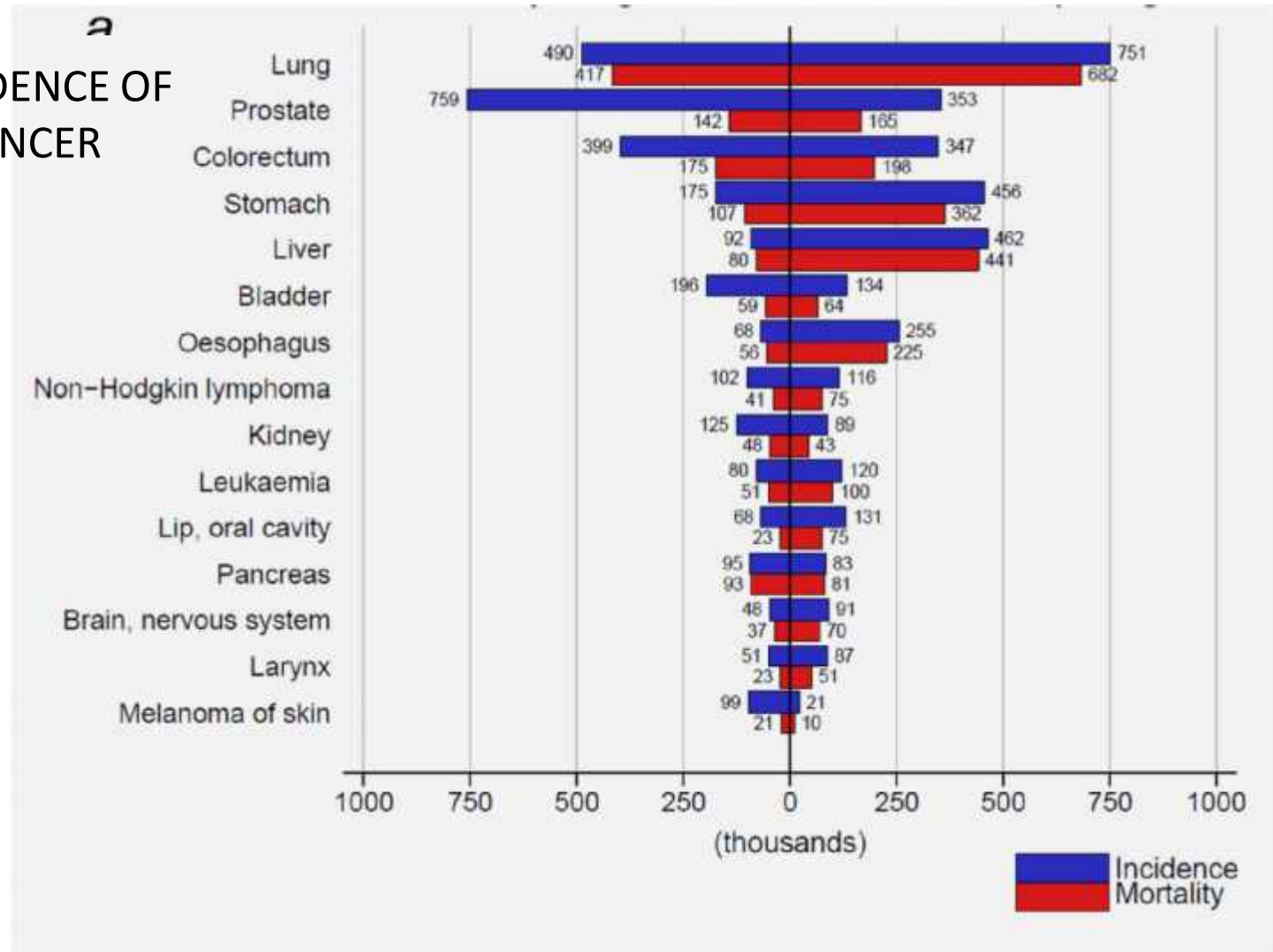


WORLD INCIDENCE OF PROSTATE CANCER





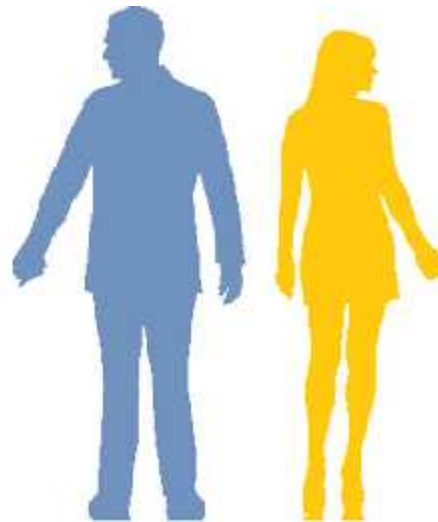
WORLD INCIDENCE OF PROSTATE CANCER





INCIDENCE OF CANCER IN SPAIN, REDECAN 2015

	CASES	%
Prostate	33370	22
Colon & Rectum	24764	17
Lung	22430	15
Urinary Bladder	17439	12
Stomach	5150	3
Lip, Oral Cavity & Pharynx	4980	3
Liver	4252	3
Non Hodgkin's Lymphomas	4190	3
Leukaemias	3782	3
Kidney	3590	2
ALL (Except skin non melanoma)	148827	100



	CASES	%
Breast	27747	28
Colon & Rectum	16677	17
Corpus Uteri	6160	6
Lung	5917	6
Urinary Bladder	3654	4
Non Hodgkin's Lymphomas	3480	4
Pancreas	3401	3
Stomach	3306	3
Ovary	3228	3
Leukaemias	2736	3
ALL (Except skin non melanoma)	98944	100



COMMON DEFINITIONS OF HIGH-RISK

American Urological Association

- Preoperative PSA >20 ng/ ml, and/ or preoperative Gleason score of 8–10, and/ or clinical stage \geq T2c^{4,5}

European Association of Urology

- Preoperative PSA >20 ng/ ml, and/ or preoperative Gleason score of 8–10, and/ or clinical stage \geq T3a¹⁴¹

Radiation Therapy Oncology Group

- High risk: T1–2 and Gleason 8–10, or T3 or N1 with Gleason 7
- Very high risk: T3 or N1 with Gleason 8–10⁶

National Comprehensive Cancer Network

- High risk: Preoperative PSA >20 ng/ ml, preoperative Gleason score of 8–10, or clinical stage T3a
- Very high risk: T3b–T4

Cancer of the Prostate Risk Assessment (CAPRA)

- Includes age, PSA, clinical stage, Gleason score, and percentage of positive biopsy cores^{9,142}



Postoperative Nomogram for Prostate Cancer Recurrence

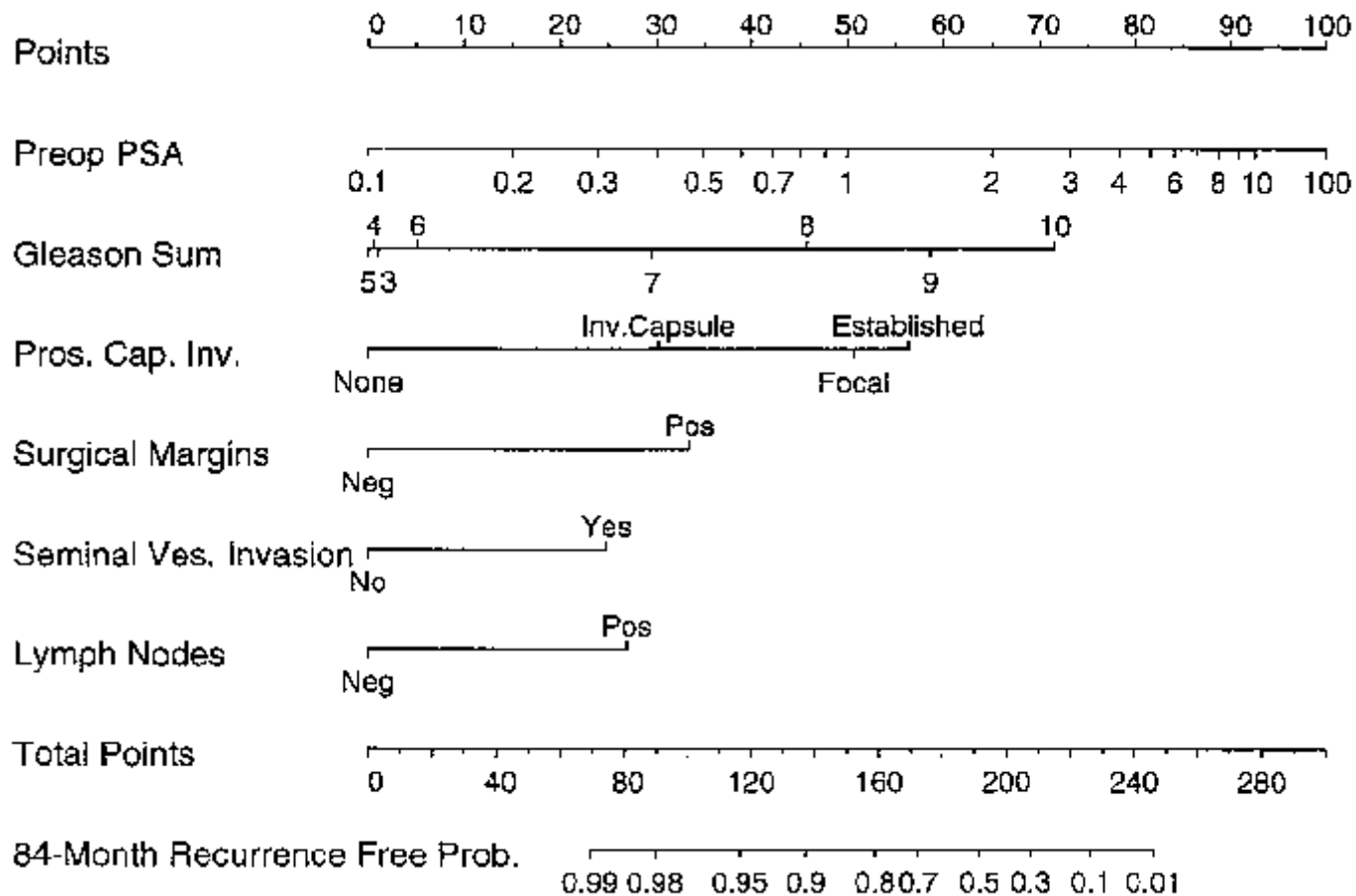




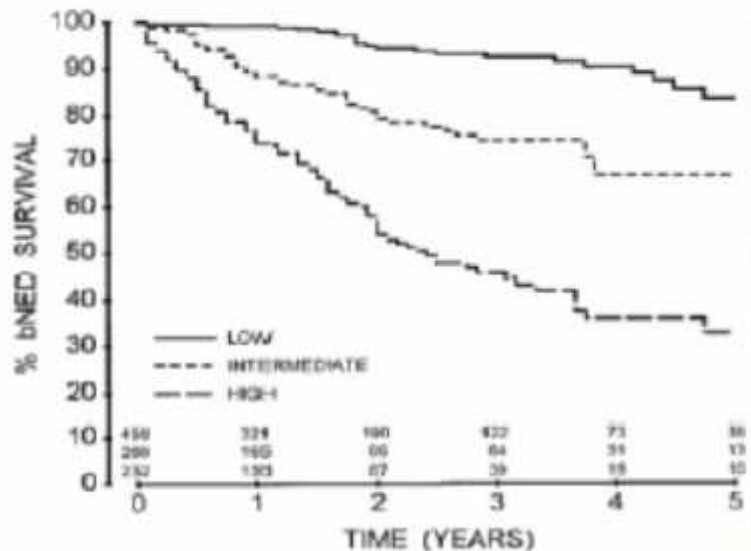
Table 1. Available Tissue-Based Tests for Prostate Cancer Prognosis

Test	Platform	Populations studied	Outcome Reported (Test independently predicts)	References	Molecular Diagnostic Services Program (MoDX) Recommendations
Decipher	Whole-transcriptome 1.4M RNA expression (44,000 genes) oligonucleotide microarray optimized for FFPE tissue	Post radical prostatectomy (RP), adverse pathology/high-risk features	Metastasis Prostate cancer-specific mortality	142,507-518	Cover post-RP for 1) pT2 with positive margins; 2) any pT3 disease; 3) rising PSA (above nadir)
		Post RP, biochemical recurrence	Metastasis Biochemical failure		
		Post RP, adjuvant or salvage radiotherapy	Metastasis		
Ki-67	IHC	Biopsy, intermediate- to high-risk treated with EBRT	Metastasis	519-522	Not recommended
		Biopsy, conservatively managed (active surveillance)	Prostate cancer-specific mortality		
Oncotype DX Prostate	Quantitative RT-PCR for 12 prostate cancer-related genes and 5 housekeeping controls	Biopsy, low- to intermediate-risk treated with RP	Non-organ-confined pT3 or Gleason grade 4 disease on RP	63,523	Cover post-biopsy for NCCN very-low- and low-risk prostate cancer in patients with at least 10 years life expectancy who have not received treatment for prostate cancer and are candidates for active surveillance or definitive therapy
Prolaris	Quantitative RT-PCR for 31 cell cycle-related genes and 15 housekeeping controls	Transurethral resection of the prostate (TURP), conservatively managed (active surveillance)	Prostate cancer-specific mortality	59-62,524,525	Cover post-biopsy for NCCN very-low- and low-risk prostate cancer in patients with at least 10 years life expectancy who have not received treatment for prostate cancer and are candidates for active surveillance or definitive therapy
		Biopsy, conservatively managed (active surveillance)	Prostate cancer-specific mortality		
		Biopsy, localized prostate cancer	Biochemical recurrence Metastasis		
		Biopsy, intermediate-risk treated with EBRT	Biochemical failure		
		RP, node-negative localized prostate cancer	Biochemical recurrence		
ProMark	Multiplex immunofluorescent staining of 8 proteins	Biopsy, Gleason grade 3+3 or 3+4	Non-organ-confined pT3 or Gleason pattern 4 disease on RP	526	Cover post-biopsy for NCCN very-low- and low-risk prostate cancer in patients with at least 10 years life expectancy who have not received treatment for prostate cancer and are candidates for active surveillance or definitive therapy.
PTEN	Fluorescent in situ hybridization or IHC	Transurethral resection of the prostate (TURP), conservatively managed (active surveillance)	Prostate cancer-specific mortality	527-531	Not recommended
		Biopsy, Gleason grade 3+3	Upgrading to Gleason pattern 4 on RP		
		RP, high-risk localized disease	Biochemical recurrence		



DEFINICIÓN DE ALTO RIESGO

Riesgo	Institución	PSA (ng/ml)		Gleason		Estadio
Bajo	D'Amico	≤10	y	≤6	y	cT1c-2a
	NCCN	≤10		≤6		cT1c-2a
Intermedio	D'Amico	10.1-20	o	7	o	cT2b
	NCCN	10.1-20		7		cT2b-c
Alto	D'Amico	≥20	o	≥8	o	≥cT2c
	NCCN	≥20	o	≥8	o	≥cT3



Aproximadamente, el 15% de los pacientes con cáncer de próstata son diagnosticados en situación de alto riesgo de progresión/recidiva.



LOCALIZED PROSTATE CANCER IS SOMETIMES A SYSTEMIC DISEASE

- High risk of failure of local therapy alone:
 - Clinical stage T3, T4
 - PSA \geq 20 ng/mL
 - Gleason 8-10 (groups 4-5)
 - High volume Gleason 7
 - PSA velocity $>$ 2 ng/mL/year



EL CÁNCER DE MAMA COMO PARADIGMA

- El cáncer de mama es el paradigma del tratamiento sistémico en pacientes con tumor localizado en riesgo de recidiva.
- Beneficio del tratamiento neoadyuvante y adyuvante, tanto del tratamiento hormonal como de la quimioterapia.

