

Recurrence definition

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FactSheet

In English En español



Reviewed: 07/24/2012

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Keyword

Prostate-Specific Antigen (PSA) Test

1. What is the PSA test?

Prostate-specific antigen, or PSA, is a protein produced by cells of the prostate gland. The PSA test measures the level of PSA in a man's blood. For this test, a blood sample is sent to a laboratory for analysis. The results are usually reported as nanograms of PSA per milliliter (ng/mL) of blood.

The blood level of PSA is often elevated in men with prostate cancer, and the PSA test was originally approved by the FDA in 1986 to monitor the progression of prostate cancer in men who had already been diagnosed with the disease. In 1994, the FDA approved the use of the PSA test in conjunction with a digital rectal exam (DRE) to test asymptomatic men for prostate cancer. Men who report prostate symptoms often undergo PSA testing (along with a DRE) to help doctors determine the nature of the problem.

Post-treatment disease relapse

DISEASE RELAPSE =?

**BIOCHEMICAL RELAPSE
(PSA RISE)**

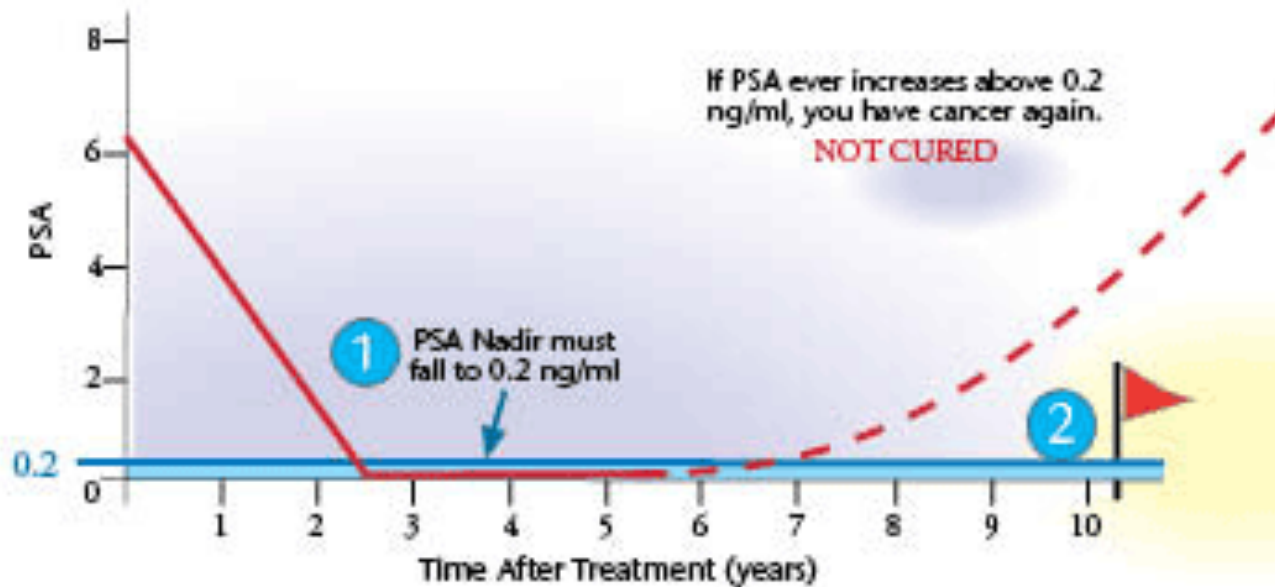
Post-treatment biochemical relapse

The introduction of routine PSA dosage radically changed clinical management of diagnosis and follow-up in PC patients allowing an early diagnose of **biochemical failure**.

Biochemical relapse patterns

After radical prostatectomy

Figure 7. PSA 0.2 ng/ml: the only definition of cure. Question 35.

