The Prostate Cancer Treatment Nurses Aren't Talking About, But Should Be: LDR Brachytherapy

Claire Deering RN

CNS Prostate Cancer

Stokes Centre for Urology
Royal Surrey Cancer Centre & Hospital
Guildford

The Prostate Cancer Treatment Nurses Aren't Talking About, But Should Be!

LDR Brachytherapy

- Nurses role in patient choice
- What is brachytherapy?
- Does it work?
- Outcomes compared to other NICE approved treatment options?
- Quality of Life?
- Where is it available!
- Questions

Brachytherapy?

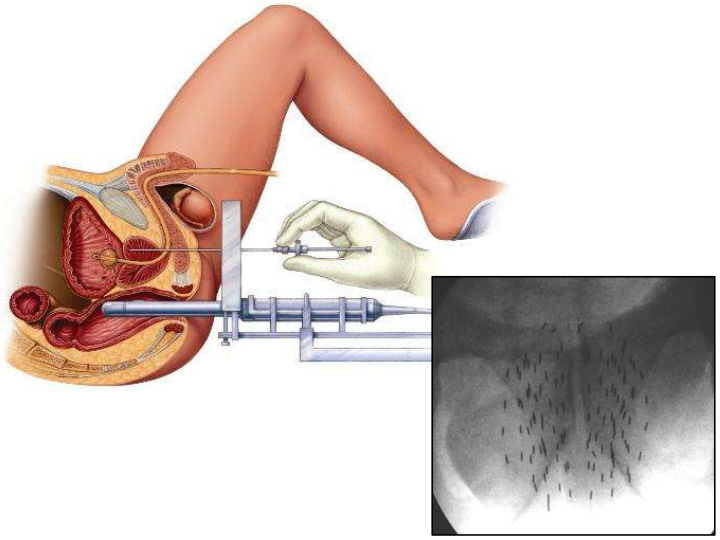
Low Dose-Rate

High Dose-Rate

Types of Brachytherapy

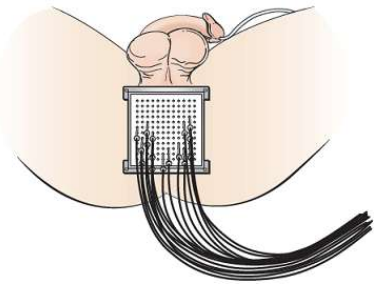
LDR

- I-125 permanent implanted seeds



HDR

- Temporary iridium - 192 bead passing through catheters



Prostate Brachytherapy

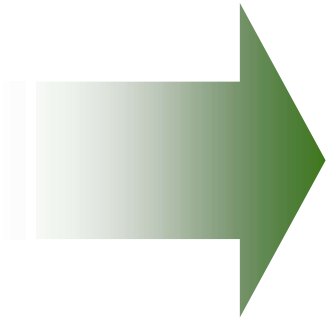
Low Dose-Rate

- High Dose
- Permanent seed implant
- Stand alone therapy or with EBRT
- For Low, Intermediate & High risk prostate cancer
- Longest follow up
- Established dose

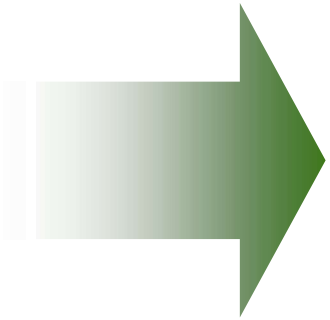
High Dose-Rate

- Lower Dose
- Temporary implant
- Normally in combination with EBRT
- For High risk prostate cancer esp. T3b
- Shorter follow up
- Multiple protocols & doses

Video



Who is suitable?



Patients selection: *urological issues*

Prostate size <60-75g

Hip flexion to 90^{o}

Patients size…

No *recent* unplanned TURP

IPSS<15

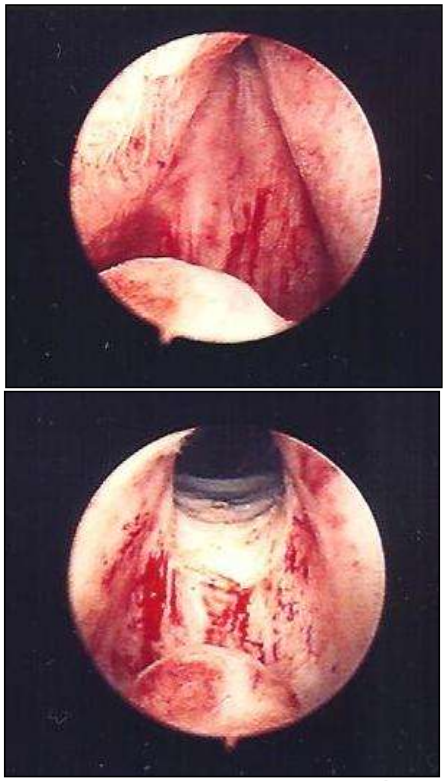
Treatment possible in pts with: Diverticulosis