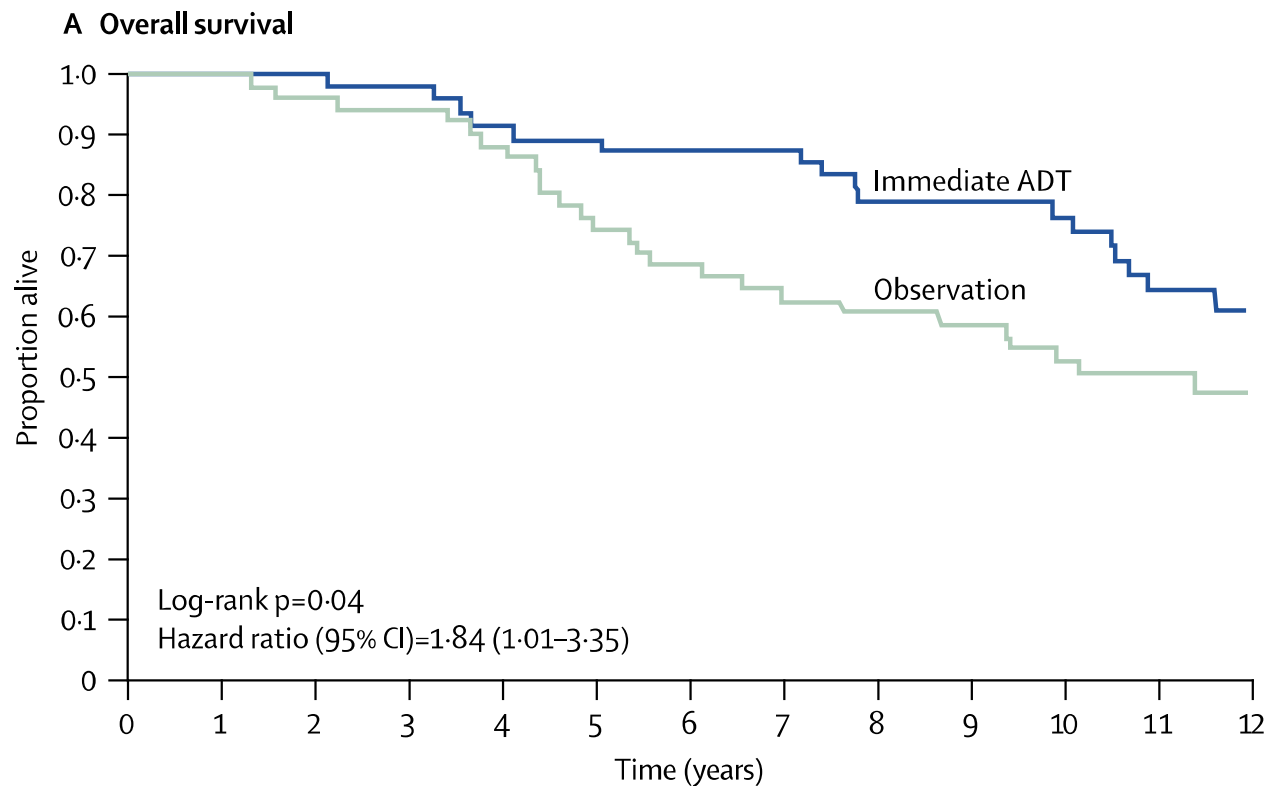


LA HORMONOTERAPIA MEJORA LA SUPERVIVENCIA CON UN NIVEL DE EVIDENCIA I

Study	Duration of ADT	n	Absolute Risk Reduction	NNT
EORTC 22863	3 years adjuvant	415	16% OS	5.5
RTOG 8531	Lifelong adjuvant	977	10% OS	10
RTOG 8610	4 mo N/C	456	9% OS	11
DFCI	6 mo N/C/A	206	10% OS	10
TROG	6 mo N/C	802	13% OS	7.5
RTOG 9408	4 mo N/C	1979	5% OS	20



HORMONOTERAPIA ADYUVANTE TRAS CIRUGÍA CON GANGLIOS POSITIVOS



Number at risk

Immediate ADT	47	47	47	46	43	42	41	41	36	35	33	25	14
Observation	51	51	49	48	45	38	35	32	31	30	25	17	10



RISK GROUP

INITIAL THERAPY

ADJUVANT THERAPY

High:^f

- T3a or
- Gleason score 8/ Gleason grade group 4 or
- Gleason score 9–10/ Gleason grade group 5
- PSA >20 ng/mL

Very high:

- T3b-T4 or
- Primary Gleason pattern 5/ Gleason grade group 5 or
- >4 cores with Gleason score 8–10/ Gleason grade group 4 or 5

EBRTⁱ + ADT^m (2–3 y; category 1)^g

or

EBRTⁱ + brachytherapy ± ADT^m (2–3 y)

or

RP^j + PLND

See Monitoring (PROS-7)

Adverse feature(s) and no lymph node metastases:^k
EBRTⁱ
or
Observation^l

No adverse features or lymph node metastases

Lymph node metastasis:
ADT^m (category 1) ± EBRTⁱ
(category 2B)
or
Observation^l

IX
REUNIÓN
NACIONAL:

CÁNCER DE PRÓSTATA, CÁNCER RENAL
Y CÁNCER DE VESÍGULA

GUADALAJARA
14-16 JUNIO
2017

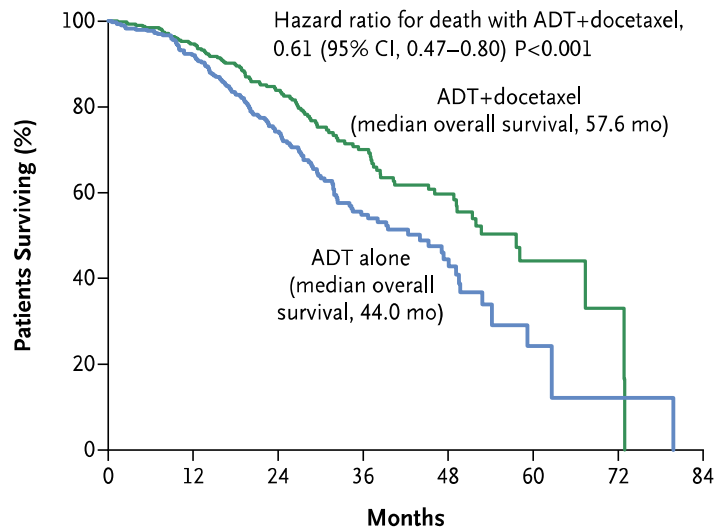


QUIMIOTERAPIA



DOCETAXEL ES ESTÁNDAR EN PRIMERA LÍNEA DE QUIMIOTERAPIA EN CPHS

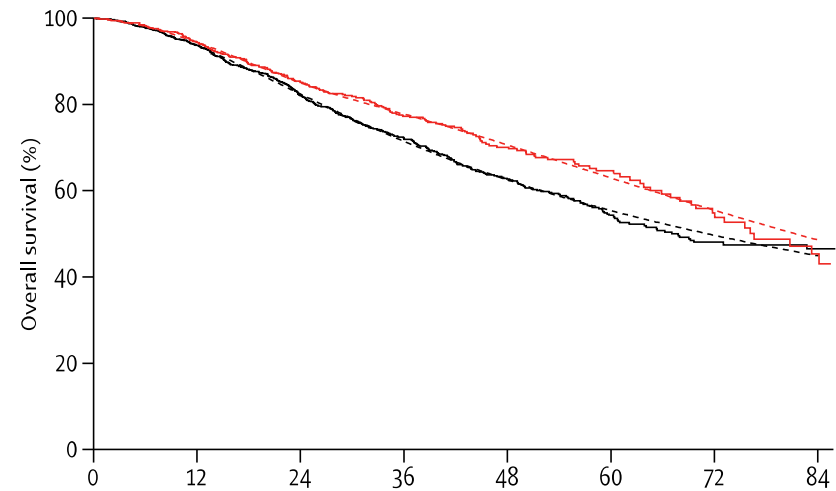
CHAARTED



No. at Risk

	0	12	24	36	48	60	72	84
ADT+docetaxel	397	333	189	89	46	5	2	0
ADT alone	393	318	168	71	27	3	1	0

STAMPEDE

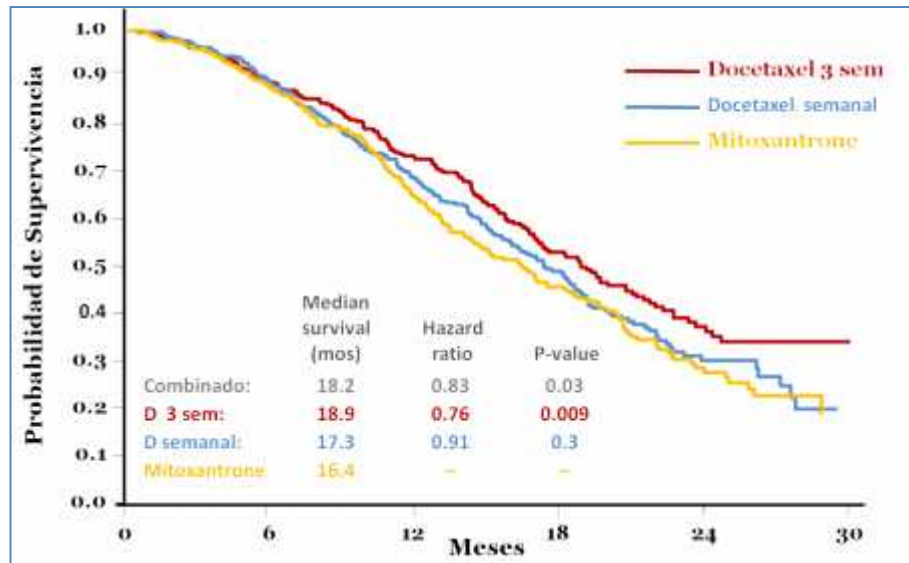


	0	12	24	36	48	60	72	84
Docetaxel	1184 (73)	1093 (134)	876 (92)	538 (60)	322 (35)	166 (17)	87 (2)	43
Control	592 (33)	545 (52)	447 (35)	290 (22)	181 (12)	93 (13)	51 (6)	20

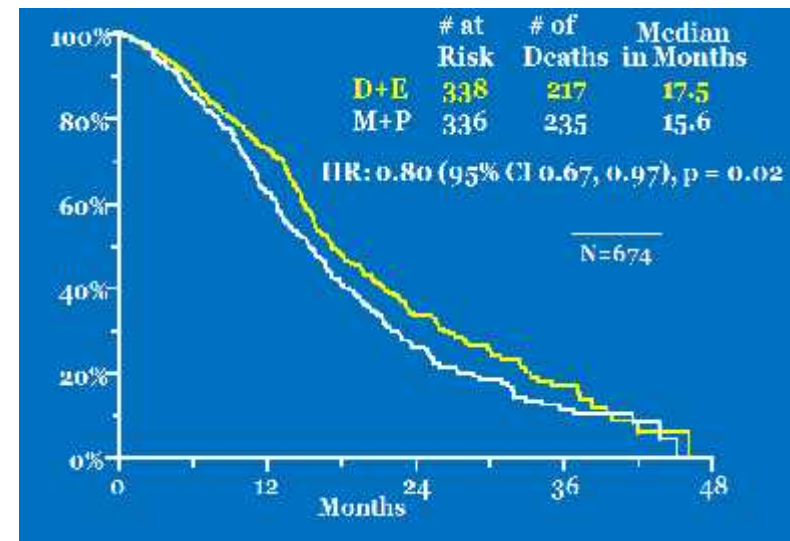


DOCETAXEL ES ESTÁNDAR EN PRIMERA LÍNEA DE QUIMIOTERAPIA EN CPRCm

Docetaxel plus Prednisone or Mitoxantrone plus Prednisone for Advanced Prostate Cancer

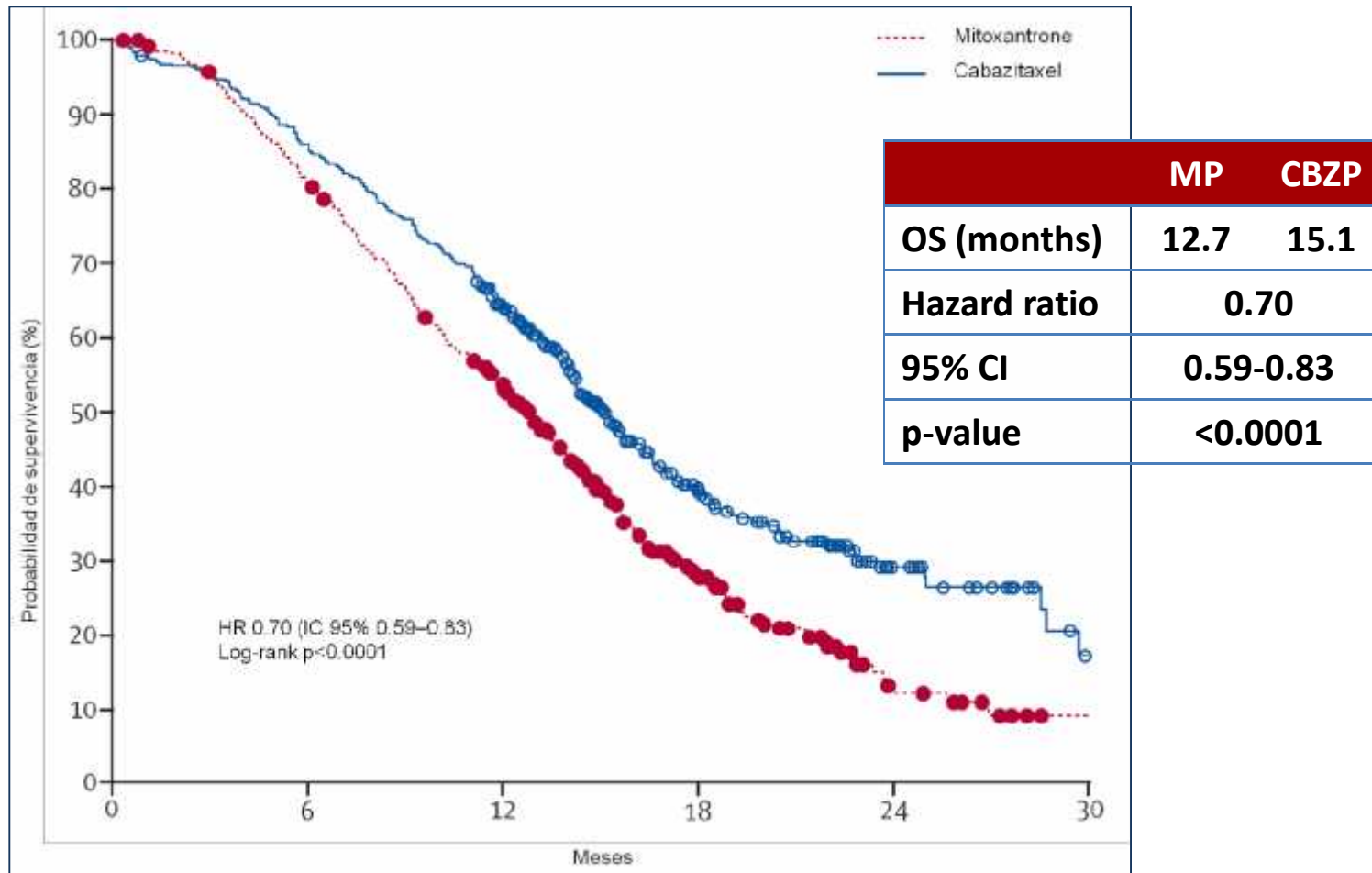


Docetaxel and Estramustine Compared with Mitoxantrone and Prednisone for Advanced Refractory Prostate Cancer