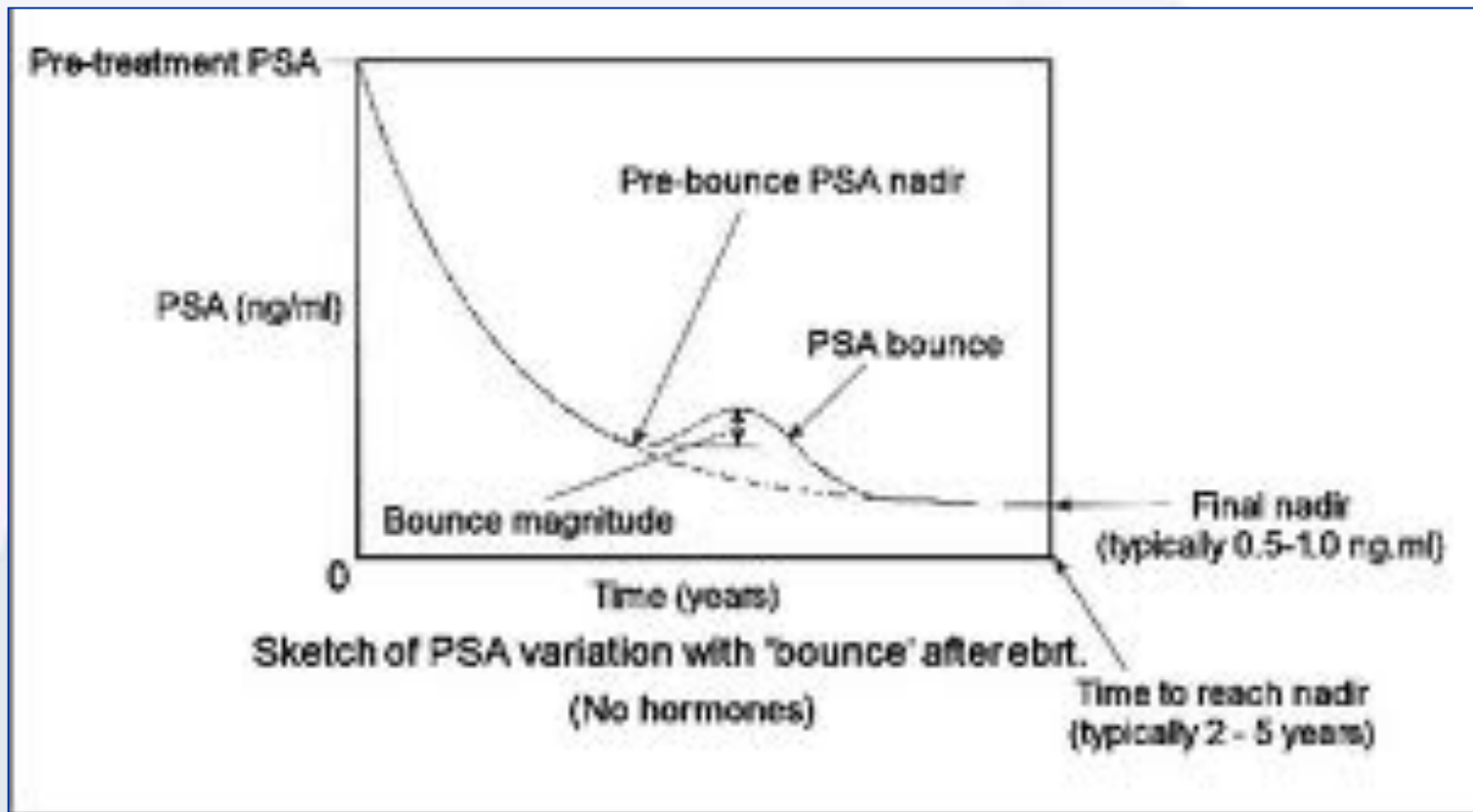


To be cured of prostate cancer: 1) your PSA must fall to 0.2 ng/ml, and 2) remain there forever. Cure rate is the percentage of all men treated, regardless of method used, who have PSA 0.2 ng/ml 10 years after treatment.

Click to enlarge

Biochemical relapse patterns

After EBRT



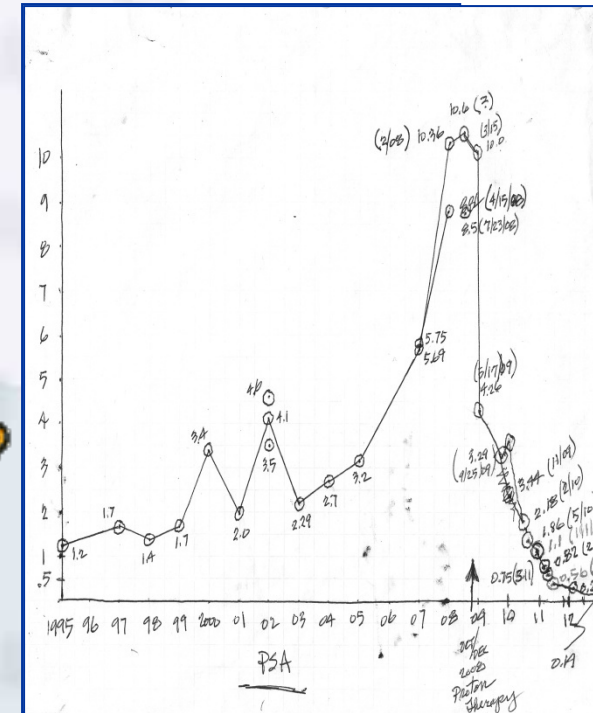
Post-ERBT biochemical relapse definition

FAILURE



**BOUNCING
PSA
up to 25%**

Post-ERBT biochemical relapse definition



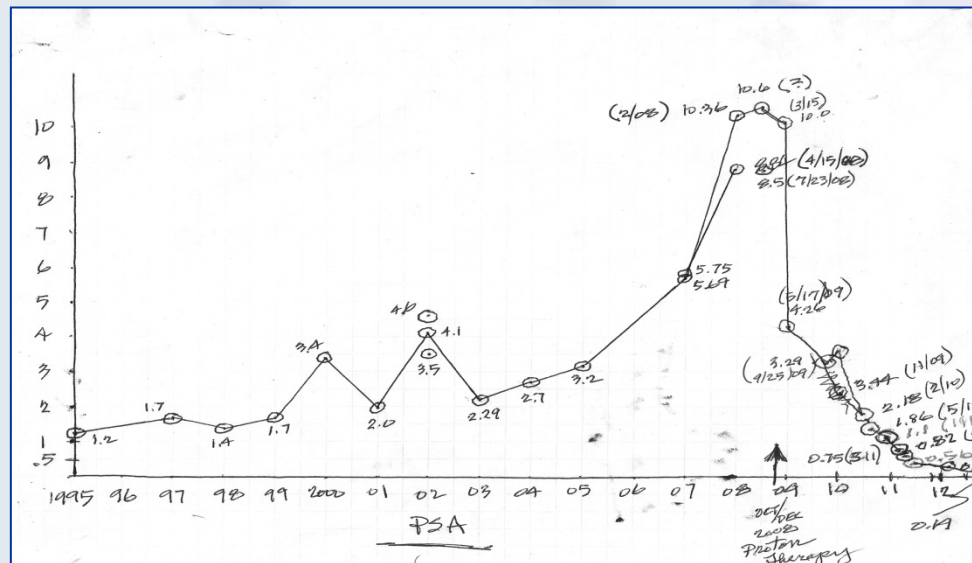
Post-ERBT biochemical relapse definition

1996 St. Antonio

ASTRO

Consensus Conference

**3 CONSECUTIVE
PSA RISES AFTER
NADIR**



Post-ERBT biochemical relapse definition

2006 Phoenix
ASTRO & RTOG
Consensus Conference

>NADIR
+2NG/ML

FAILURE



BOUNCING
PSA

Post-ERBT biochemical relapse definition

1996 Phoenix
ASTRO & RTOG
Consensus Conference

>NADIR
+2NG/ML

<0.5
TIME
VARIABLE

FAILURE



BOUNCING
PSA

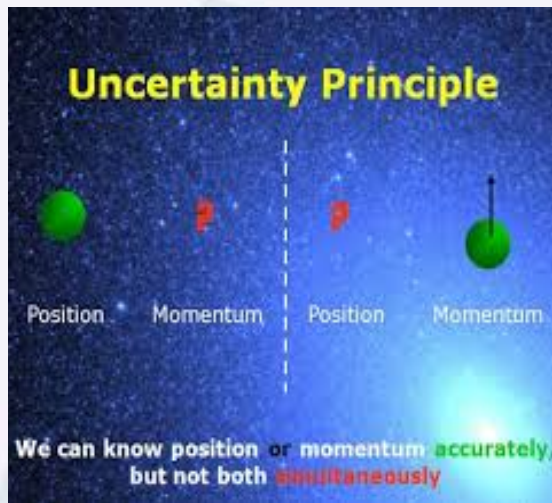
Uncertainty principle



Werner Heisenberg (1927)

...asserts a **fundamental limit** to the precision with which 'complementary variables' of a particle, such as position and momentum **can be known simultaneously**.

Uncertainty principle



...asserts a fundamental limit to the precision with which 'complementary variables' of a particle, such as position and momentum can be known simultaneously.

The more precisely the position of some particle is determined, the less precisely its momentum can be known, and vice versa.