IBS

Ant Resection

Bil THR

Partial Bladder Neck Resection



Patients selection: *cancer issues*

BXT

- T1-T2c, PSA <15
- Gleason 6, 3+4 <50% cores +ve

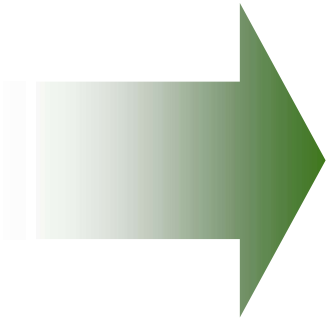
Hormones + BXT

- T1-T2c, PSA <15
- Gleason 3+4 >50% cores +ve, or 4+3

Hormones + EBRT + BXT(boost)

- T3a, PSA>15
- Gleason >4+3

Does it work?



BJUI
BJU International

Long-term oncological outcomes and toxicity in 597 men aged ≤60 years at time of low-dose-rate brachytherapy for localised prostate cancer

Stephen E. M. Langley, Ricardo Soares, Jennifer Uribe, Santiago Uribe-Lewis, Julian Money-Kyrle, Carla Perna, Sara Khaksar and Robert Laing

St Luke's Cancer Centre, Guildford, Surrey, UK

Table 1 Demographics of the patients aged ≤60 years at time of brachytherapy.

Variable	Value
Number of patients	597
Median (range)	
Age, years	57 (44–60
Follow-up*, years	8.9 (1.5–1
PSA follow-up†, years	5.9 (0.8–1
iPSA level, ng/mL	6.3 (1–33)
N (%)	
iPSA level, ng/mL	
<10	485 (81)
10–20	102 (17)
>20	10 (2)
Stage	
T1a–T2a	469 (79)
T2b	80 (13)
T2c–T3b	48 (8)
Gleason score	
≤6	434 (73)
=7	154 (26)
≥8	9 (1)
Risk category	
Low	316 (53)
Intermediate	220 (37)
High	61 (10)
Treatment type	
BXT monotherapy	430 (72)
BXT + HT	80 (13)
BXT + EBRT	18 (3)
BXT + HT + EBRT	69 (12)

*BXT, LDR brachytherapy. *Time from brachytherapy to data download date; †Time from brachytherapy to the last PSA level date.*

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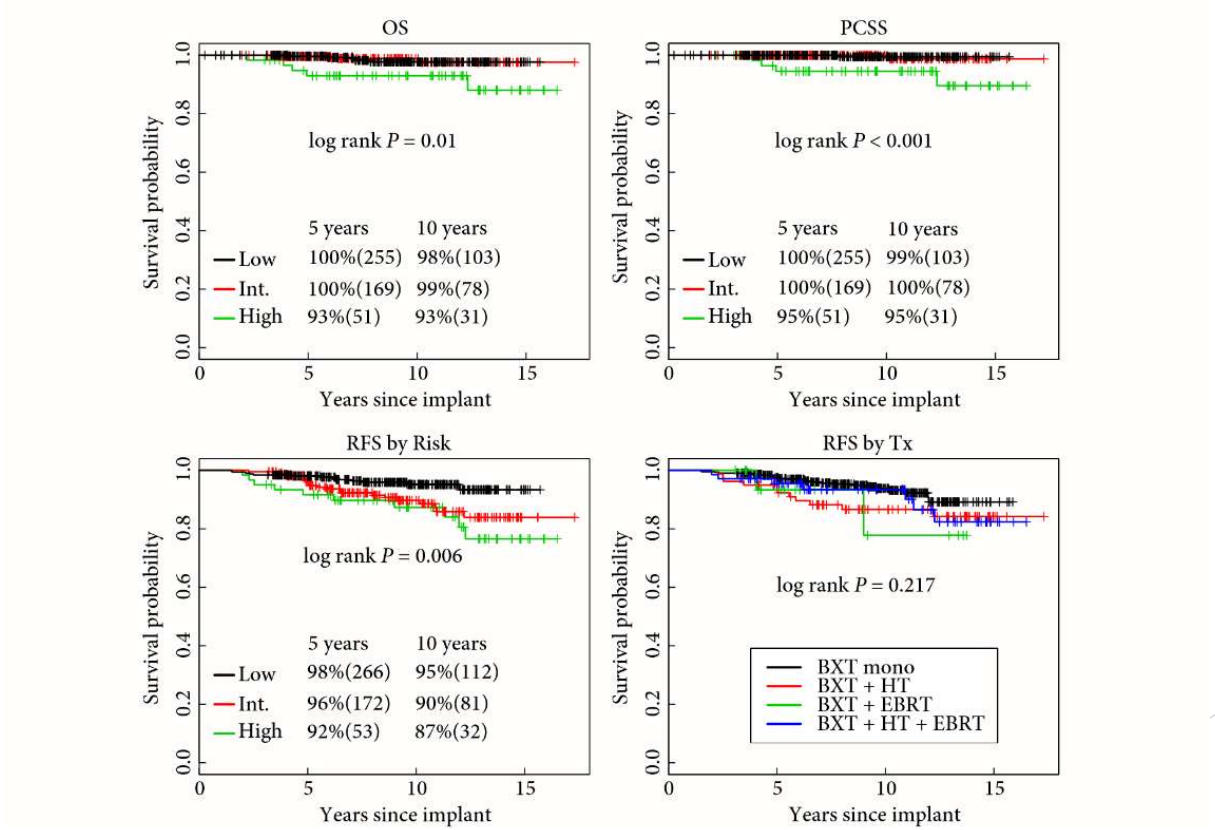