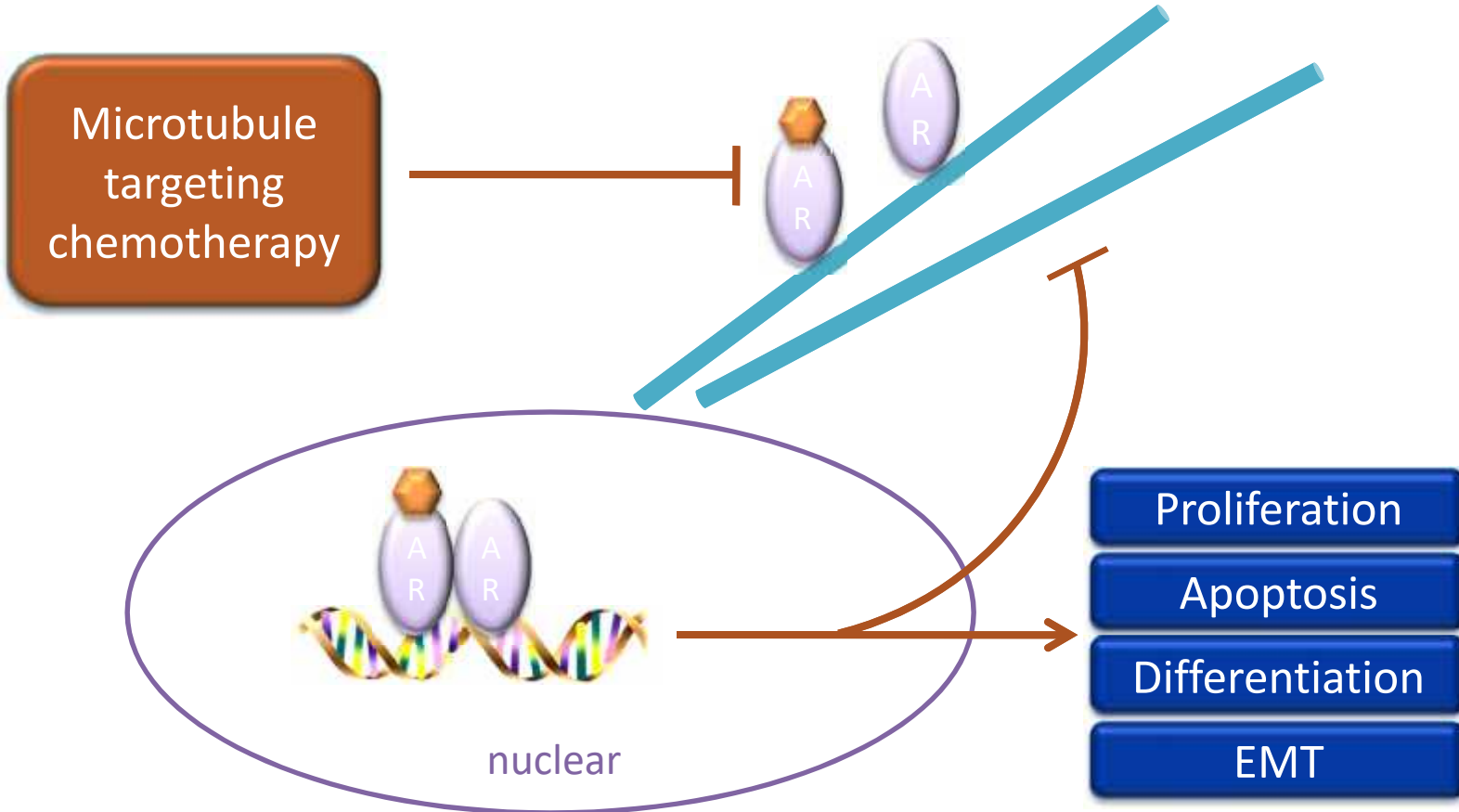


TROPIC: MEJORÍA DE SG CON CABAZITAXEL





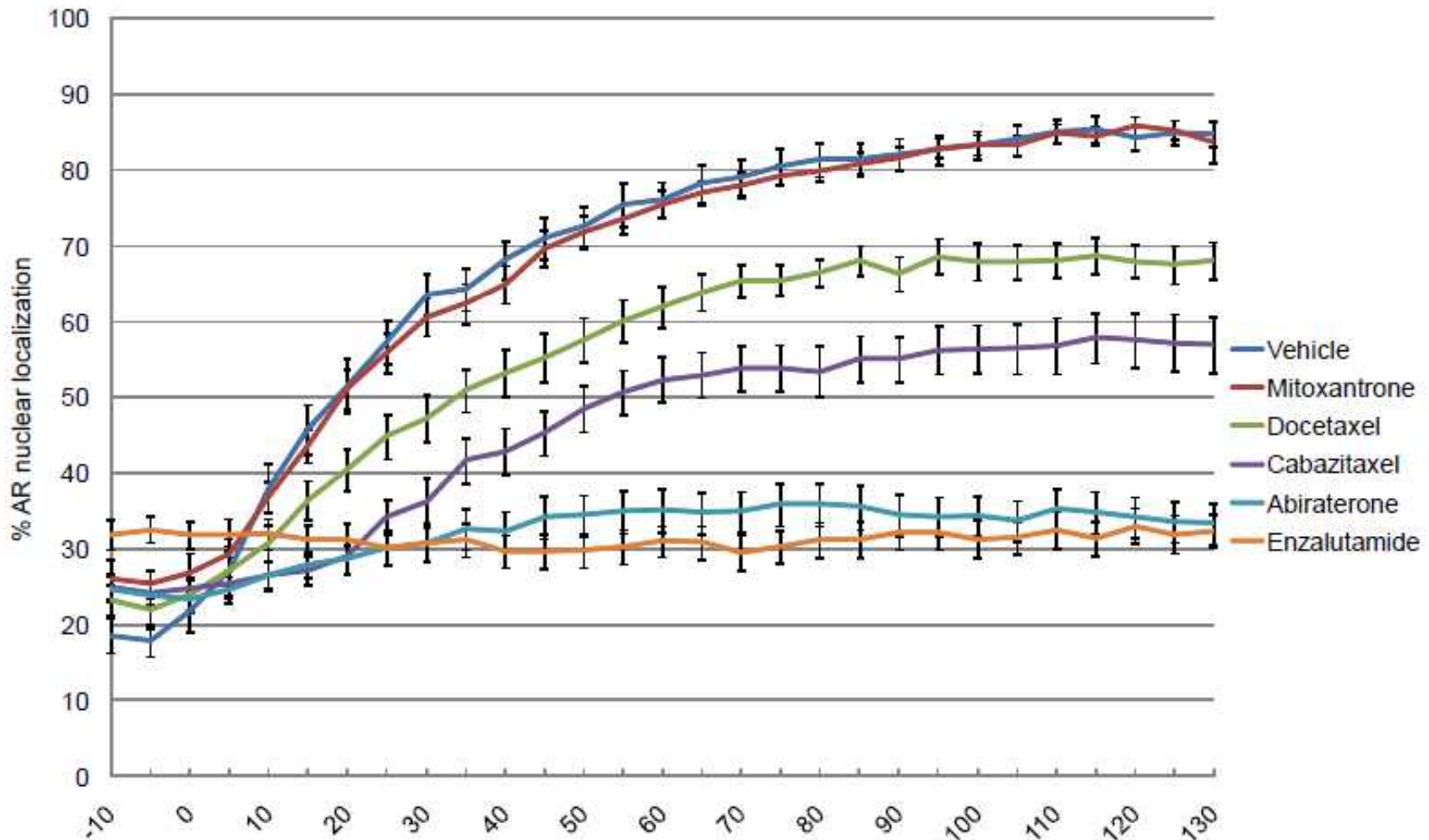
TAXANES BLOCK AR NUCLEAR TRANSLOCATION



Microtubules facilitate AR nuclear translocation and enhance downstream AR transcriptional activity - Taxanes block this pathway

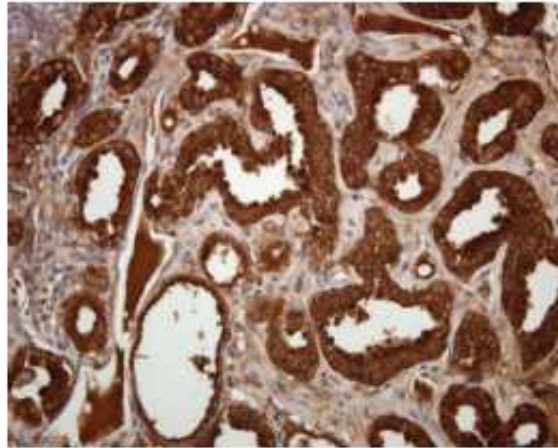


TAXANES BLOCK AR NUCLEAR TRANSLOCATION

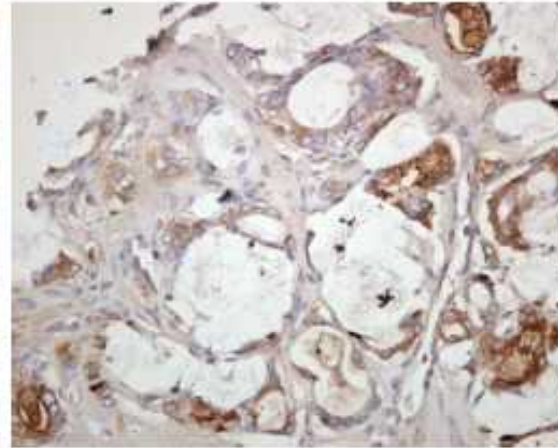




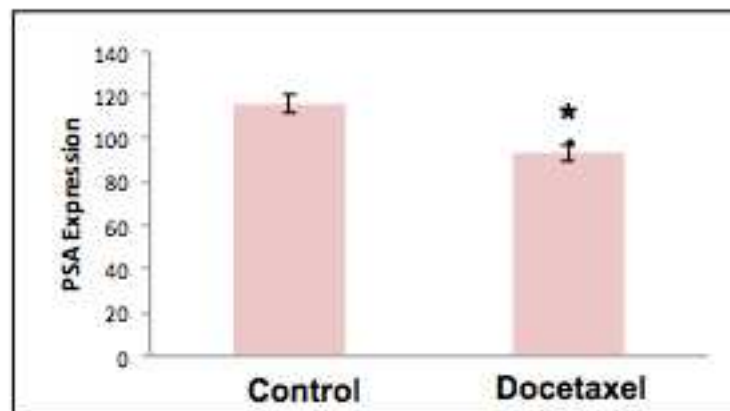
DOCETAXEL INHIBITS PSA EXPRESSION IN PCa



Control



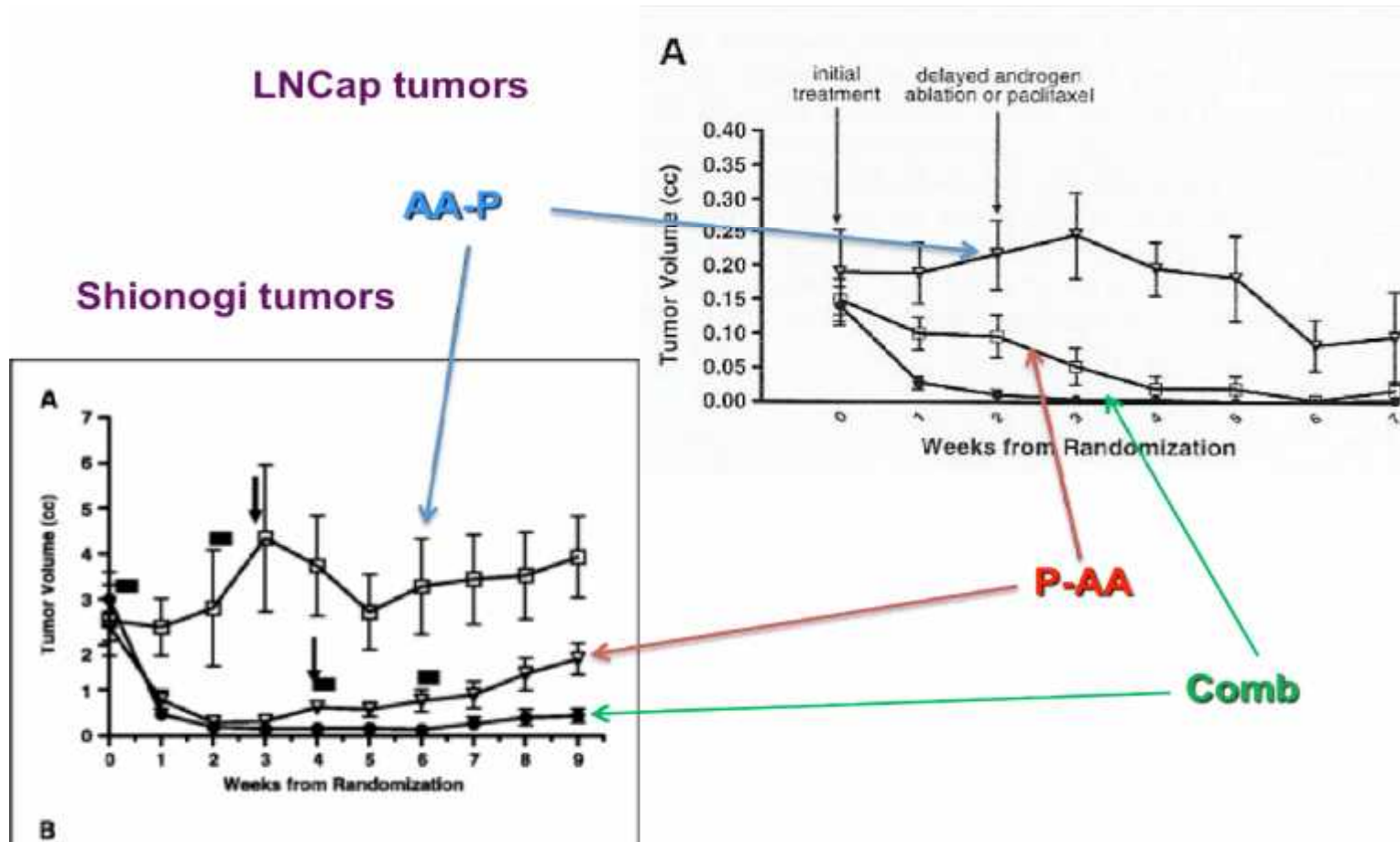
Docetaxel treatment



**Significant reduction
in PSA expression
in prostate tumors
of patients treated
with docetaxel**

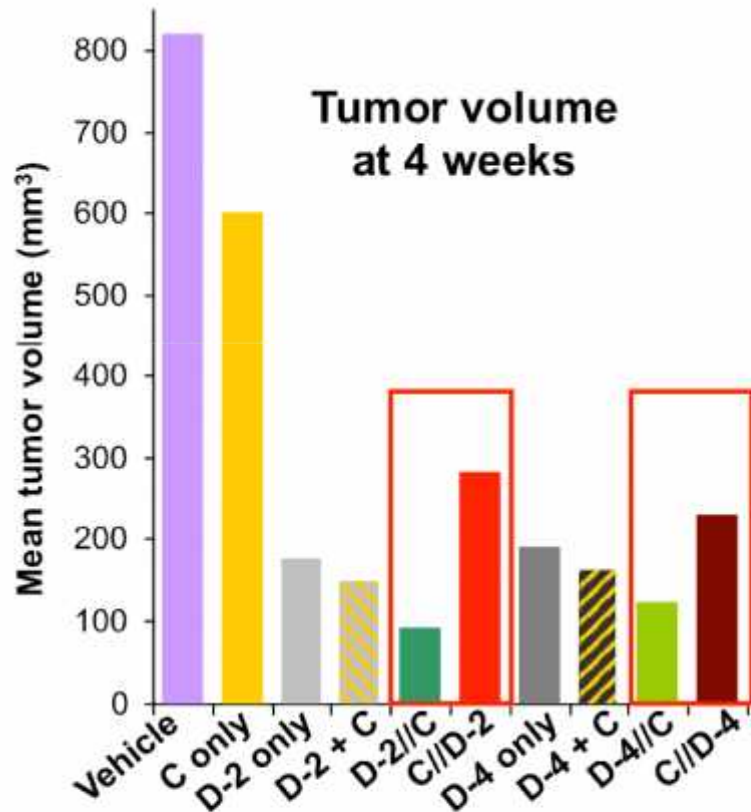


TIMING IS EVERYTHING: PRECLINICAL EVIDENCE SUPPORTING SIMULTANEOUS RATHER THAN SEQUENTIAL CHEMOHORMONAL THERAPY FOR PROSTATE CANCER