Post-ERBT biochemical relapse definition

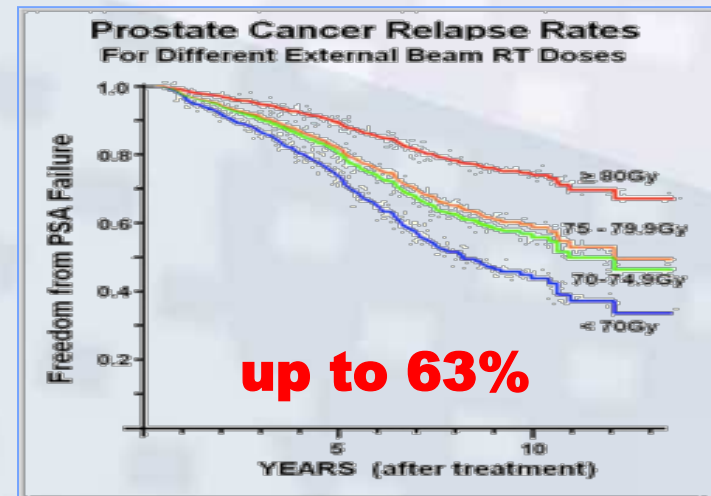
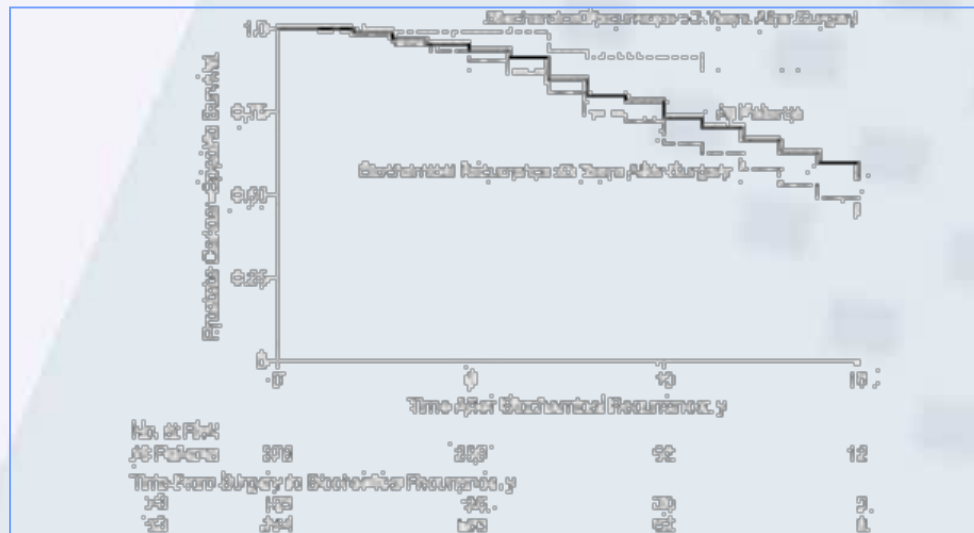
the risk of delaying
the detection and
treatment of the
failure

the risk to
overtreat patients
having false
disease relapse



Post-treatment disease relapse

BIOCHEMICAL RELAPSE (PSA RISE)



Post-treatment disease relapse

BIOCHEMICAL RELAPSE

RT: up to 63%

LOCAL? METASTATIC?