BJU Int 2021 doi:10.1111/bju.15585

Original Article

BJUI
BJU International

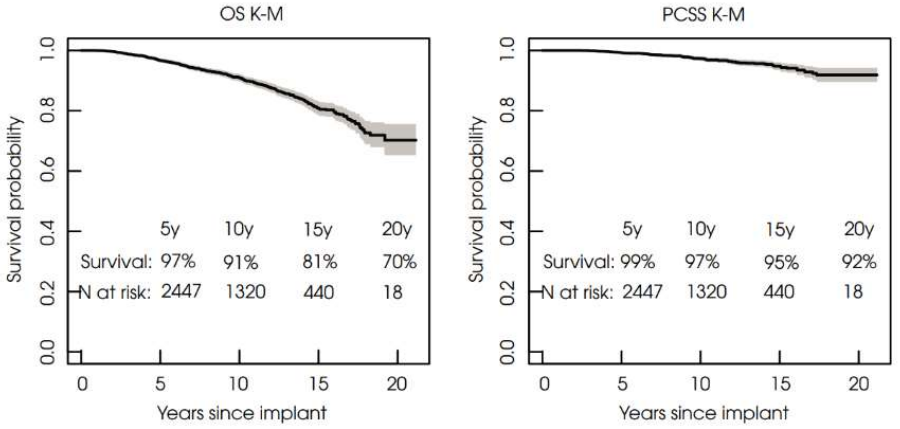
Long-term survival after low-dose-rate brachytherapy for prostate cancer: the Royal Surrey experience

Santiago Uribe-Lewis, Jennifer Uribe, Vincent Bourke, Claire Deering, Donna Higgins, Sheel Mehta, Christos Mikropoulos, Sophie Otter, Carla Perna, Sara Khaksar, Robert Laing and Stephen Langley

The Stokes Centre for Urology, Royal Surrey Hospital NHS Foundation Trust, Guildford, UK

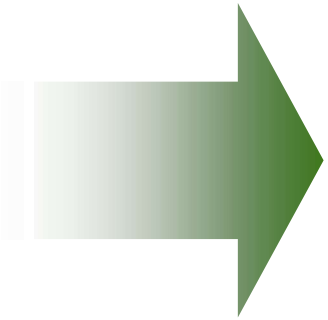
Variable	
Number of cases	2936
Median (Q1–Q3) age at implant, years	66 (60–70)
PSA, *n* (%)	
<10 ng/mL	2242 (76)
10–20 ng/mL	633 (22)
>20 ng/mL	61 (2)
Clinical stage, *n* (%)	
T1a-T2a	2071 (71)
T2b	585 (20)
T2c-T3b	280 (10)
Gleason score, *n* (%)	
<7	1582 (54)
=7	1249 (43)
>7	105 (4)
Relapse risk, *n* (%)	
Low	954 (32)
Intermediate	1592 (54)
High	390 (13)
Treatment type, *n* (%)	
LDR prostate brachytherapy	1910 (65)
ADT+LDR prostate brachytherapy	608 (21)
ADT+EBRT+LDR prostate brachytherapy	418 (14)

ADT, androgen deprivation therapy; EBRT, external beam radiotherapy; LDR, low-dose-rate; Q1–Q3, first and third quartile.