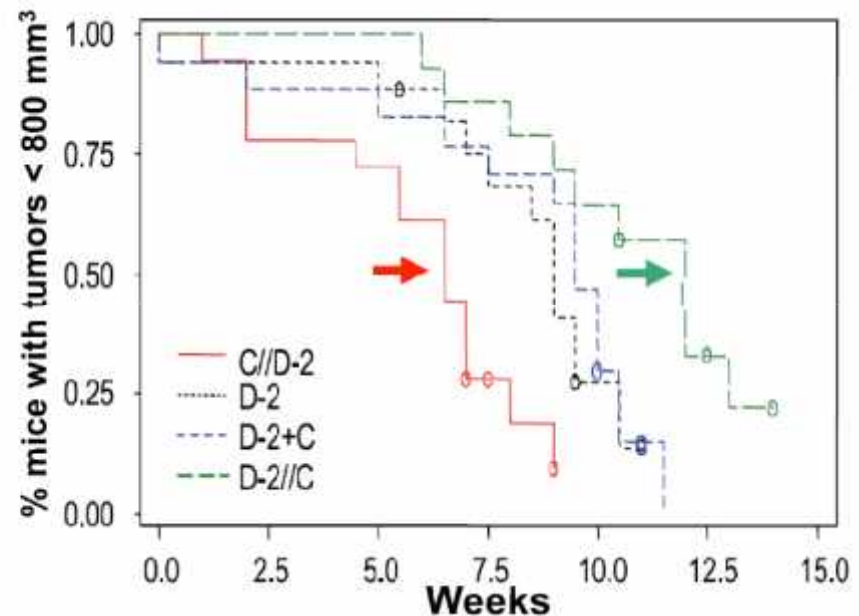




SMALLER TUMOR SIZE AND GROWTH DELAY FOR DOCETAXEL → CASTRATION SEQUENCE IN MICE WITH LNCaP TUMORS



Smallest tumor volume at 4 weeks achieved with sequence D→C



C: Castration

D-2 (or D-4): Docetaxel given for 2 (or 4) weeks

C//D (-2 or -4): Castration→Docetaxel (2 or 4 wks)

D (-2 or -4)//C: Docetaxel (2 or 4 wks) → Castration

D + C: concomitant

Docetaxel+Castration



PAPEL DE LA QUIMIOTERAPIA

- Neoadyuvante a tratamiento local
- Adyuvante tras tratamiento local
- Concomitante a radioterapia



PAPEL DE LA QUIMIOTERAPIA

RESUMEN DE LOS PRINCIPALES ESTUDIOS CON DOCETAXEL

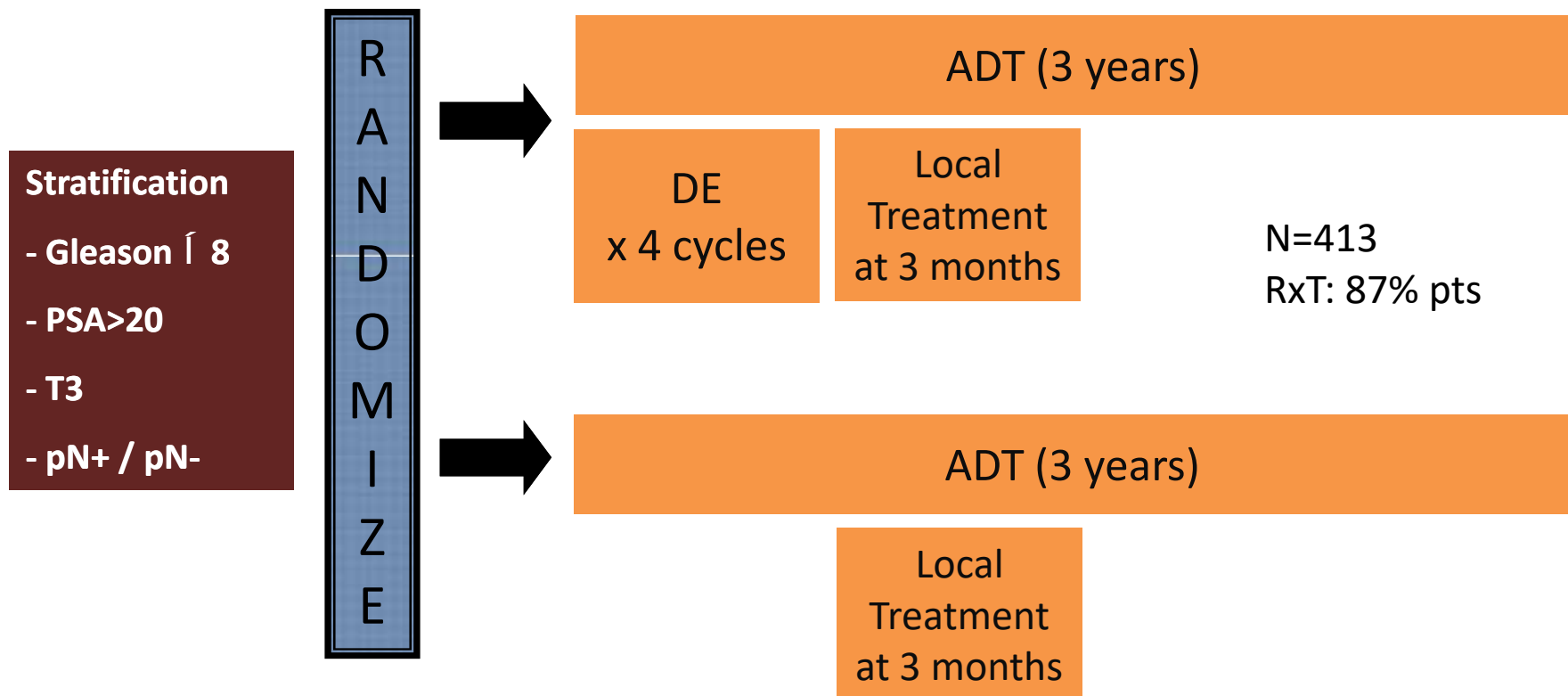
<i>Ensayos clínicos</i>	<i>Tipo de QT</i>	<i>Fecha publ.</i>	<i>Número ptes.</i>	<i>Objetivo primario</i>	<i>Gleason 8-10</i>	<i>Tiempo seguimiento resultados (años)</i>	<i>Resultados (control vs. experimental)*</i>
TAX 3501	Docetaxel	2013	228	SLP	52%	3,25	83% vs. 91%
GETUG 12	Docetaxel	2014	413	SLR	42%	8	50% vs. 62% p = 0,017
RTOG 0521	Docetaxel	2015	612	SG	84%	4	89% vs. 93% p = 0,04
STAMPEDE (mayoría M1)	Docetaxel	2015	2962	SG	70%	5	55% vs. 63% p = 0,006
RTOG 9902	Paclitaxel, etopósido, estramustina	2009, 2015	380	SG	68%	9,2	63 vs 65% p = 0,81

VA-CSP#553

Intergroup S9921



NEOADJUVANT TRIAL – GETUG 12



- Primary endpoint: **Relapse-free survival**
- To detect a **12%** difference with a power of 80% and an alpha risk of 0.05 (two-sided), n= 400 patients
- NCT00055731



GETUG 12

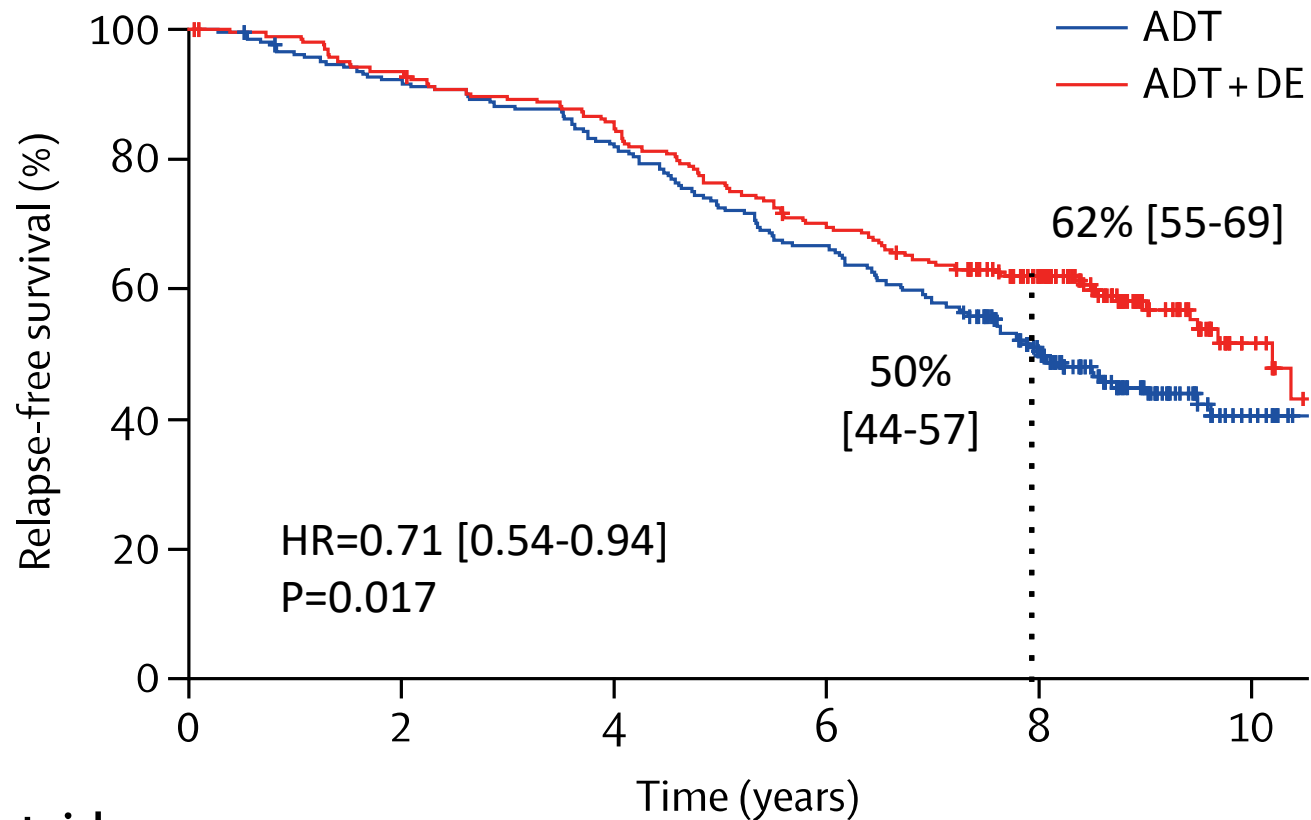
	ADT and DE group (n=207)	ADT only group (n=206)
Age (years)	62 (46-77)	64 (46-77)
Clinical stage		
T1-T2	67 (32%)	67 (33%)
T3-T4	140 (68%)	139 (67%)
Median number of positive biopsy cores/total cores	6/10 (67%)	6/10 (67%)
Gleason score		
<8	120 (58%)	118 (57%)
≥8	87 (42%)	88 (43%)
Pathological nodal status		
N negative	148 (71%)	146 (71%)
N positive	59 (29%)	60 (29%)
Serum PSA concentration (ng/mL)		
≤20	84 (41%)	85 (41%)
>20	123 (59%)	121 (59%)
Serum creatinine (μmol/L)	87 (58-154)	88 (50-139)
Haemoglobin concentration (g/L)	140 (100-170)	150 (110-170)

Data are median (IQR) or n (%), unless stated otherwise. PSA=prostate-specific antigen. ADT=androgen deprivation therapy. DE=docetaxel and estramustine.