20-30%

Post-treatment disease relapse: local / metastatic

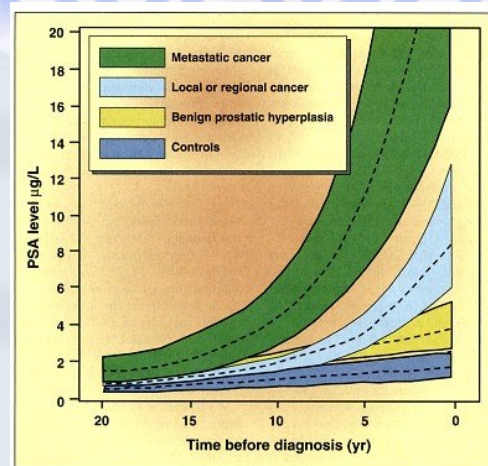


Post-treatment disease relapse: local / metastatic

PSA DOUBLING TIME

> 6-10M

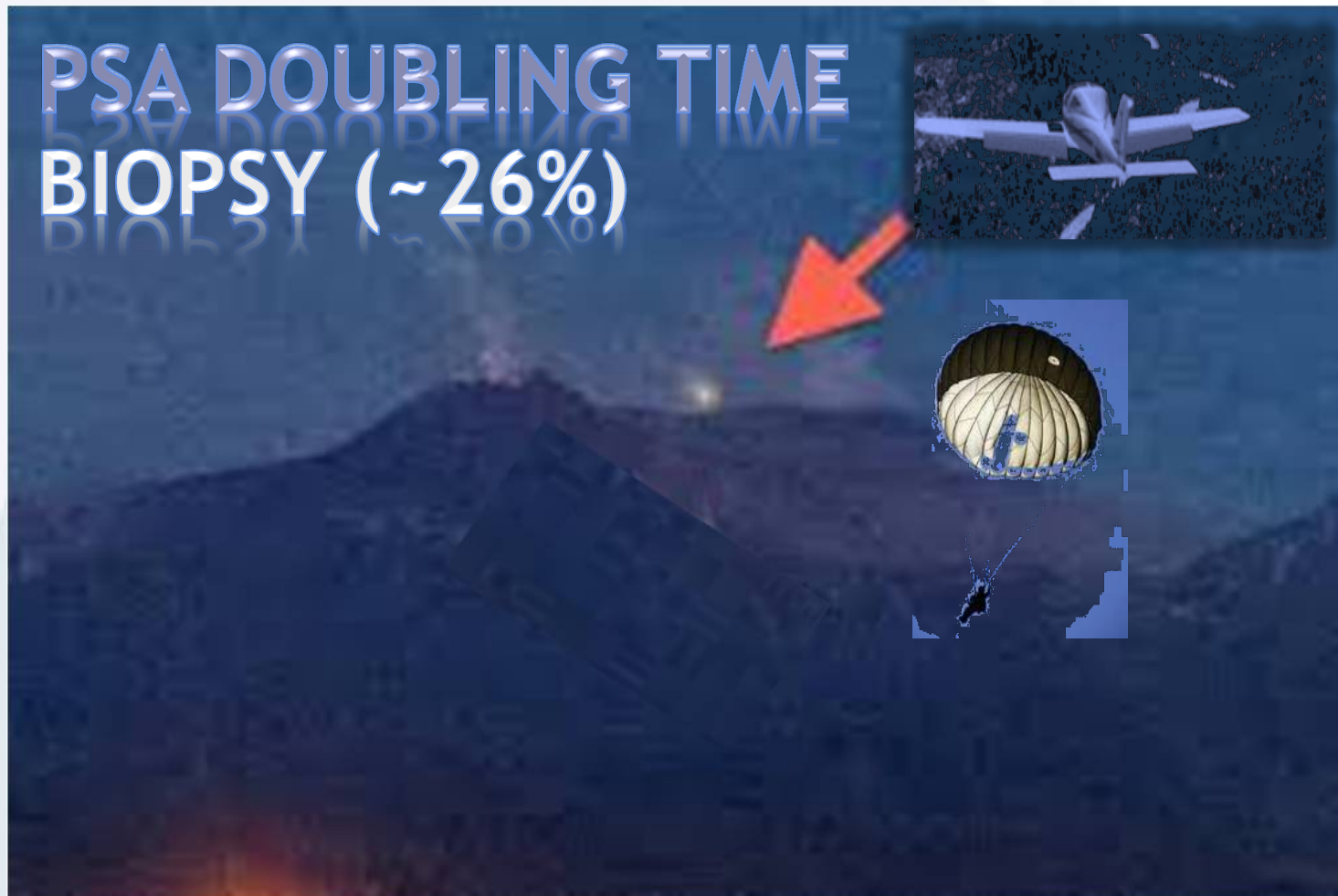
< 3M



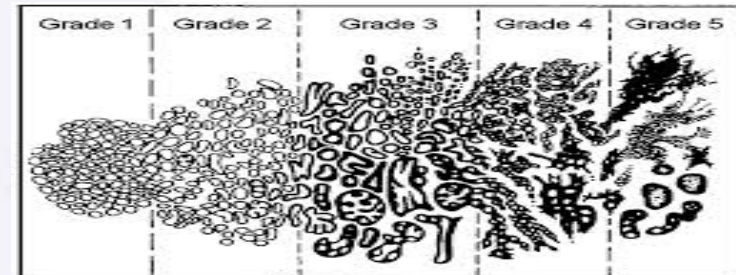
LOCAL

METASTATIC

Post-treatment disease relapse: local / metastatic

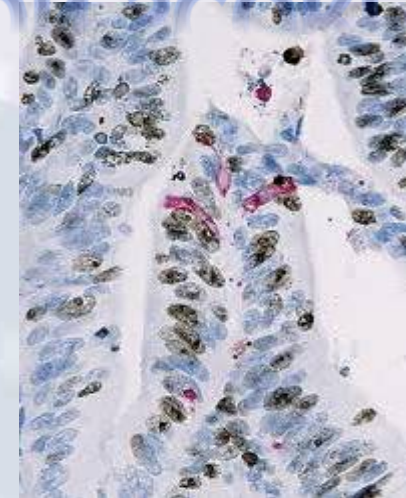


Post-treatment disease relapse: local / metastatic



GLEASON SCORE

KI-67



Post-treatment disease relapse: local / metastatic



Post-treatment disease relapse: local / metastatic

0022-5347/03/1694-1337/0
THE JOURNAL OF UROLOGY®

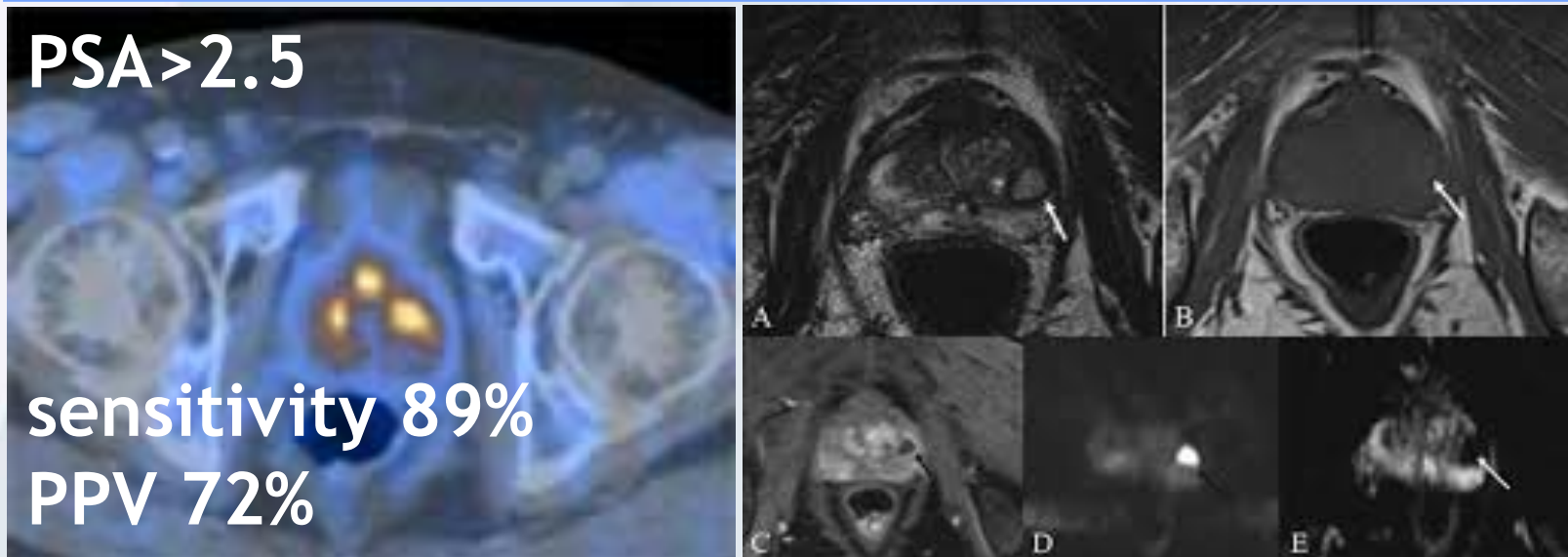
Vol. 169, 1337-1340, April 2003
Printed in U.S.A.

ecancermedicalscience

Anterior prostatic tumours are difficult to diagnose without MRI

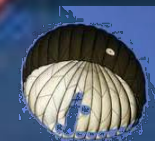
Giuseppe Petralia,¹ Sarah Alessi,¹ Ara Alconchel,² Paul Summers,¹ Gennaro Musi,³ Victor Matei,³ Ottavio De Cobelli,^{3,4} Giuseppe Renne,⁵ and Massimo Bellomi^{1,4}

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Post-treatment disease relapse: local / metastatic

PSA DOUBLING TIME
BIOPSY
IMAGISTIC



Nevertheless no consensus exists yet about the panel of imaging modalities to be performed to distinguish local versus systemic recurrence

Post-treatment disease relapse: local / metastatic



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Salvage Radical Prostatectomy after External Beam Radiation Therapy: A Systematic Review of Current Approaches

Urologia
Internationalis

Published online: March 4, 2015

Review

SRP defined as the radical prostatectomy **performed for local failure** after primary EBRT, has undergone significant refinement over the past decade. The surgical experience determined a decrease of the serious side effects rate

Post-treatment disease relapse

BIOCHEMICAL RELAPSE

RT: up to 63%

LOCAL? METASTATIC?