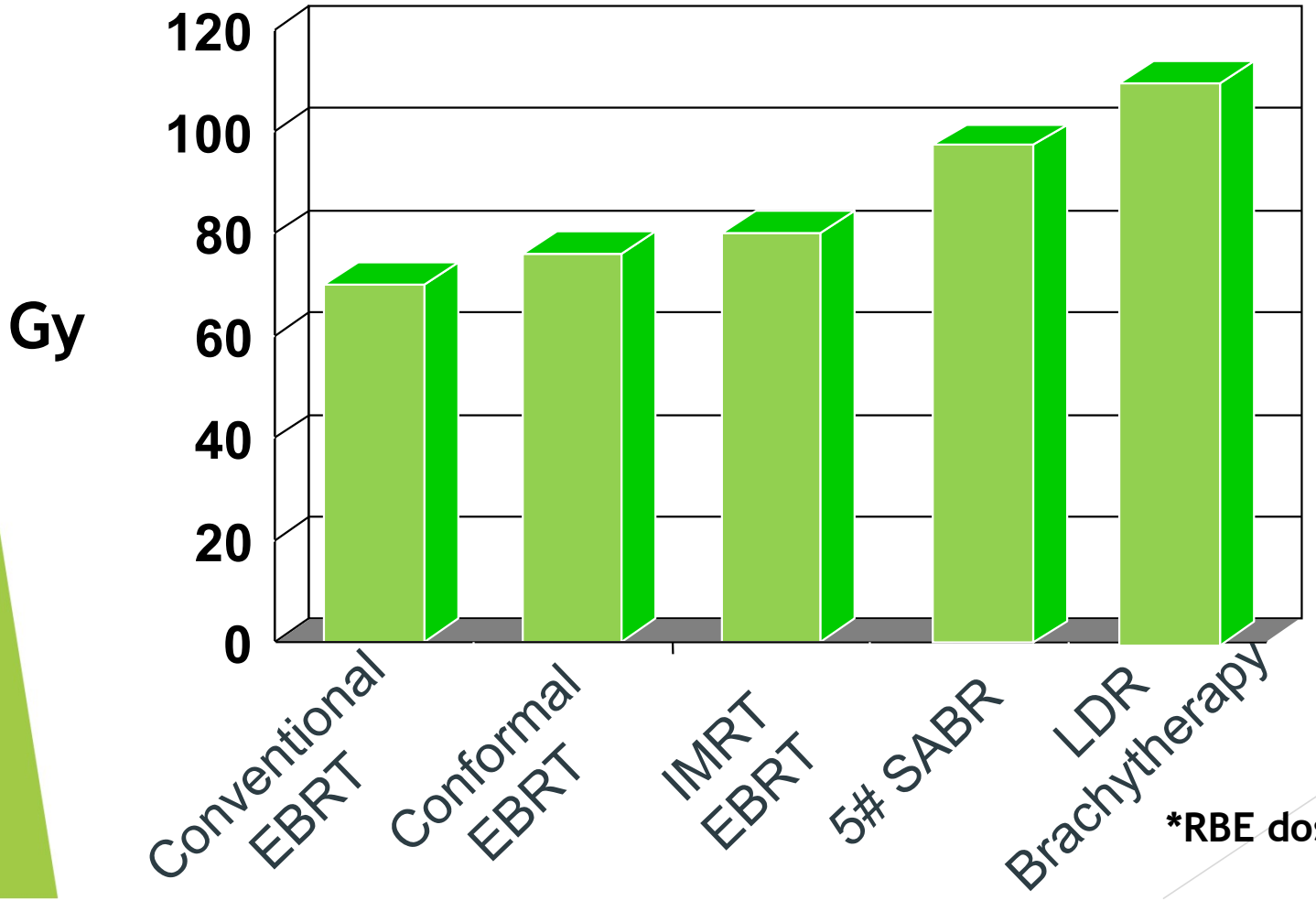


	15-year		
	OS, %	PCSS, %	Number at risk
Risk of relapse			
Low	87	97	179
Intermediate	79	95	198
High	71	88	63

How does it compare to EBRT?