Table 1: Baseline characteristics



NEOADJUVANT TRIAL – GETUG 12

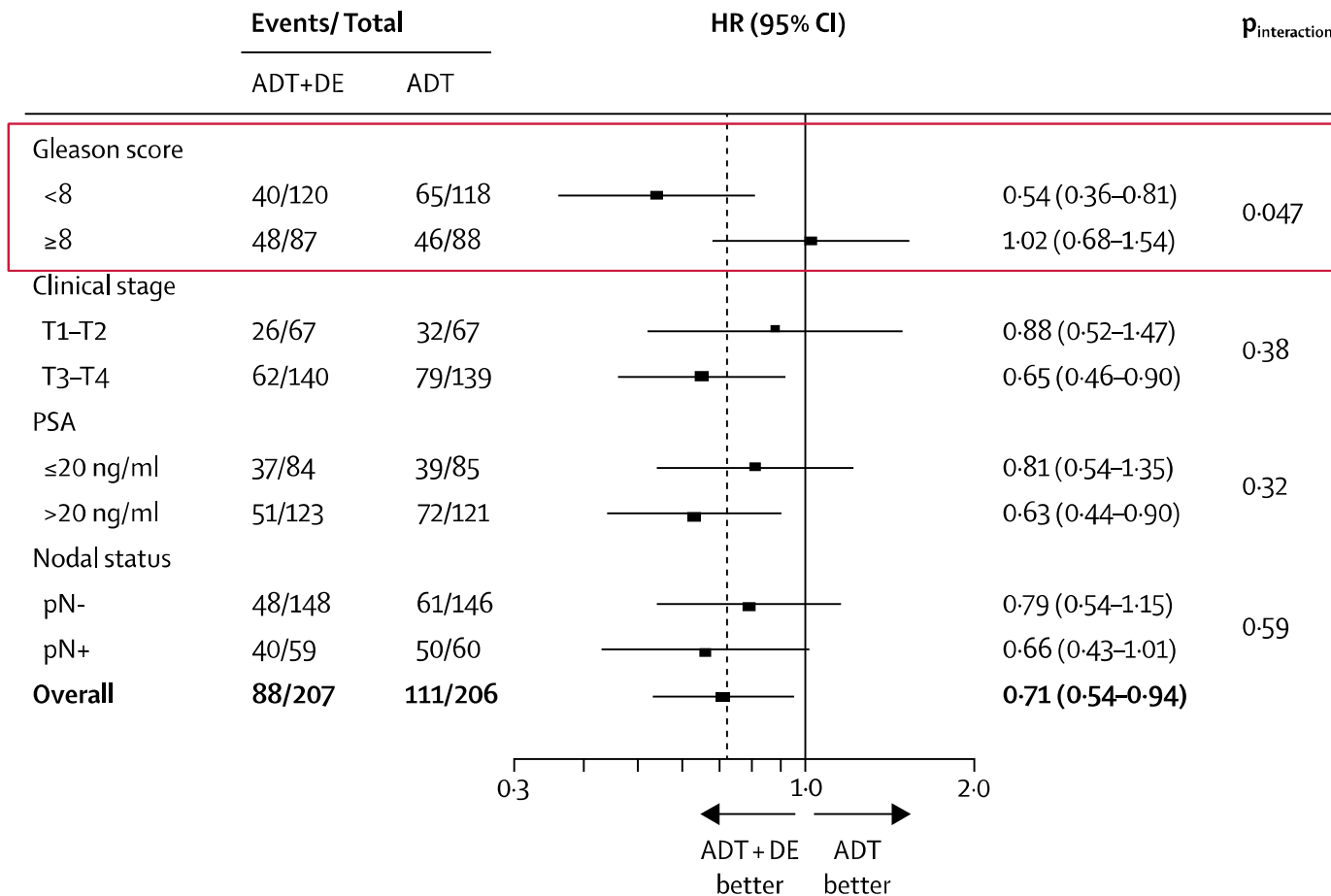


Number at risk

	0	2	4	6	8	10
ADT	206	187	167	136	87	17
ADT+DE	207	191	172	141	105	16

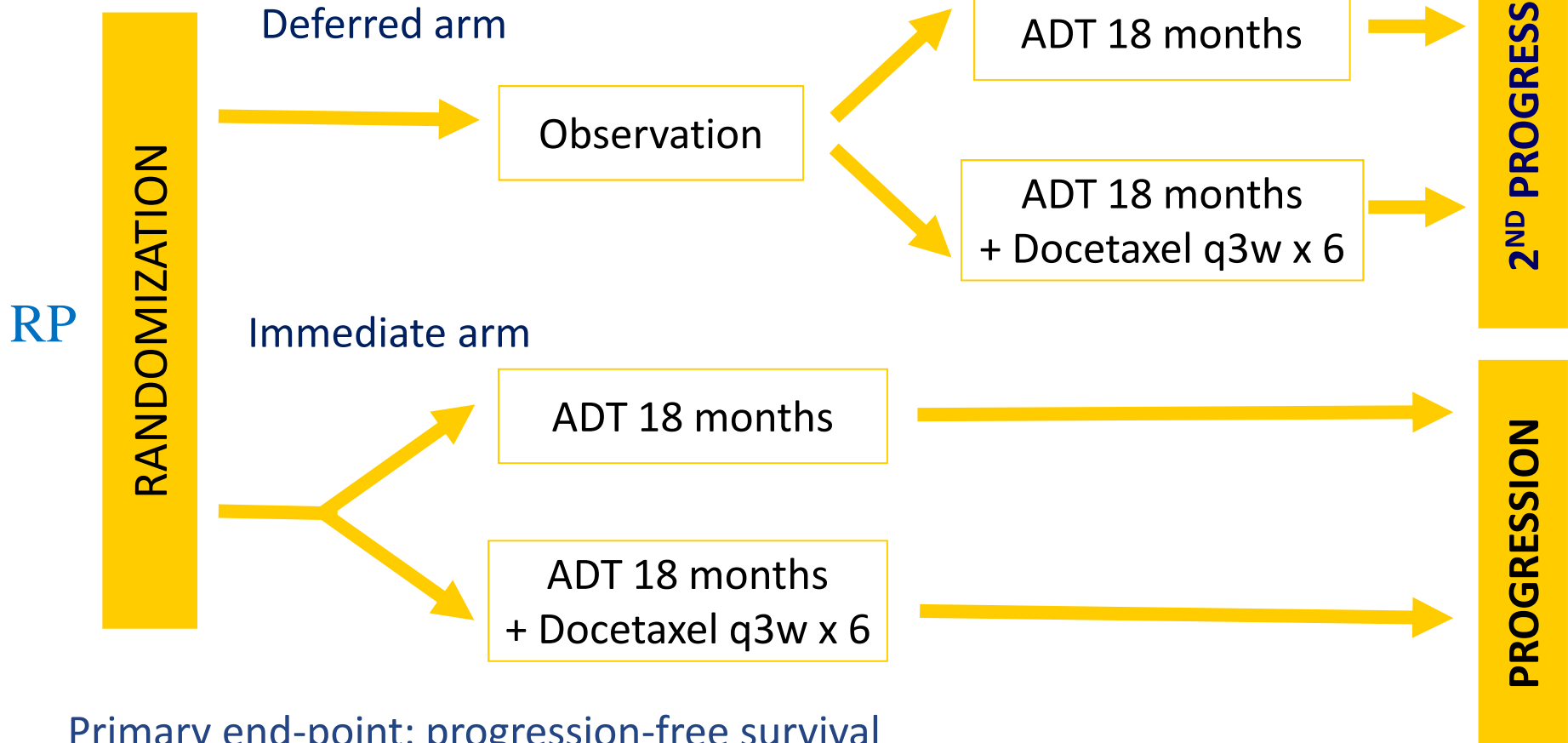


NEOADJUVANT TRIAL – GETUG 12





ADJUVANT TREATMENT - TAX-3501



Primary end-point: progression-free survival

N=228/1689 patients at high risk of progression (Kattan nomogram)

ClinicalTrials.gov identifier: NCT00283062

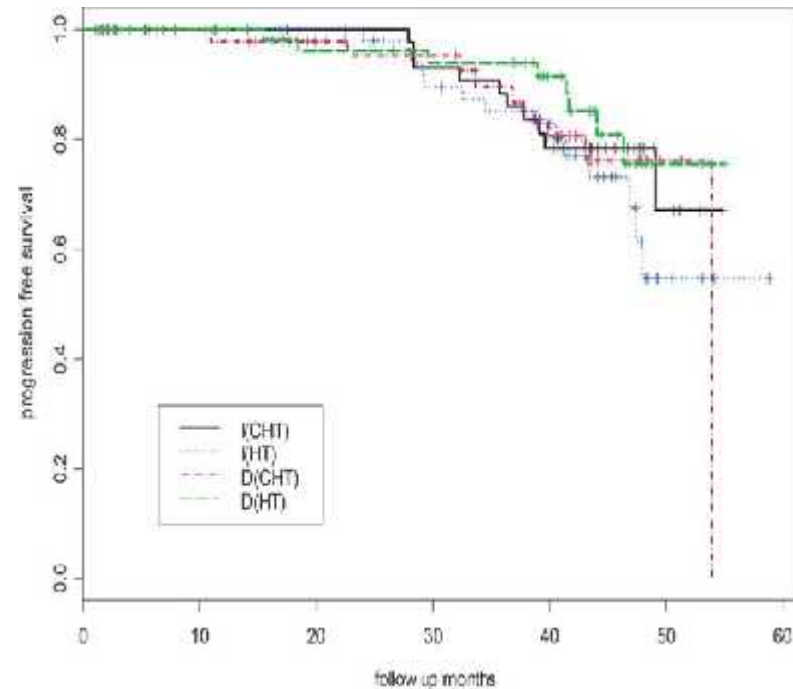


ADJUVANT TREATMENT - TAX-3501

TABLE 2. Disease Progression by Treatment Subgroups

Outcome	Randomized Treatment Group			
	I(CHT) N = 55	I(HT) N = 55	D(CHT) N = 56	D(HT) N = 62
Progression, no. (%)	10 (18.2)	14 (25.5)	9 (16.1)	8 (12.9)
PSA progression	10 (18.2)	12 (21.8)	9 (16.1)	8 (12.9)
Bone metastasis	0	1 (1.8)	0	0
Other	0	1 (1.8)	0	0
Death, no. (%)	0	1 (1.8)	0	1 (1.6)

Abbreviations: D(CHT), deferred hormonal therapy with chemotherapy (docetaxel); D(HT), deferred hormonal therapy without chemotherapy; I(CHT), immediate hormonal therapy with chemotherapy (docetaxel); I(HT), immediate hormonal therapy without chemotherapy; PSA, prostate-specific antigen.





RTOG 0521

High Risk

Stage	Gleason score	PSA
Any T stage	≥9	<150
≥T2	7-8	≥20-150
	8	<20

R
a
n
d
o
m
i
z
e

Arm 1

Androgen
Suppression (24 mos)
+
External RT (8 wks)

Arm 2

Androgen
Suppression (24 mos)
+
External RT (8 wks)
+
Docetaxel beginning 4 wks after RT (6 cycles)



Primary endpoint: Overall survival

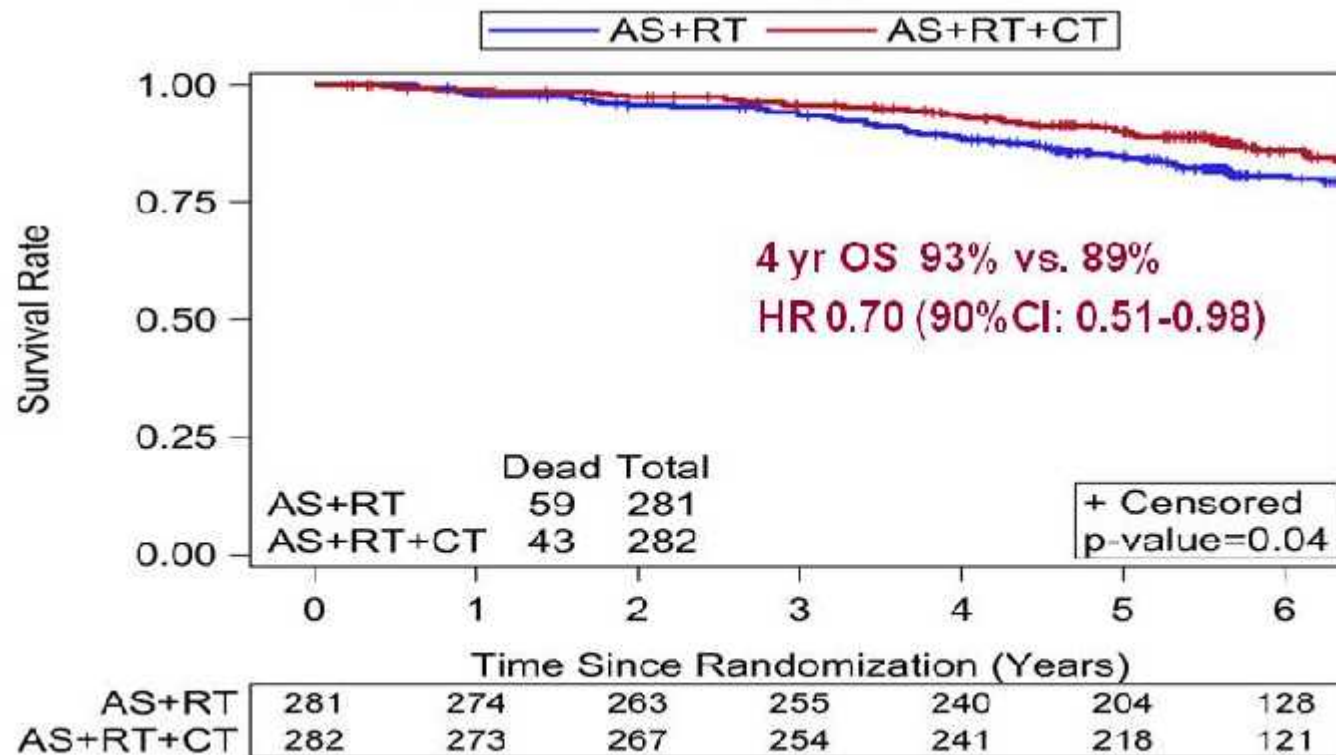
Design: Detect improved 4-y OS rate from 86% to 93% (HR=0.49)

Intent-to-treat, 1-sided log-rank at 0.05 significance and 90% power



ADJUVANT TRIAL – RTOG 0521

Overall Survival





ADJUVANT TRIAL – RTOG 0521

Cause of Death*

	AS+RT (n=59)	AS+RT+CT (n=43)
Death due to cancer under study	23	16
Death due to protocol treatment	0	2
Death due to other cause	24	16
Death due to second primary	12	5
Unknown cause of death	0	4

*Based on central review blinded to treatment arm



Addition of docetaxel, zoledronic acid, or both to first-line long-term hormone therapy in prostate cancer (STAMPEDE): survival results from an adaptive, multiarm, multistage, platform randomised controlled trial



*Nicholas D James, Matthew R Sydes, Noel W Clarke, Malcolm D Mason, David P Dearnaley, Melissa R Spears, Alastair W S Ritchie, Christopher C Parker, J Martin Russell, Gerhardt Attard, Johann de Bono, William Cross, Rob J Jones, George Thalmann, Claire Amos, David Matheson, Robin Millman, Mymoona Alzouebi, Sharon Beesley, Alison J Birtle, Susannah Brock, Richard Cathomas, Prabir Chakraborti, Simon Chowdhury, Audrey Cook, Tony Elliott, Joanna Gale, Stephanie Gibbs, John D Graham, John Hetherington, Robert Hughes, Robert Laing, Fiona McKinna, Duncan B McLaren, Joe M O'Sullivan, Omi Parikh, Clive Peedell, Andrew Protheroe, Angus J Robinson, Narayanan Srihari, Rajaguru Srinivasan, John Staffurth, Santhanam Sundar, Shaun Tolan, David Tsang, John Wagstaff, Mahesh K B Parmar, for the STAMPEDE investigators**



Inclusion criteria

Newly-diagnosed

Any of:

- Metastatic
- Node-Positive
- ≥ 2 of: Stage T3/4
PSA ≥ 40 ng/ml
Gleason 8-10

Relapsing after previous RP or RT with ≥ 1 of:

- PSA ≥ 4 ng/ml and rising with doubling time < 6 m
- PSA ≥ 20 ng/ml
- Node-positive
- Metastatic

All patients

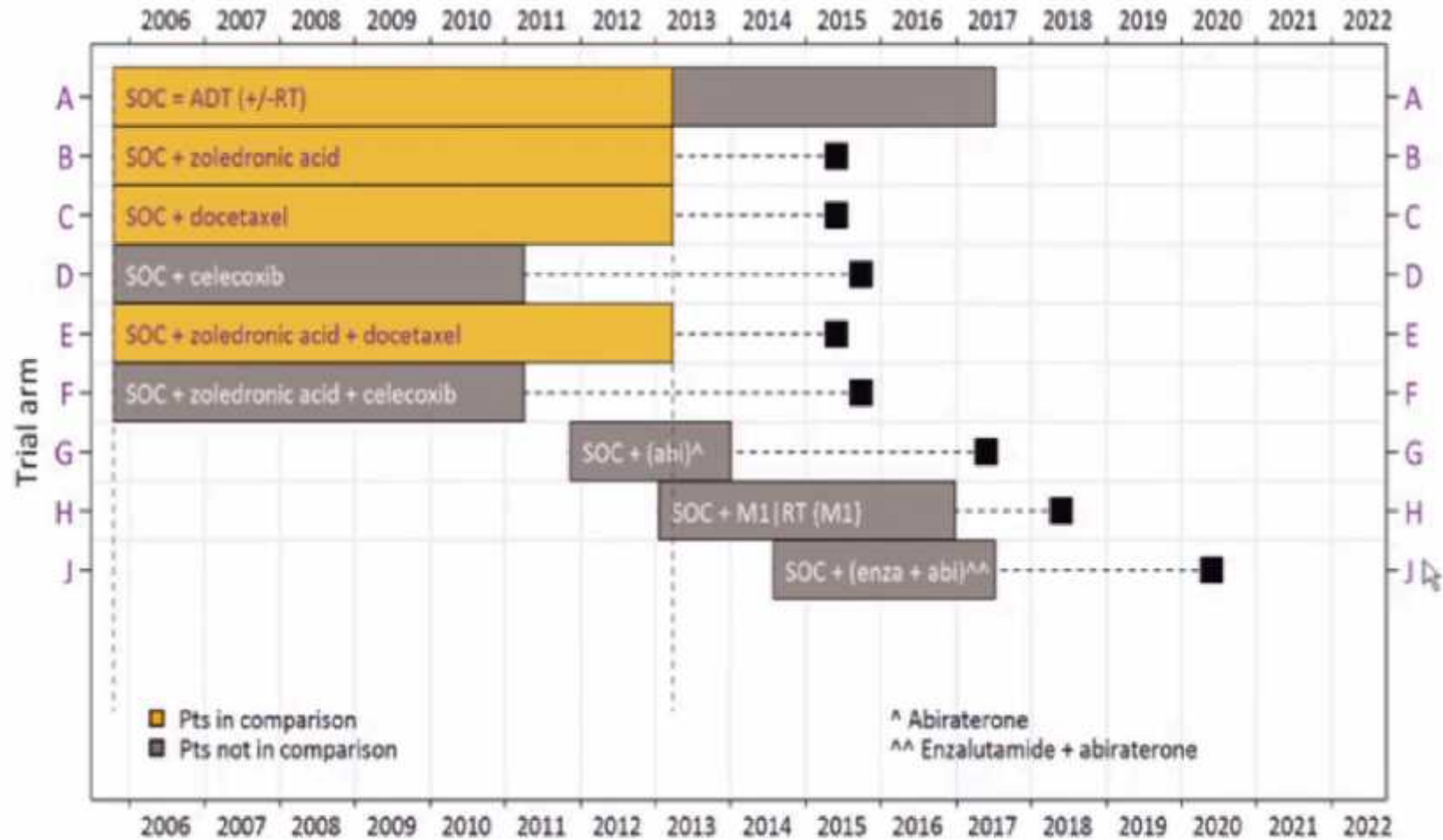
Fit for all protocol treatment
Fit for follow-up
WHO performance status 0-2
Written informed consent