20-30%

SRP	ADT
0.9-2%	92-93.5%

Salvage radical prostatectomy

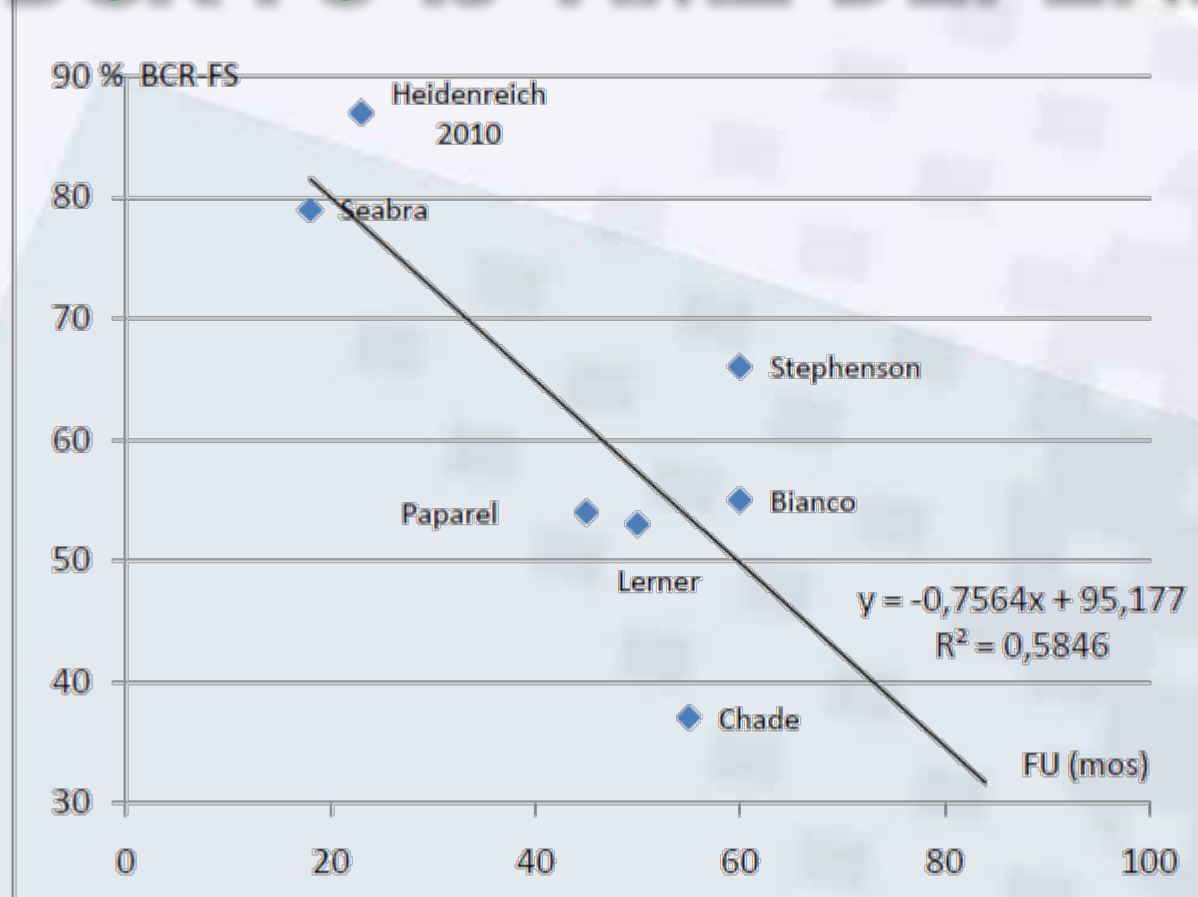
Author	Yr	Pts nr	FU mos	OCD %	BCR %	CSS %	PSM %	Involved LN %	BL L	Rectal injury %	Anastomotic stenosis %	Incontinence %
Neerhut [58]	1988	16	20	25	88				0.9	19	25	25
Link [57]	1991	14	18	30.8	57		43		1	0	9	55
Zinke [59]	1992	32	44		82				1.219	6	19	27
Ahlering [60]	1992	11	53.5		71	71				0	0	64
Stein [35]	1992	13		38.5					1.1	7.7	15	64
Pontes [36]	1993	35	12-120		79			12			11	46
Brenner [61]	1995	10	30		30							
Rogers [47]	1995	40	39.3	22	47	5	7	5	9	1	28	58
Lerner [37]	1995	79	50	55	53	72				8	12	39
Gheiler [32]	1998	30	36.1	39.5	47	87	13	16	1.1	3.3	16.7	50
Garzotto [62]	1998	29	63.6		49		31		1.5	6.8	2	67
Cheng [54]	1998	86	70		64			16				
Amling [40]	1999	108		39	48	70	36	18				51
Stephenson [6]	2004	100	60	50	66		10	7	1	1	30	32
Bianco [41]	2005	100	60	35	55	73	21	9				
Ward [38]	2005	138	84	39		77				10	22	44
Heidenreich [42]	2006	25	12.5		93	100	8	8				
Darras [63]	2006	11	83	81	55	91	0	0				
Sanderson [48]	2006	51		25	47		36	28				30
Boris*[64]	2009	11	20		73		27	18	0.113	9	9	20
Seabra [43]	2009	42	18	74	79	100		0	0.3	4.8	50	72
Leonardo [44]	2009	32	35	53	75		34	0	0.55	0	12	79
Paparel [45]	2009	146	45	44	54		16	13				
Eandi* [46]	2010	18	18	50	67		28	5.5	0.15	17	17	67
Heidenreich [49]	2010	55	23	73	87		11	20	0.36	2	11	19
Chade [18]	2011	404	55	55	37	83	25	16				

BCR FS 28-93%
CSS 70-83%

Salvage radical prostatectomy

Graph 2b: BCR-FS (%) rates plotted with the mean follow-up (mos) in only >40 patients series