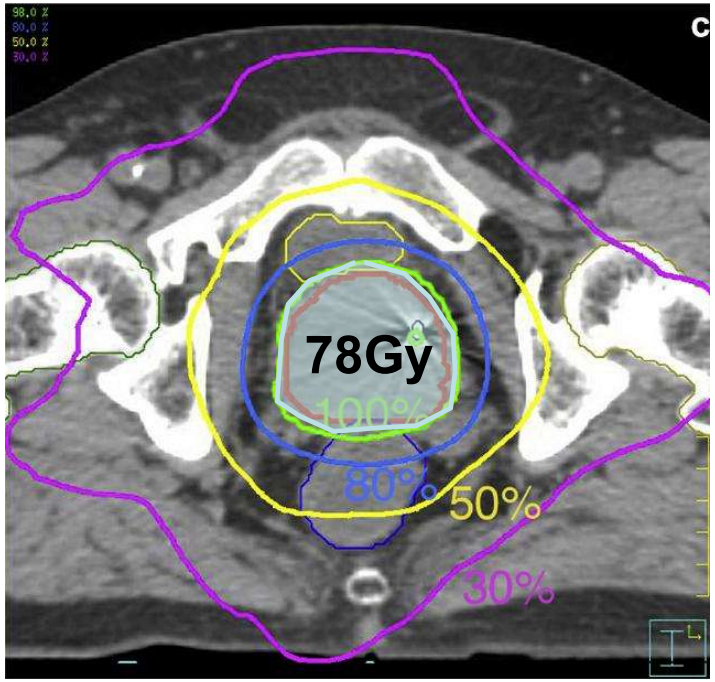


Radiation Doses by Modality

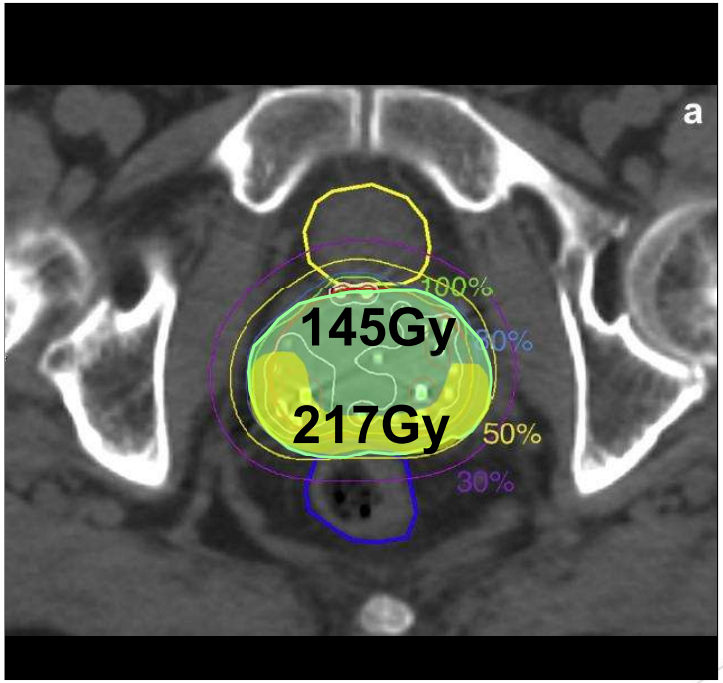


LBR BXT dose unchanged in 25 yrs!

Dose Escalation



IMRT 4mm margin



LDR Brachytherapy

Morton & Hoskin Clinical Oncology 25 (2013) 474-482

EBRT vs LDR BXT

SBRT / PACE B

- Clinical review
- Gold marker & gel insertion transperineally by LA
- Planning CT & MRI with rectal enema & full bladder
- 5 visits for SBRT with rectal enemas & full bladder
- 8/9 hospital visits

LDR BXT

- Clinical review & TRUS (or use pre-Bx MRI)
- BXT with gel insertion, day case under GA/spinal with bowel prep.
- 2 hospital visits

Is it patient's or healthcare provider's convenience that's improved with SBRT over BXT?

International Journal of Radiation Oncology biology • physics

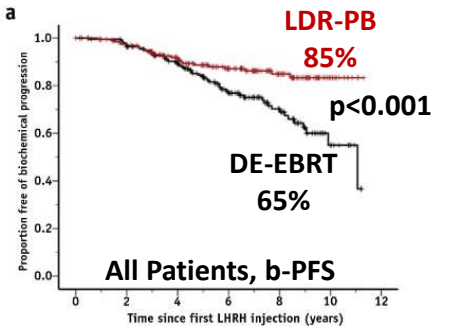
Received Aug 25, 2016, and in revised form Nov 12, 2016. Accepted for publication Nov 16, 2016.

Androgen Suppression Combined with Elective Nodal and Dose Escalated Radiation Therapy (the ASCENDE-RT Trial): An Analysis of Survival Endpoints for a Randomized Trial Comparing a Low-Dose-Rate Brachytherapy Boost to a Dose-Escalated External Beam Boost for High- and Intermediate-risk Prostate Cancer

W. James Morris, MD, FRCPC,*,† Scott Tyldesley, MD, FRCPC,*,†

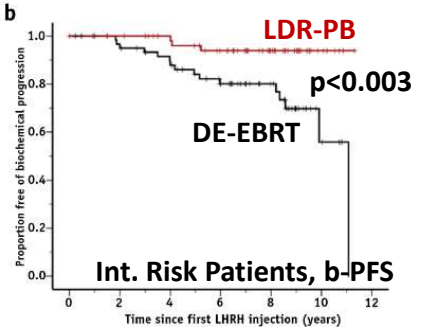
Int & High Risk Cancers

"..men treated with DE-EBRT were twice as likely to experience PSA failure than those treated with LDR-PB."