Full criteria

www.stampededtrial.org



STAMPEDE: All docetaxel and zoledronic acid comparisons



A = ~1200 pts --> ~404 primary outcome measure events
 B = ~600 pts, C = ~600 pts, E = ~600 pts



STAMPEDE TRIAL

1%	WHO PS 2	[s]
21%	WHO PS 1	[s]
65yr	Median age (min 40, max 84)	[s]
61%	Metastatic (85% Bony mets)	[s]
15%	N+M0	
24%	N0M0	
98%	LHRH analogues	[s]
29%	Planned for RT (72% of N0M0 pts)	[s]
6%	Previous local therapy	

Balanced by arm

[s] Stratification factors + hospital + NSAID/aspirin

Comparison

Open: Oct-2005

Closed: Mar-2013

Accrual: 2962

Number of patients

1184 **A** Standard-of-care (SOC)

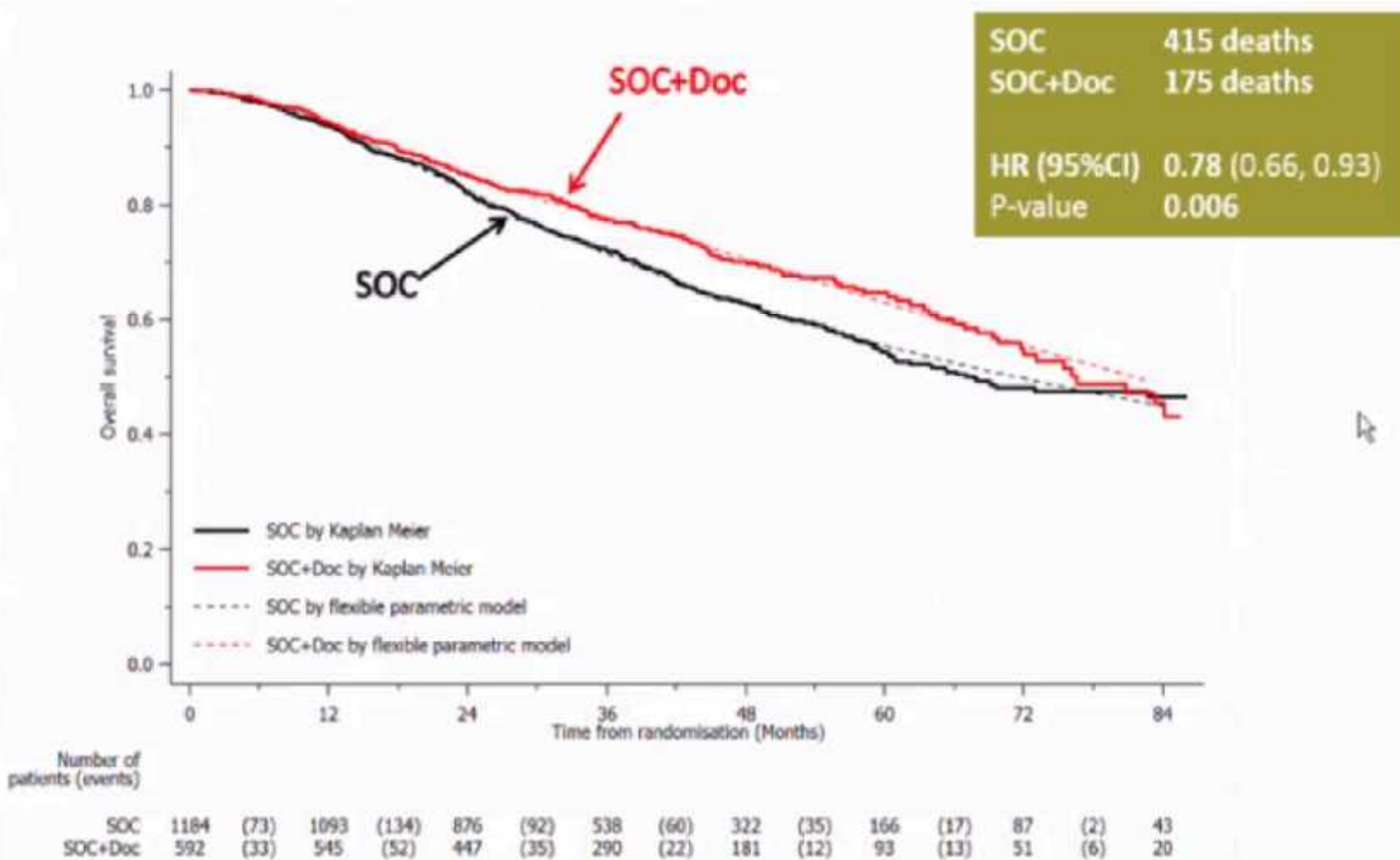
593 **B** SOC + zoledronic acid

592 **C** SOC + docetaxel

593 **E** SOC + zoledronic acid + docetaxel



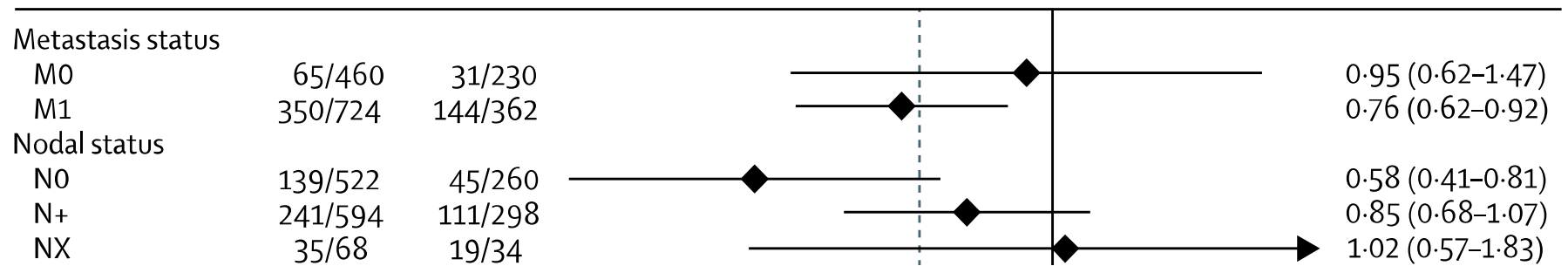
STAMPEDE – DOCETAXEL OVERALL SURVIVAL





STAMPEDE non M1 – DOCETAXEL SURVIVAL

SOC vs SOC + Doc



FAILURE-FREE SURVIVAL BY SUBGROUPS

	Hazard ratio	95% CI	P
Non M1	0.60	0.45-0.80	0.283 x 10 ⁻³
M1	0.61	0.53-0.71	0.283 x 10 ⁻¹⁰



ADJUVANT PHASE III VETERANS AFFAIRS CSP 553

High Risk Localized Prostate
Cancer after Prostatectomy

(pT3b or T4, pT3a+Gleason \geq 7, PSA >
20 ng/ml or risk of PSA progression >
50%)

Post-RP: PSA < 0.1

N=297/636 p

R
A
N
D
O
M
I
Z
E

Docetaxel (75 mg/m² every
3 weeks) + prednisone
(6 cycles)

Observation

Primary Endpoint: Progression-free survival

ClinicalTrials.gov identifier: NCT00132301



Plenary I - Tuesday**Plenary****Tuesday, May 10, 2016****7:30 AM-4:00 PM**

PI-LBA06**VA CSP#553 CHEMOTHERAPY AFTER PROSTATECTOMY (CAP)
FOR HIGH RISK PROSTATE CARCINOMA: A PHASE III
RANDOMIZED STUDY**

RESULTS: A total of 297 patients randomized between July 2006 and October 2011 were included in the analysis (157 randomized to SOC and 140 to chemotherapy). The median follow-up was 62.4 months (range 0.2 to 104.3 months). For the primary endpoint, the two groups did not statistically differ in progression-free survival (median time to progression 55.5 months in chemotherapy group, 45.6 months in SOC group; logrank test $p=0.26$; adjusted hazard ratio (HR) 0.82; 95% confidence interval (CI) 0.60-1.14). Subgroup analyses showed benefit in progression-free survival for patients with tumor stage $\geq T3b$ (HR 0.58, 95% CI 0.34-0.98, logrank test $p=0.041$) and for African Americans (HR 0.54, 95% CI 0.29-1.01, $p=0.054$). The secondary endpoint analyses are hampered by low event rates for all secondary endpoints. The most common adverse events \geq Grade 3 related or possibly related to chemotherapy included neutropenia in 40%, hyperglycemia in 18%, and fatigue in 5%, with febrile neutropenia in 1.4%.



ADJUVANT PHASE III INTERGROUP S9921

#5019 Adjuvant CAD +/- MP

**Radical
Prostatectomy
for High Risk
Prostate
Cancer**
PSA ≤ 0.2 ng/ml

**Randomize 1:1
stratified by:**

1) Disease extent:

- pT2a-pT2b ± surgical margins, N0
- ≥ pT3, N0
- N1 (any pT)

**2) Intent to receive RT
(Y/N)**

**3) Gleason ≤6 vs. 7 vs.
≥ 8**

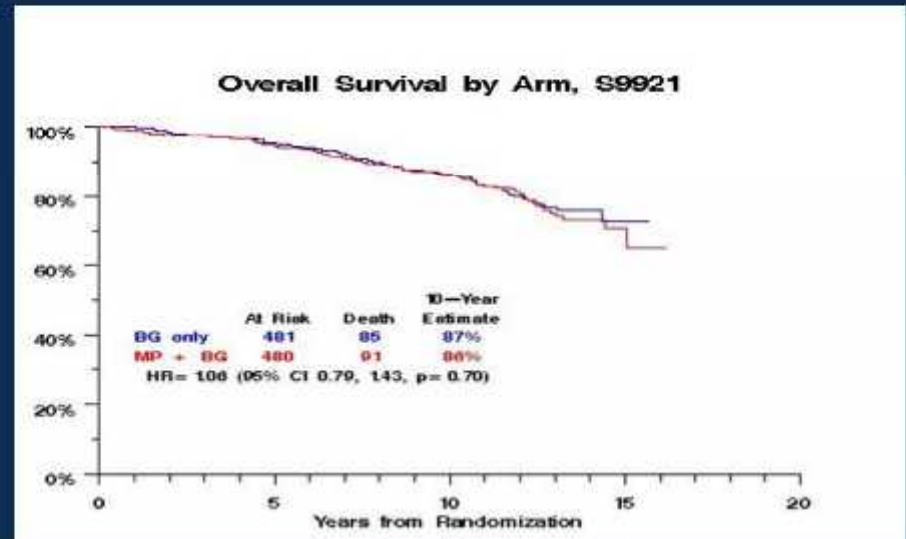
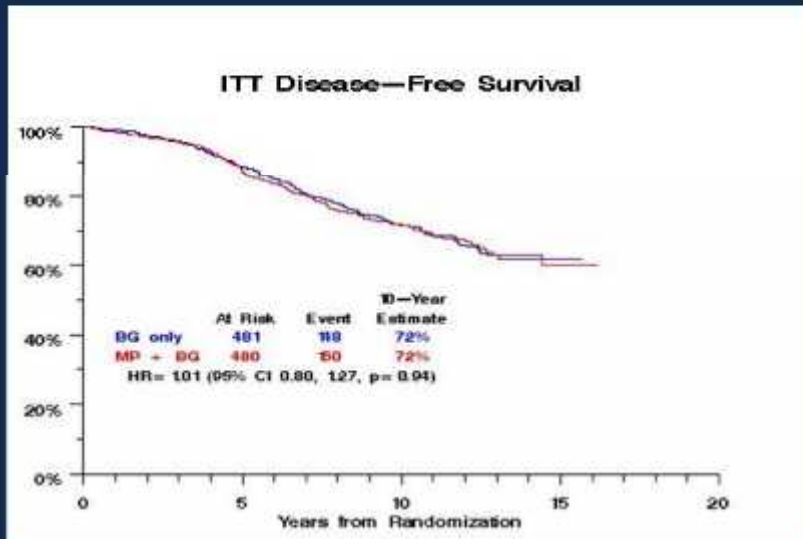
**Bicalutamide +
Goserelin (CAD)
24 Months**

**CAD X 24 Months
+
Mitoxantrone/Pred-
nisone
6 cycles**



ADJUVANT PHASE III INTERGROUP S9921

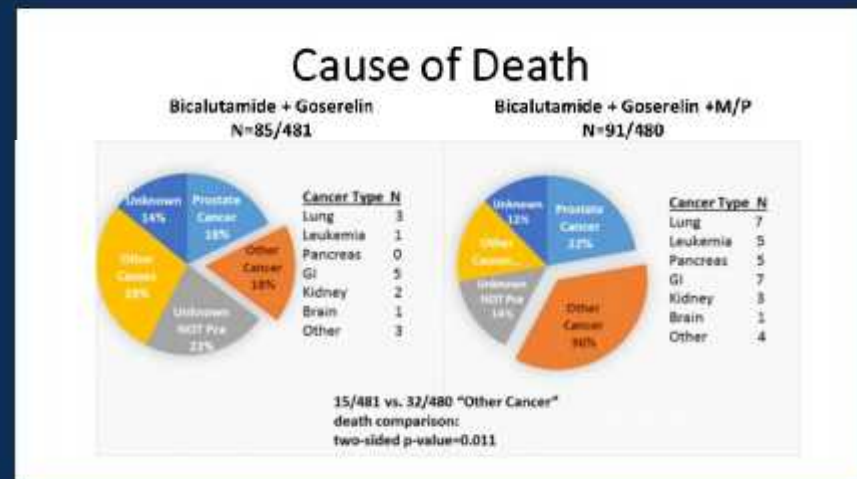
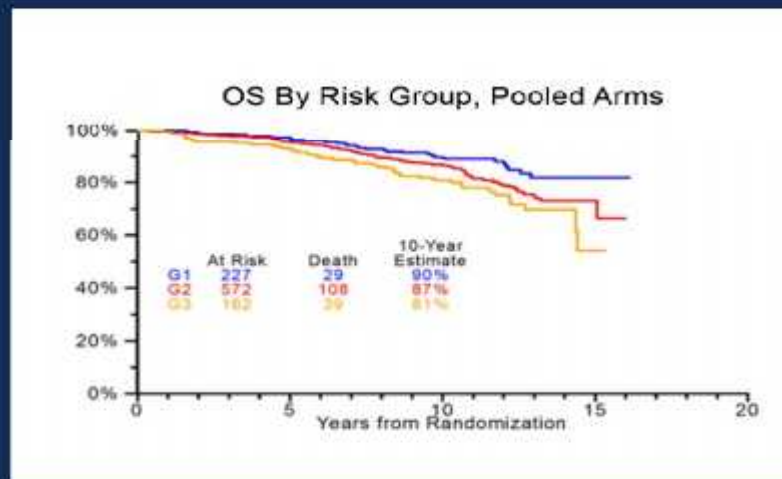
#5019 Adjuvant CAD +/- MP