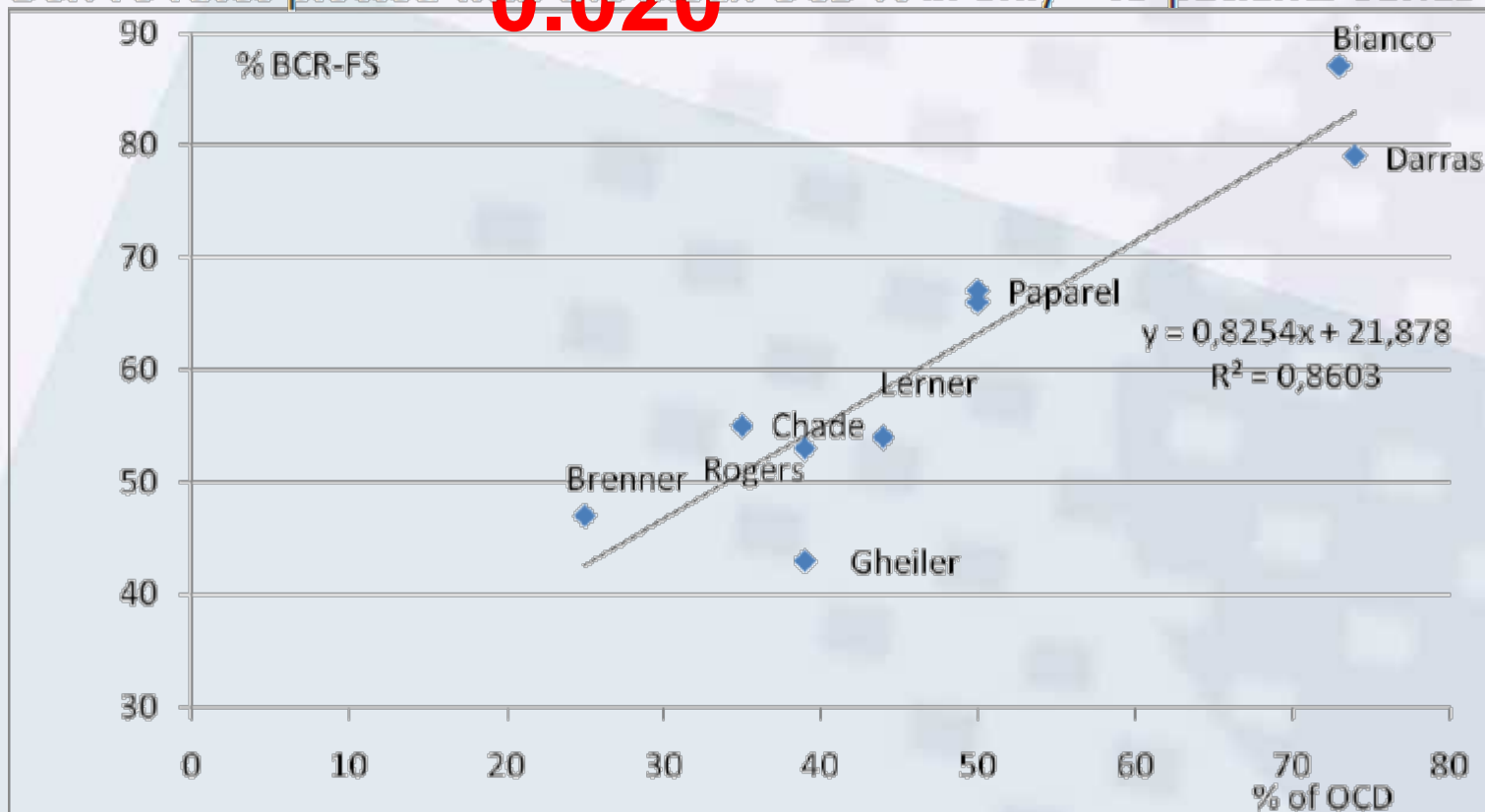
BCR FS is TIME DEPENDENT



Salvage radical prostatectomy

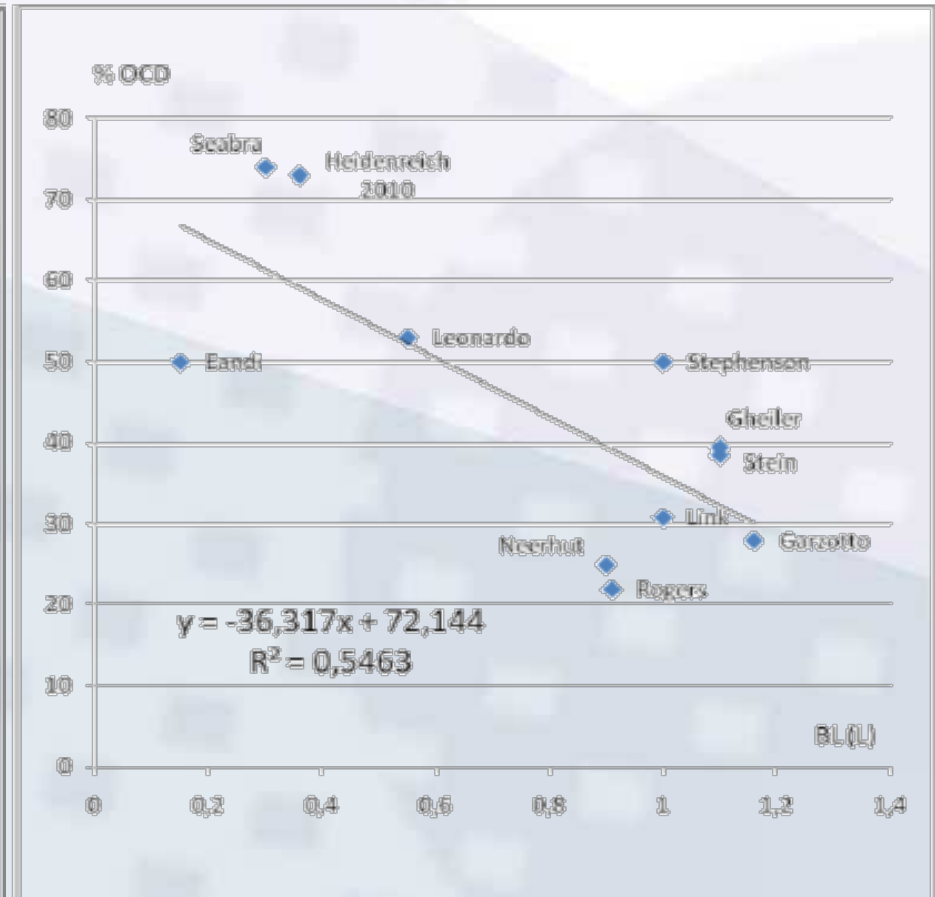
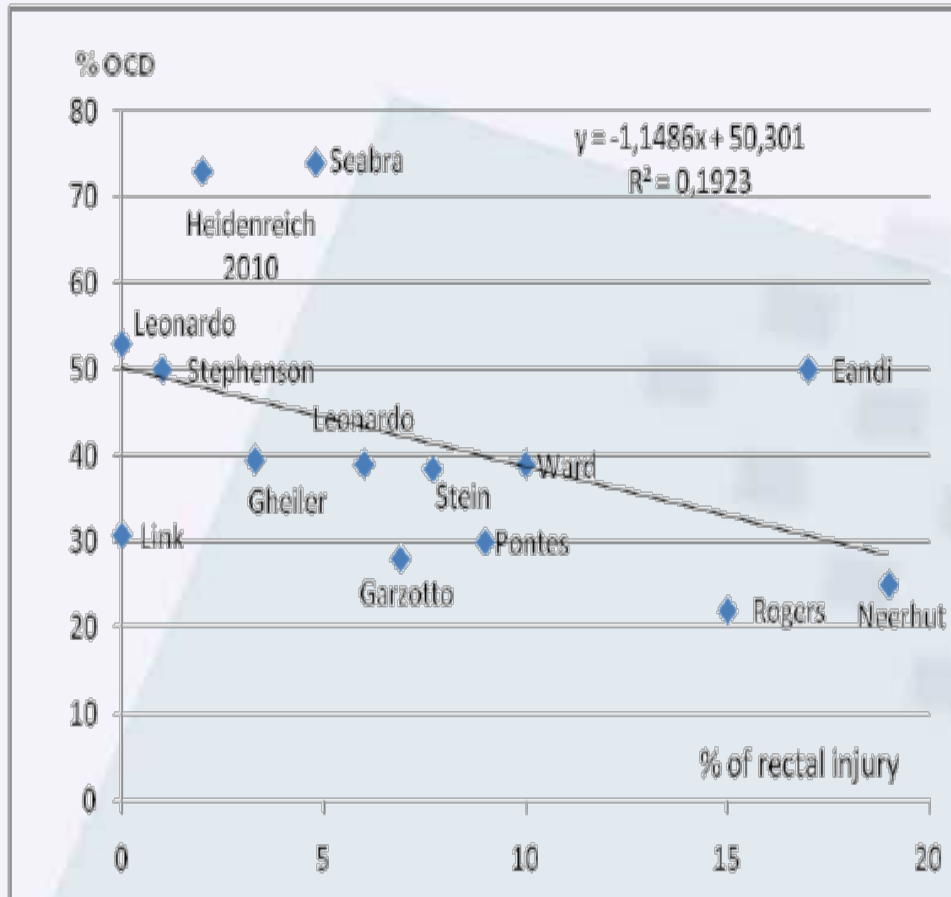
→ 1995 → 1998 → T-test
OCD 30.75% 47%