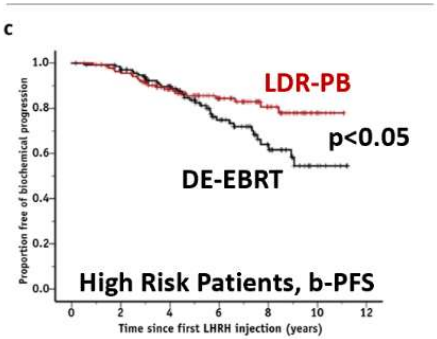
Numbers at risk:

Time (yrs)	0	2	3	4	5	6	7	8	9	10
DE-EBRT	200	186	168	145	119	93	74	52	27	11
LDR-PB	198	184	168	147	127	106	86	59	38	14



Numbers at risk:

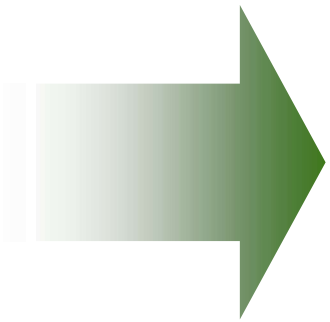
Time (yrs)	0	2	3	4	5	6	7	8	9	10
DE-EBRT	63	57	54	49	43	38	30	25	12	4
LDR-PB	59	55	54	50	47	42	35	26	7	6



Numbers at risk:

Time (yrs)	0	2	3	4	5	6	7	8	9	10
DE-EBRT	137	129	114	96	76	55	44	27	15	7
LDR-PB	139	128	114	97	80	64	51	33	21	8

How does it compare to surgery?



World J Urol (2009) 27:607–612
DOI 10.1007/s00345-009-0418-9

ORIGINAL ARTICLE

Radical retropubic prostatectomy versus brachytherapy for low-risk prostatic cancer: a prospective study

C. Giberti · L. Chiono · Fabrizio Gallo · M. Schenone · E. Gastaldi

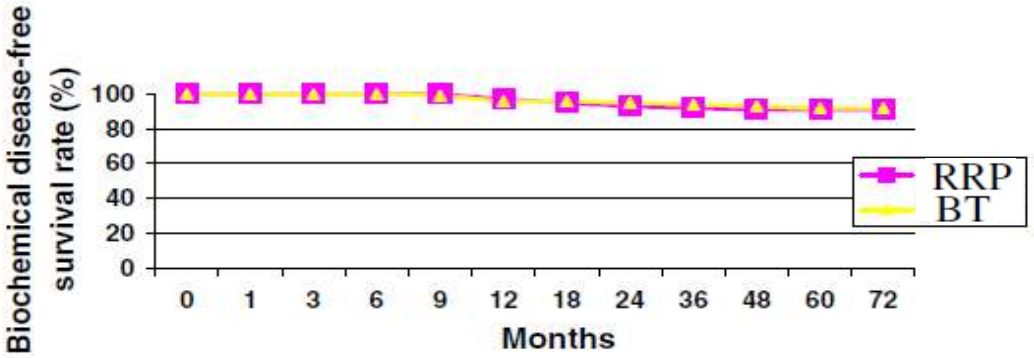


Fig. 1 Biochemical disease-free survival rate in group 1 and 2 during the 5 years follow-up

Methods Between May 1999 and October 2002, 200 patients (mean age 65.3 ± 8.7) were enrolled and randomized into two groups of 100 patients each to undergo RRP (group 1) or BT (group 2).

THE JOURNAL OF UROLOGY®

Risk of Death From Prostate Cancer After Radical Prostatectomy or Brachytherapy in Men With Low or Intermediate Risk Disease

Nils D. Arvold,*,† Ming-Hui Chen,† Judd W. Moul,‡ Brian J. Moran,†
Daniel E. Dosoretz,† Lionel L. Bañez,† Michael J. Katin,† Michelle H. Bracciofortet
and Anthony V. D'Amico†

From the Harvard Radiation Oncology Program, Harvard Medical School (NDA), and Department of Radiation Oncology, Brigham & Women's Hospital and Dana-Farber Cancer Institute (AVD), Boston, Massachusetts, Department of Statistics, University of Connecticut, Storrs, Connecticut (MHC), Division of Urologic Surgery and the Duke Prostate Center, Department of Surgery, Duke University, Durham, North Carolina (JWM, LLB), Prostate Cancer Foundation of Chicago, Westmont, Illinois (BJM, MHB), and 21st Century Oncology, Fort Myers, Florida (DED, MJK)

Vol. 186, 91-96, July 2011

Conclusions: The risk of prostate cancer specific mortality in men with low or intermediate risk prostate cancer was not significantly different following radical prostatectomy vs brachytherapy.