ADJUVANT PHASE III INTERGROUP S9921

#5019 Adjuvant CAD +/- MP



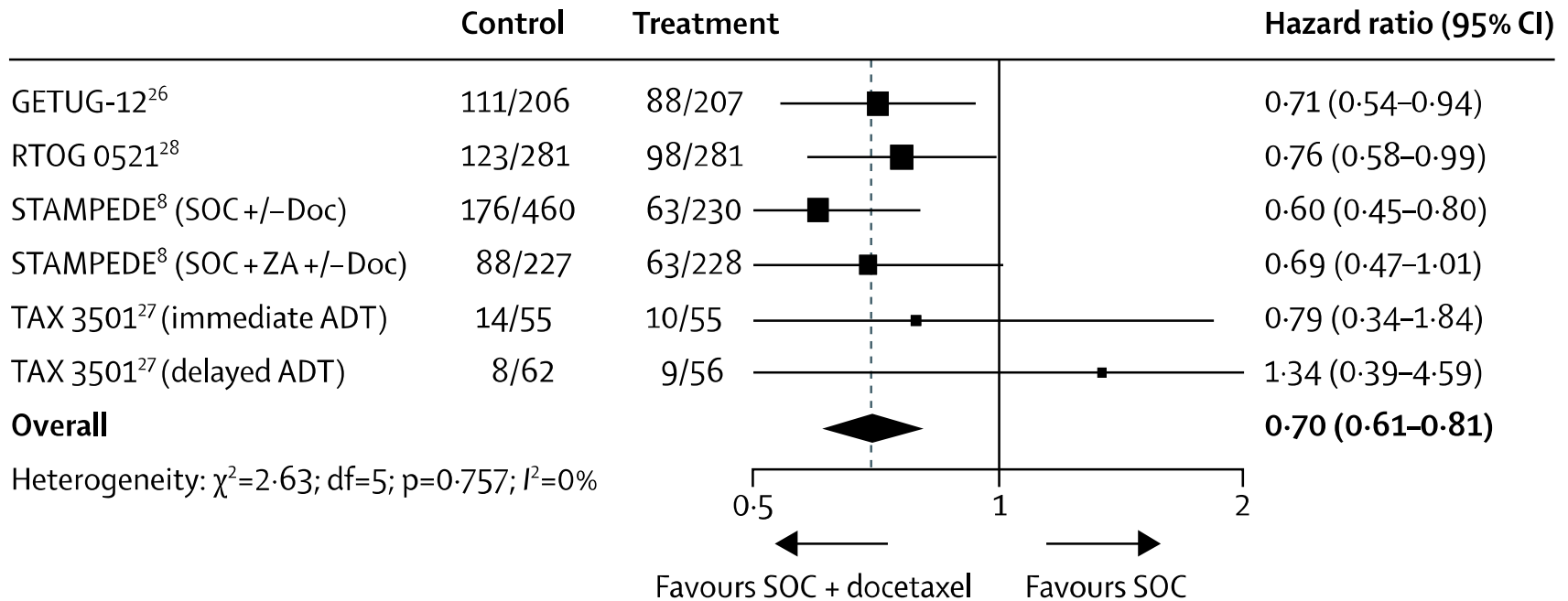
Group 1: GS 7 + positive margin or PSA > 10 or other risk factors
Group 2: GS ≥8 or T3a/b, N0
Group 3: N1



Addition of docetaxel or bisphosphonates to standard of care in men with localised or metastatic, hormone-sensitive prostate cancer: a systematic review and meta-analyses of aggregate data



Claire L Vale*, Sarah Burdett*, Larysa H M Rydzewska, Laurence Albiges, Noel W Clarke, David Fisher, Karim Fizazi, Gwenaelle Gravis, Nicholas D James, Malcolm D Mason, Mahesh K B Parmar, Christopher J Sweeney, Matthew R Sydes, Bertrand Tombal, Jayne F Tierney, for the STOpCaP Steering Group

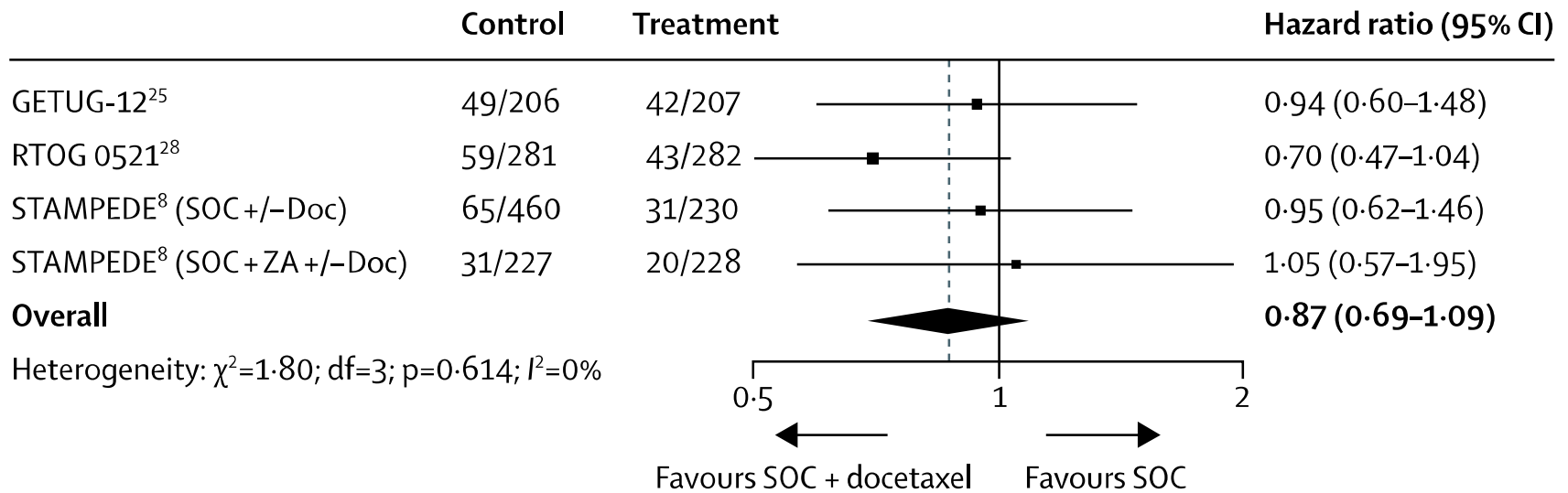




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CONCOMITANT QRT-SOGUG TRIAL

Adenocarcinoma de próstata
T3N0M0 (Gleason 8,9,10)
T4N0M0
TxN1M0
PSA >20 ng/ml

N= 134

RT + HT + QT

Dosis 73.8 Gy (1.8 Gy)
Hormonas 3 años LHRH
Docetaxel 20 mg/m² s -1 a +8

RADIOTERAPIA + HT

Dosis 73.8 Gy (1.8 Gy)
Hormonas 3 años LHRH



A PHASE IIB TRIAL OF DOCETAXEL CONCURRENT WITH RADIOTHERAPY PLUS HORMOTHERAPY VERSUS RADIO HORMONOTHERAPY IN HIGH-RISK LOCALIZED PROSTATE CANCER (QRT SOGUG TRIAL): PRELIMINARY REPORT FOR DESIGN, TOLERANCE, AND TOXICITY

A phase IIB trial of docetaxel concurrent with radiotherapy plus hormonotherapy versus radio hormonotherapy in high-risk localized prostate cancer (QRT SOGUG trial): Preliminary report for design, tolerance and toxicity. ID 141550

Joan Carles ¹, Juan José ², Enrique Gallardo ³, Montserrat Domenech ⁴, Albert Font ⁵, Joaquim Bellmunt ⁶, Begoña Mellado ⁷, Cristina Suárez ⁸, Teresa Bonfill ⁹, M Isabel Saez ¹⁰, Marta Gutx ¹¹, María José Mendez ¹², Pablo Maroto ¹³, Teresa de Portugal ¹⁴, Mariona Figols ¹⁵, Raquel Luque ¹⁶, Ramon Aldabo ¹⁷, Rafael Morales ¹⁸, Marta Bonet ¹⁹, Xavier Maldonado ²⁰, Patimira Foro ²¹

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ABSTRACT

Background: Docetaxel improves survival in patients with metastatic, hormone-sensitive prostate cancer (PC) and hormone-resistant prostate cancer. The objective of this phase II trial was to assess the safety of the concurrent combination with radiotherapy plus standard hormone treatment in patients with high-risk localized or locally advanced PC.

Methods: High-risk localized PC was defined by a T of the following: T3-T4, Gleason score 7-10, PSA > 20 ng/mL, etc. Patients were randomly assigned to either arm A (LHRH analog, every 3 months for 3 years and radiotherapy 70.4 Gy (1.8 Gy x 41 fractions) or 74 Gy (2 Gy x 37 fractions) or arm B (concurrent docetaxel every 3 months for 3 years, radiotherapy, and standard hormone treatment at 20 mg/d for 3 weeks). Chemotherapy was started one week before radiotherapy. Primary endpoint was PSA relapse according to the Phoenix definition. The planned number of patients was 134 in each arm with a power of 80% and an alpha of 0.05 (two-sided).

Results: From 2012/03 to 2017/12, 153 patients were assigned (Arm A: 84, Arm B: 69). Median age was 65 years (61-75). Patients had T3-T4 (82.6%), G6-8 (70.2%), PSA > 20 ng/mL (70.6%) and Gleason score 7-10 (74.3%) in arm A, and T3-T4 (73.6%), G6-8 (70.2%), PSA > 20 ng/mL (70.6%) and Gleason score 7-10 (74.3%) in arm B. Median time to PSA relapse was 12.1 months (95% CI: 10.8-13.4) in arm A and 11.8 months (95% CI: 10.5-13.1) in arm B. There was no statistically significant difference in PSA relapse between arms.

Conclusions: The QRT SOGUG phase II trial met its primary target and shows that concurrent docetaxel can be administered with standard doses of radiotherapy and without increasing toxicity grade.

INTRODUCTION

About 80% of patients are diagnosed with localized prostate cancer (PC), mostly because of widespread prostate-specific antigen (PSA) screening. Localized PC can be classified in three groups: low intermediate, or high depending on their risk of biochemical recurrence (BCR) after treatment.

- Low risk:** clinical stage T1a and T1b, PSA level < 10 ng/mL, and biopsy Gleason score < 6.
- Intermediate risk:** clinical stage T2a or T2b or biopsy Gleason score of 7 or PSA level > 10 and < 20 ng/mL.
- High risk:** clinical stage cT3a or PSA level > 20 ng/mL or biopsy Gleason score > 8 (1).

The combination of androgen deprivation therapy (ADT) with hormonal therapy (HT) is the standard treatment in high-risk PC (2). It might about 30% of patients prevent biochemical recurrence. Docetaxel chemotherapy has shown to improve survival in patients with either metastatic, hormone-sensitive or castration-resistant PC, and the use of docetaxel-chemotherapy has been used in other tumors, such as head and neck carcinoma or cervical carcinoma, as well. Thus, concurrent docetaxel in combination with HT was studied by Kuznetsov et al. in patients with high-risk localized PC showing that, at a maximal tolerated dose (20 mg/d), treatment was safe with acceptable toxicity (3). The objective of the present phase II trial was to assess the safety of the low dose docetaxel-concurrent with HT plus standard HT and to explore the safety of this combination.

QRT SOGUG Trial: A phase II trial of docetaxel concurrent with radiotherapy plus hormonotherapy versus radio hormonotherapy in high-risk localized prostate cancer (QRT SOGUG trial): Preliminary report for design, tolerance and toxicity.

PO-16

MATERIALS & METHODS

Study design: multicenter phase II parallel-arm open-label study, patients with high-risk localized PC, defined by one or more of the following: Stage II-IV (T3-T4, Gleason score 7-10, PSA > 20 ng/mL).

Patients: must have a Karnofsky index > 70% (20-30% PS-1), good medical history and absence of major co-morbidities. Patients were randomly 1:1 assigned.

Arm A: LHRH analog every 3 months + HT (standard of care) + docetaxel 20 mg/m² for 3 weeks. Chemotherapy was started one week before radiotherapy. HT: PC with T3-T4, Gleason score 7-10, PSA > 20 ng/mL (20-30% PS-1) or Gleason score 7-10 (20-30% PS-1).

Arm B: LHRH analog every 3 months + HT (standard of care) + docetaxel 20 mg/m² for 3 weeks. Chemotherapy was started one week before radiotherapy. HT: PC with T3-T4, Gleason score 7-10, PSA > 20 ng/mL (20-30% PS-1) or Gleason score 7-10 (20-30% PS-1).

Figure 1. Arm A regimen schedule.

Figure 2. Arm B regimen schedule.

RESULTS

From Dec 2012 to Sep 2017, 153 patients were assigned to 2 arms in total (Arm A: 84, Arm B: 69). All chemotherapy was well tolerated (Table 1) (Table 1).

Grade	Arm A (%)	Arm B (%)	Overall (%)
1	99.88	99.88	99.88
2	0.12	0.12	0.12
3	0.00	0.00	0.00
4	0.00	0.00	0.00
5	0.00	0.00	0.00

Table 1. Toxicity assessment.

Adverse Event	Arm A (%)	Arm B (%)	Overall (%)	p-value
All	99.88	99.88	99.88	< 0.05
Grade 1-2	99.88	99.88	99.88	< 0.05
Grade 3-4	0.12	0.12	0.12	> 0.05
Grade 5	0.00	0.00	0.00	> 0.05

Figure 3. PSA relapse-free survival (RFS) in patients with high-risk localized PC.

QRT SOGUG Trial: A phase II trial of docetaxel concurrent with radiotherapy plus hormonotherapy versus radio hormonotherapy in high-risk localized prostate cancer (QRT SOGUG trial): Preliminary report for design, tolerance and toxicity.

ACKNOWLEDGEMENTS

RESULTS

Study follow-up: at primary end point 364 months (31-41.2). Median time to PSA relapse was 12.1 months (95% CI: 10.8-13.4) in arm A, and 11.8 months (95% CI: 10.5-13.1) in arm B. There was no statistically significant difference in PSA relapse between arms.

Table 2. Toxicity assessment.

Adverse Event	Arm A (%)	Arm B (%)	Overall (%)	p-value
All	99.88	99.88	99.88	< 0.05
Grade 1-2	99.88	99.88	99.88	< 0.05
Grade 3-4	0.12	0.12	0.12	> 0.05
Grade 5	0.00	0.00	0.00	> 0.05

Table 3. PSA relapse-free survival (RFS) in patients with high-risk localized PC.