BCR-FS rates plotted with the mean OCD % in only >40-patients-series

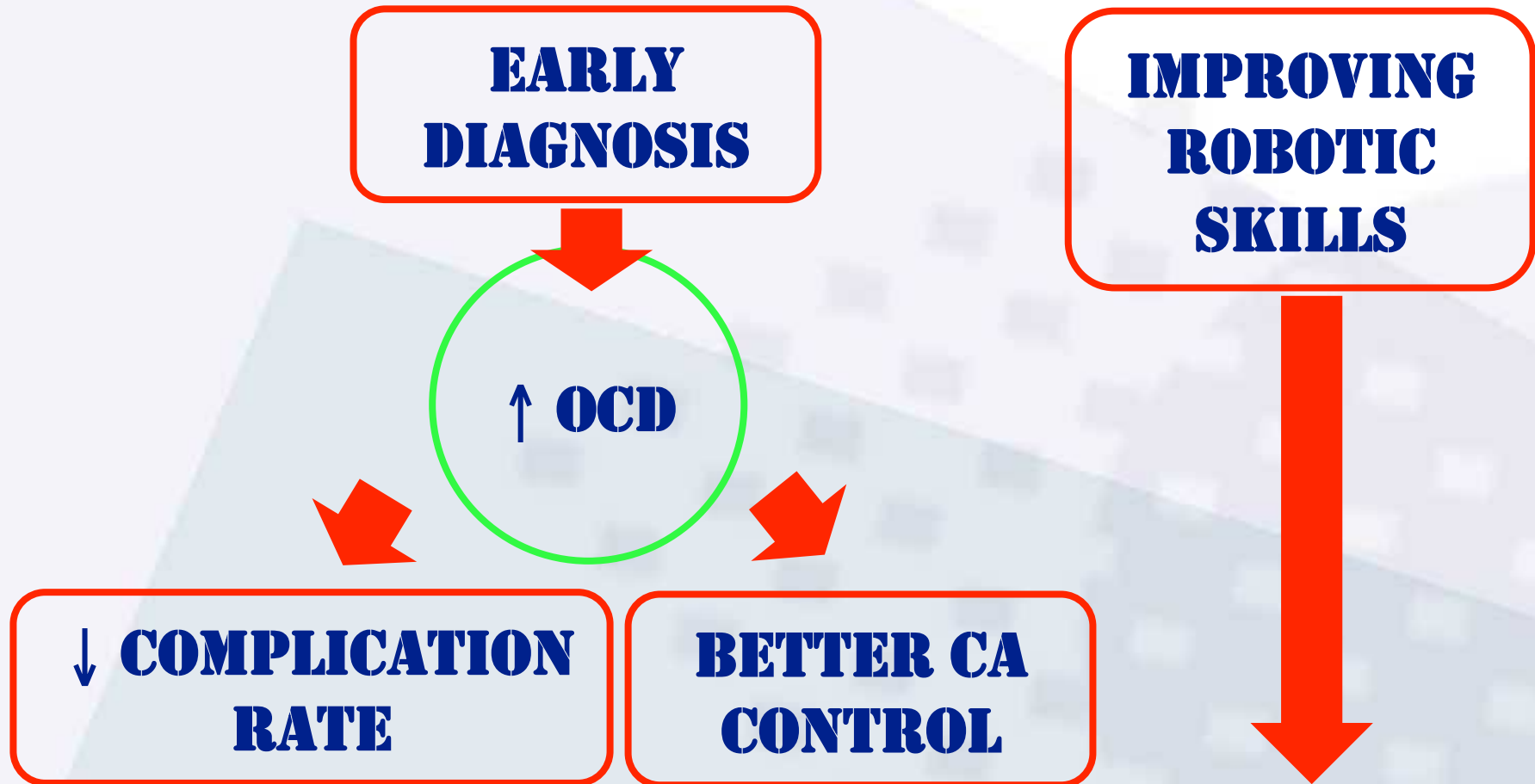


Salvage radical prostatectomy: complications

Rates of rectal injuries plotted with OCD rates [a]; BL plotted with OCD rates [b].