European Journal of Cancer (2015) 51, 2345–2367

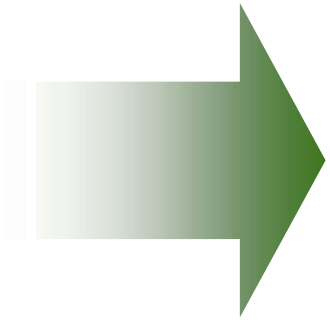
Review

A systematic review of randomised controlled trials of radiotherapy for localised prostate cancer

Robert F. Wolff[a,*], Steve Ryder[a], Alberto Bossi[b], Alberto Briganti[c], Juanita Crook[d], Ann Henry[e], Jeffrey Karnes[f], Louis Potters[g], Theo de Reijke[h], Nelson Stone[i], Marion Burckhardt[j], Steven Duffy[a], Gillian Worthy[a], Jos Kleijnen[a,k]

Conclusions: Based on this systematic review, there is no strong evidence to support one therapy over another as EBRT, BT and RP can all be considered as effective monotherapies for localised disease with EBRT also effective for post-operative management.

Brachytherapy
Quality of life



Clinical Oncology (2004) 16: 95–104
doi:10.1016/j.clon.2003.11.006

Original Article

Toxicity and Early Biochemical Outcomes From ^{125}Iodine Prostate Brachytherapy in the U.K.

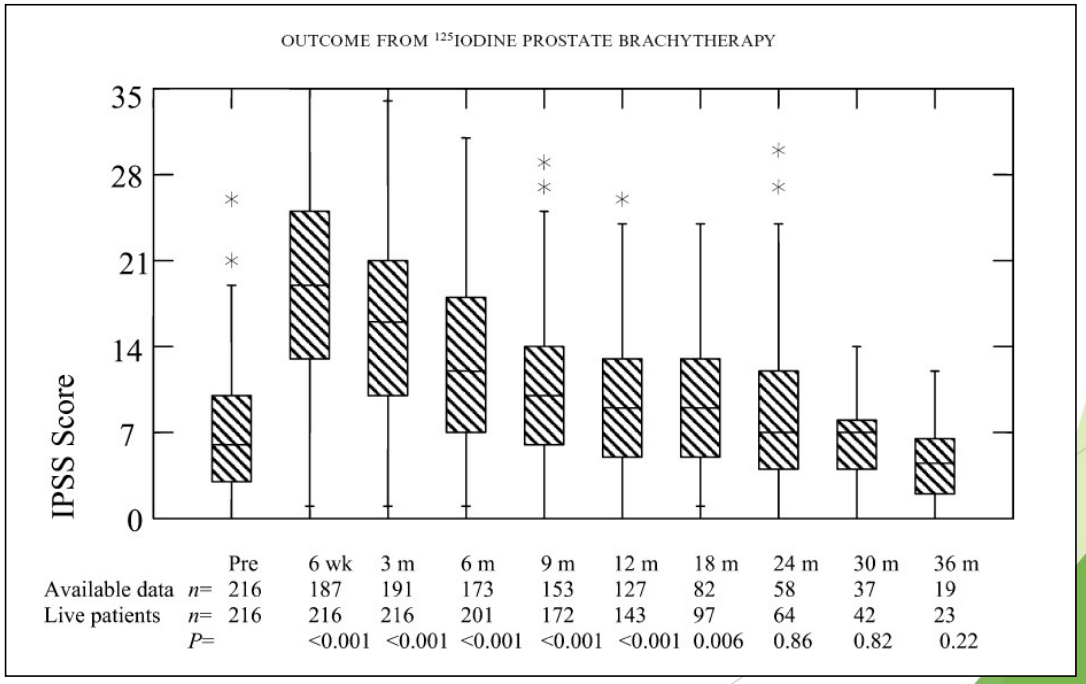
A Prospective Study

A. Henderson*,†, A. K. A. Ismail*, M. Cunningham*, S. Aldridge*, L. Loverock*, S. E. M. Langley*, R. W. Laing*

St Luke's Cancer Centre, Guildford, U.K.; †Postgraduate Medical School, University of Surrey, Guildford, U.K.