Arm	Median RFS (months)	95% CI
Arm A	12.1	10.8-13.4
Arm B	11.8	10.5-13.1

CONCLUSION

- The QRT SOGUG phase II trial met its primary target.
- An increase in grade 3 toxicity was observed in the experimental arm.
- Biological toxicity was not remarkable because all cases were related to lymphopenia.
- Low hematological toxicity was related to lower grade 3 treatment toxicity and it was manageable.
- Preliminary safety results show that concurrent docetaxel can be safely administered with standard doses of radiotherapy and standard HT.

REFERENCES

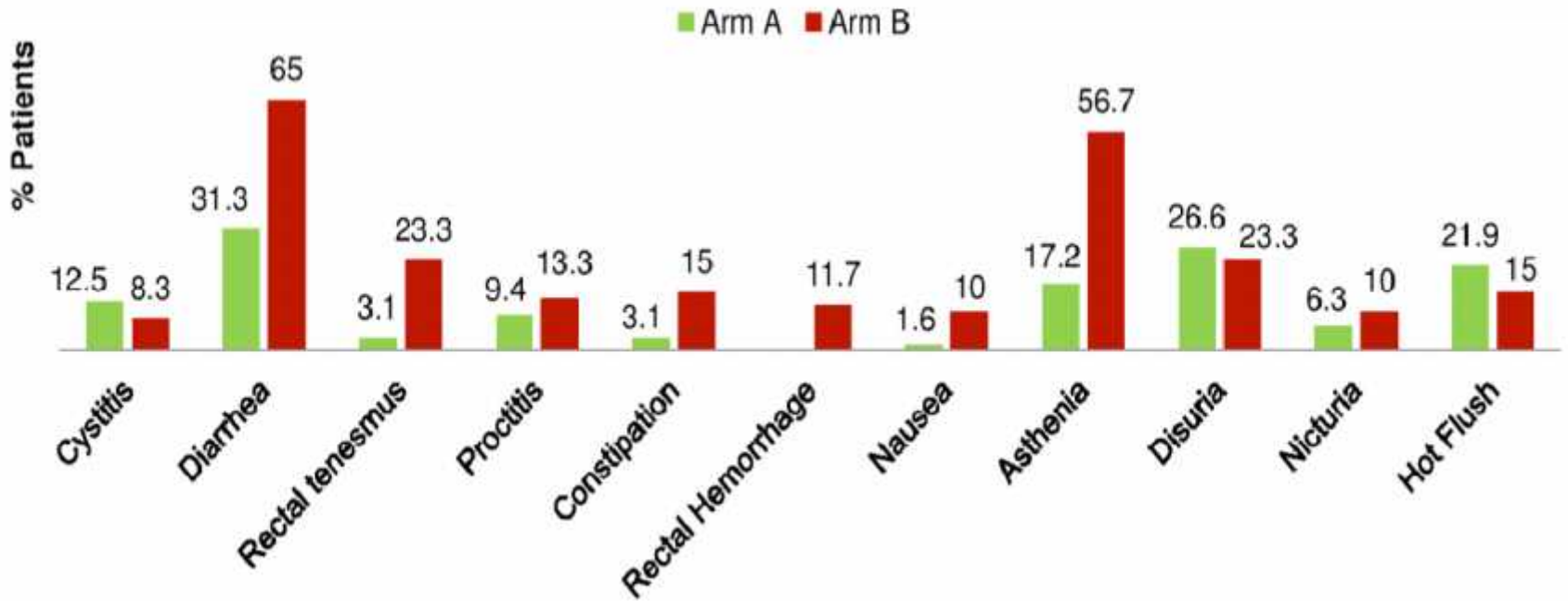
1. D'Amico AP, et al. J Clin Oncol 2008;26:355-362.
2. D'Amico AP, et al. J Clin Oncol 2008;26:355-362.
3. Kuznetsov S, et al. J Clin Oncol 2010;28:355-362.
4. Kuznetsov S, et al. J Clin Oncol 2010;28:355-362.

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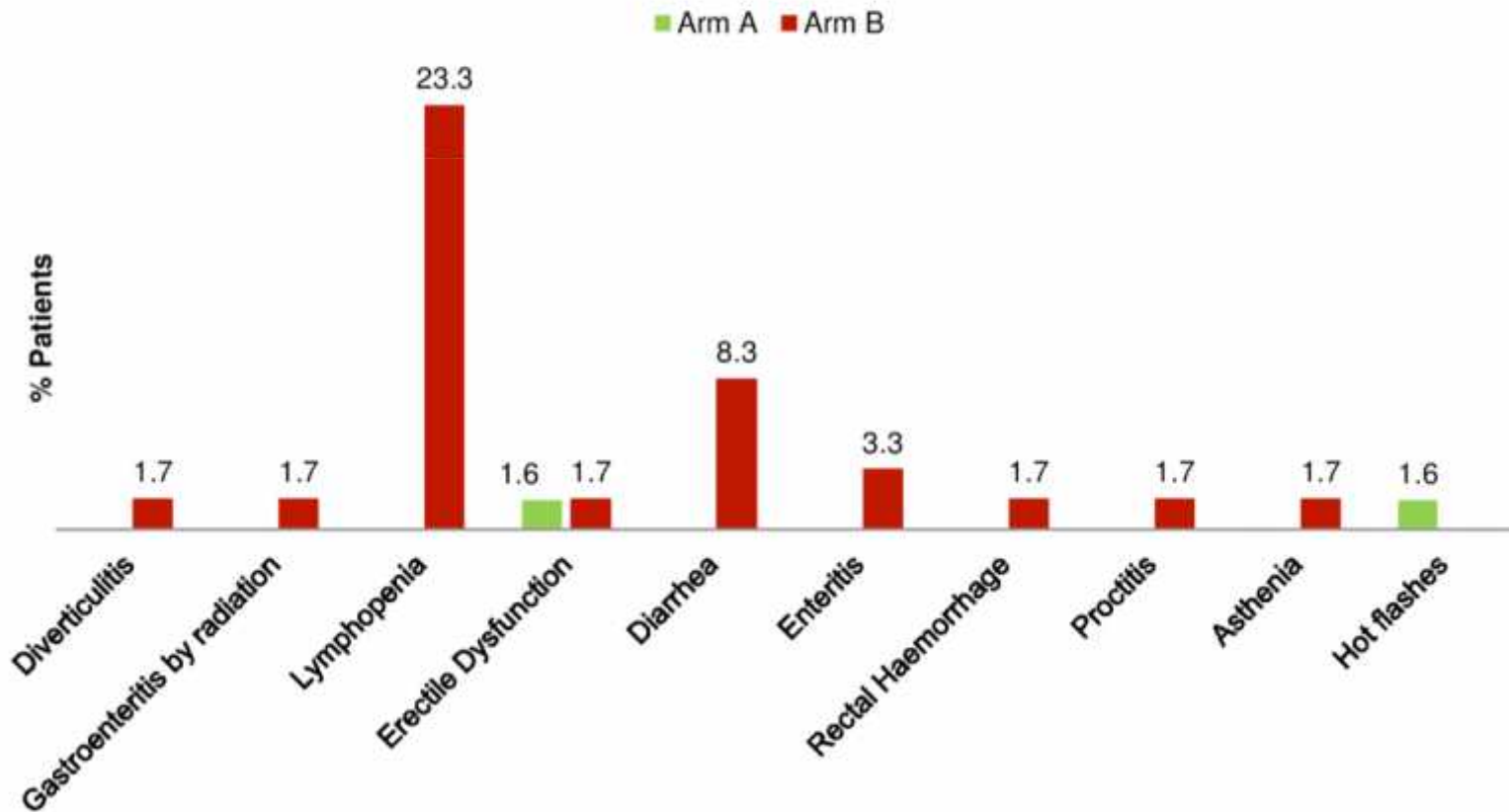
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Figure 2. Most common treatment-related grade ≤2 AEs reported



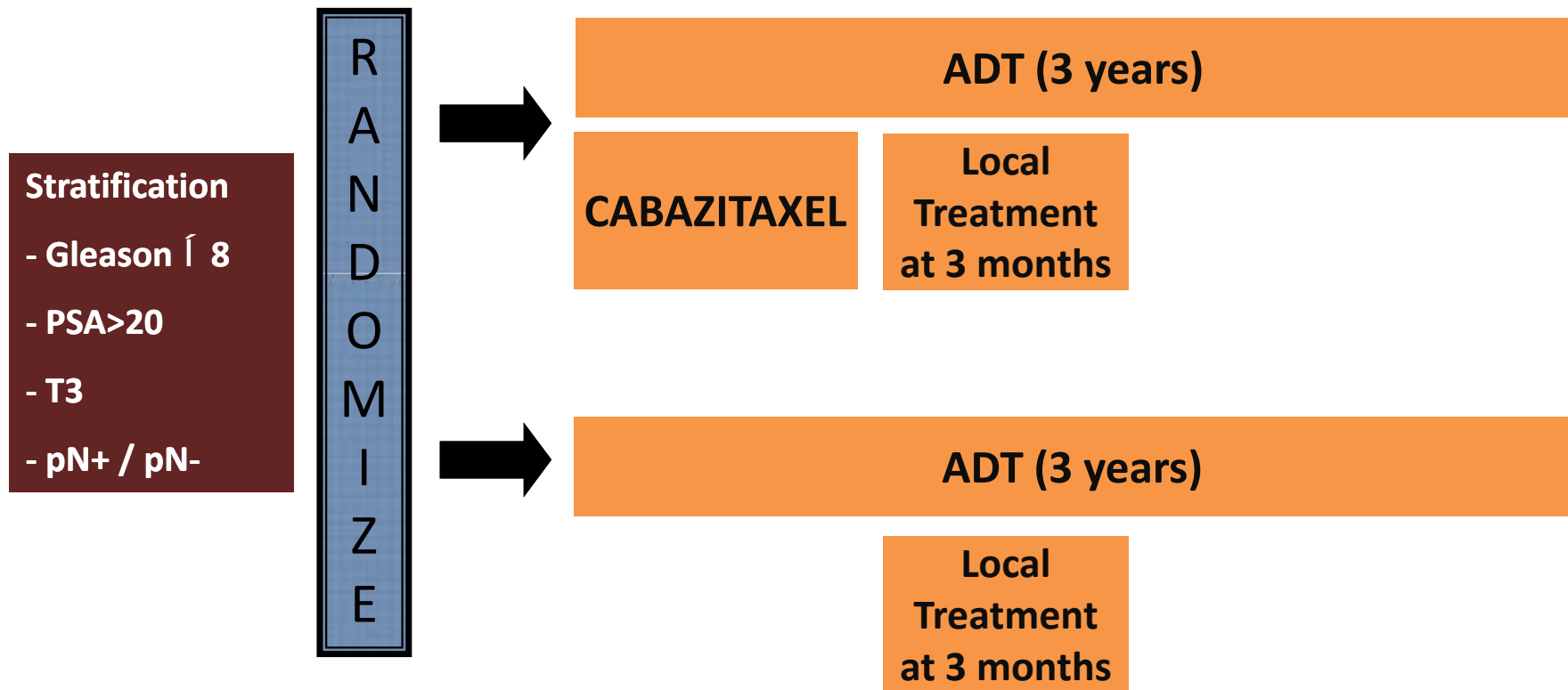


A PHASE IIB TRIAL OF DOCETAXEL CONCURRENT WITH RADIOTHERAPY PLUS HORMOTHERAPY VERSUS RADIO HORMONOTHERAPY IN HIGH-RISK LOCALIZED PROSTATE CANCER (QRT SOGUG TRIAL): PRELIMINARY REPORT FOR DESIGN, TOLERANCE, AND TOXICITY





PEACE 2 TRIAL



Primary endpoint: Clinical PFS
N (estimated): 1048 patients



TABLE 4. Barriers to Completing Postoperative Adjuvant Prostate Cancer Trials

- Long follow-up time needed for completion
 - Lack of validated early endpoints
 - Confounding relationship between testosterone and PSA in trials using PSA-based endpoints
 - Lack of consensus regarding what constitutes high-risk disease
 - New standards that may compete for enrollment
 - Required long-term monetary support
-



OPTIMIZACIÓN DE ESTRATEGIAS

- Redefinición del “*alto riesgo*”.
- Definición de objetivos clínicamente relevantes.
- Conocimiento de mecanismos de resistencia.
- Identificación de marcadores.
- Incorporación de nuevas estrategias terapéuticas.
- Incorporación de nuevas herramientas diagnósticas.



- 58 años, ECOG 0, no antecedentes.
- Asintomático. Tacto rectal no patológico.
- PSA 6.5 ng/mL.
- Biopsia prostática:
 - 1.- Próstata, lóbulo derecho. Biopsia tru-cut:
 - ADENOCARCINOMA POBREMENTE DIFERENCIADO, GLEASON COMBINADO 4+4= (8/10), CON PRESENCIA DE CÉLULAS EN ANILLO DE SELLO, CON INFILTRACIÓN PERINEURAL, CON AFECTACIÓN DE UN 100% Y 75% DE DOS DE CUATRO CILINDROS.
 - 2.- Próstata, lóbulo izquierdo. Biopsia tru-cut:
 - SIN EVIDENCIA DE INFILTRACIÓN TUMORAL.



- RM prostática/abdominal: T2-T3a(minor) N0.
- Whole-body MRI: Sin evidencia de metástasis óseas.
- Prostatectomía radical + Linfadenectomía por vía laparoscópica (6/11/2015)



Patología:

- ADENOCARCINOMA ACINAR PROSTÁTICO POBREMENTE DIFERENCIADO, GLEASON COMBINADO 4 + 5: 9/10 CON PRESENCIA DE CÉLULAS EN ANILLO DE SELLO, QUE AFECTA A AMBOS LÓBULOS Y QUE PRESENTA MARCADA EXTENSIÓN EXTRAPROSTÁTICA A NIVEL DEL CUADRANTE POSTERIOR DERECHO.
- LA TUMORACIÓN SE ENCUENTRA EXTENSAMENTE CON CONTINUIDAD CON MARGEN POSTERIOR DE CUADRANTE POSTERIOR DERECHO.
- MARCADA INVASIÓN NEOPLÁSICA PERINEURAL.
- INFILTRACIÓN NEOPLÁSICA FOCAL DE VESÍCULA SEMINAL DERECHA.
- GANGLIOS LINFÁTICOS ILIOBTURADORES DERECHOS (18), SIN EVIDENCIA DE METÁSTASIS.
- GANGLIOS LINFÁTICOS ILIOBTURADORES IZQUIERDOS (12), SIN EVIDENCIA DE METÁSTASIS.
- GANGLIOS LINFÁTICOS PRESACROS (4), SIN EVIDENCIA DE METÁSTASIS.
- pT3b N0.



SUMARIO DOCETAXEL + ADT

- GETUG 12 neoadyuvante a PR: Positivo para RFS.
- RTOG 0521 adyuvante a RT: Beneficio de OS?
- STAMPEDE, junto a RT: Beneficio en RFS. OS, *too early*.
- VA CSP#553 adyuvante a PR: Beneficio en PFS en subgrupos de mayor riesgo?
- Metaanálisis: Beneficio en FFS.



How important is DFS (or RFS or FFS) as an endpoint?

1. Improvement in DFS is **expected** when one active treatment (docetaxel) is added to others (RT +ADT)
2. Improved DFS does **not** lead inevitably to improved OS – men who did not receive docetaxel might live longer after first disease progression.
3. For men with localized M0 disease, **if there is no effect on overall survival....**
..... then chemo delayed is toxicity delayed and is the preferred strategy.



RECOMMENDATION #2

Men with localized M0 prostate cancer who are to receive local treatment with radiotherapy should NOT be offered docetaxel in addition to ADT

This opinion might change with longer follow-up of the GETUG-12, STAMPEDE and RTOG 0521 trials

GRACIAS



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