Minimally invasive salvage radical prostatectomy

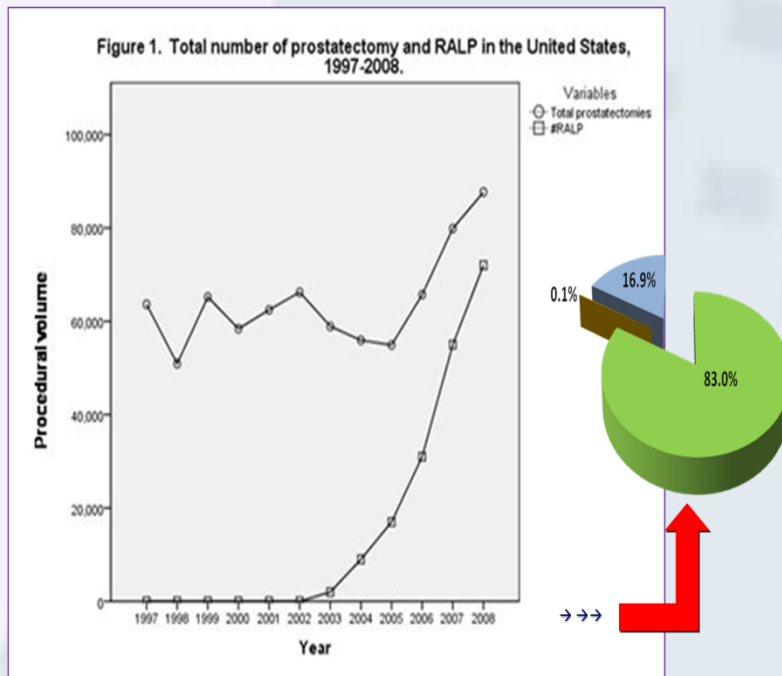


Minimally invasive treatment **makes sense!**

RADICAL PROSTATECTOMY SETTING

Primary

Salvage



Status of Salvage Therapy for Radioresistant Prostate Cancer

Gabriele Cozzi ·
 Alessio Di Lorenzo · Angelica Grasso ·
 Rafael F. Coelho · Vipul R. Patel

Days of hospital stay, *d* Mean hospital stay, *d* NS, *n* Transfusion, *n* Overall survival, *n* (%)

Series	Days of hospital stay, <i>d</i>	Mean hospital stay, <i>d</i>	NS, <i>n</i>	Transfusion, <i>n</i>	Overall survival, <i>n</i> (%)
Jamal et al. [2]	1	18	0	0	0
Kaouk et al. [3]	2.7	> 12	0/4	0	1
Boris et al. [3]	1.4	> 12	NA	0	3
Eandi et al. [6]	2	4.6	NA	0	7
Strope et al. [8]	2	4.6	1	0	4
Chauhan et al. [9]	1	4.6	2/15	0	4
Total				0	19

Positive surgical margin; BCR biochemical recurrence; BT brachytherapy

Table 1 Summary of outcomes

Series

Jamal et al. [2]
 Kaouk et al. [3]
 Boris et al. [3]
 Eandi et al. [6]
 Strope et al. [8]
 Chauhan et al. [9]

Total

EBL estimated blood loss; BT brachytherapy

Patients, <i>n</i>	Mean follow-up, <i>mo</i>	Positive surgical margin, <i>n</i> (%)	+ LN, <i>n</i>	BCR during follow-up, <i>n</i>	Overall survival, <i>n</i> (%)
1	3	0	0	0	0
4	5	0	0	NA	0
11	20.5	2/11	2/11	3	8
18	18	1/18	1/18	6	18
6	> 12	0	0	2	6
15	4.6	1	1	4	15
57				13/55	15/51

15/51

BT

Salvage radical prostatectomy: IEO experience

Table 1 Salvage robot-assisted laparoscopic prostatectomy series

Series	Patients, <i>n</i>	Type of radiation	Mean follow-up, <i>mo</i>	Mean EBL, <i>mL</i>	Mean OR time, <i>min</i>	Mean days on catheter	Mean hospital stay, <i>d</i>	NS, <i>n</i>	Transfusion, <i>n</i>	Overall complications, <i>n</i>	Rectal injury, <i>n</i>	+ LN, <i>n</i>	Continence, <i>n</i>	Potency, <i>n</i>	PSM, <i>n</i>	BCR during follow-up, <i>n</i>
Jamal et al. [34]	1	1 XRT	3	100	150	14	1	0	0	0	0	0	1/1	NA	0/1	0
Kaouk et al. [35]	4	2 BT, 2 XRT + BT	5	117	125	15	2.7	0/4	0	1	0	0	3/4	NA	2/4	NA
Boris et al. [36]	11	6 BT, 4 XRT, 1 XRT + BT	20.5	113	183	10.4	1.4	NA	0	3	0	2/11	8/11	2/11	3/11	3
Eandi et al. [6]	18	8 BT, 8 XRT, 2 PBT	18	150	156	14	2	NA	0	7	0	1/18	6/18	0/18	5/18	6
Strope et al. [37]	6	4 XRT, 2 BT	> 12	280	356	NA	2	1	0	4	0	0	0/6	0/6	1/6	2
Chauhan et al. [38]	15	5 XRT, 3 XRT + BT, 2 PBT, 5 BT	4.6	75	138	NA	1	2/15	0	4	0	1	10/14	0/15	2/15	4
Total	57	23 XRT, 6 XRT + BT, 4 PBT, 24 BT							0	19	0		28/54	2/50		13/55

15/51

	Patients (nr)		FU	pT3a	pT3b	pN1	PSM	Cont	Potency	BCR
IEO	10	1 BRT 8EBR T 1HIFU	19	4	6	3	3	3	2	4

Take Home Messages

ROBOTIC SALVAGE PROSTATECTOMY

- **IS FEASIBLE**
- **MAKES SENSE**
- **ADVANTAGES REGARD LOS, BL & PAIN**
- **FURTHER STUDIES ARE NEEDED TO STATE LONG TIME OUTCOMES**
- **COMPETITORS ARE STRONG (BRT, CYBERKNIFE, HIFU) BUT ONCOLOGIC OUTCOMES SEEM (LITTLE) BETTER**



THANK YOU!