Slow urinary stream, and LUTS.
Worse at 4-6 weeks
Treated by α blocker, avoidance of caffeine

Incontinence is <1%



		Pre	6 wk	3 m	6 m	9 m	12 m	18 m	24 m	30 m	36 m
Available data	*n*=	216	187	191	173	153	127	82	58	37	19
Live patients	*n*=	216	216	216	201	172	143	97	64	42	23
	P=		<0.001	<0.001	<0.001	<0.001	<0.001	0.006	0.86	0.82	0.22

Reduced erectile toxicity

Radiotherapy and Oncology 88 (2008) 121–126
www.thegreenjournal.com

Prostate brachytherapy

Novel prostate brachytherapy technique: Improved dosimetric and clinical outcome

Jenny P. Nobes*, Sara J. Khaksar, Maria A. Hawkins, Melanie J. Cunningham
Stephen E.M. Langley, Robert W. Laing

St. Luke's Cancer Centre, The Royal Surrey County Hospital, Guildford, UK

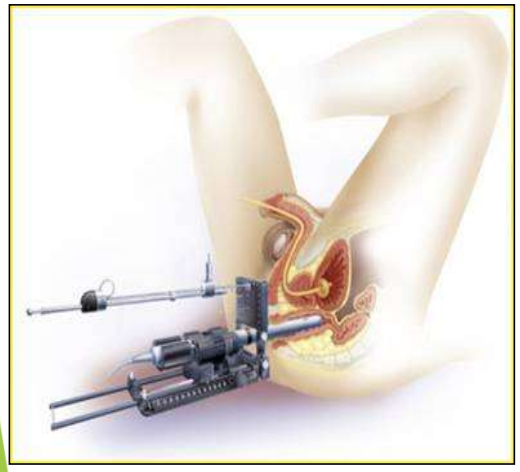


Table 4
Post-implant potency data at 12 and 24 months

Parameter	Time post-implant (months)	Group 1, $n = 60$ classical technique	Group 2, $n = 60$ novel technique	p Value
IIEF-5 score	12	65%	85%	0.011
$\geqslant$ 11/25	24	61.7%	83.3%	0.008

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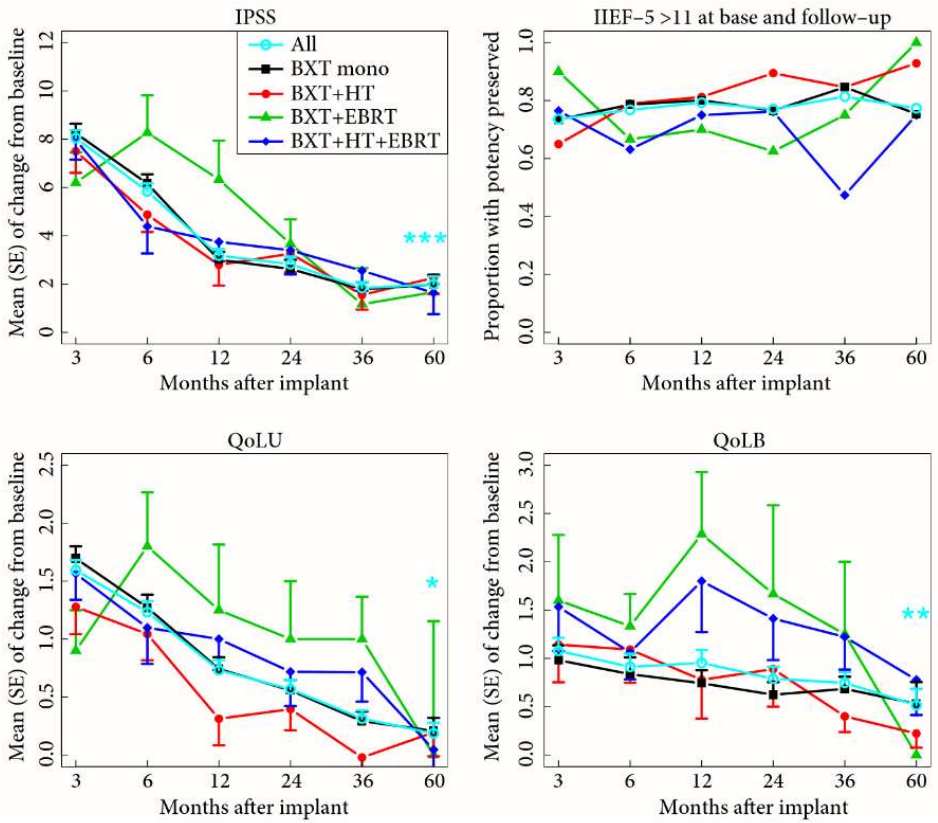

VOLUME 27 · NUMBER 24 · AUGUST 20 2009

JOURNAL OF CLINICAL ONCOLOGY

ORIGINAL REPORT

Individualizing Quality-of-Life Outcomes Reporting: How Localized Prostate Cancer Treatments Affect Patients With Different Levels of Baseline Urinary, Bowel, and Sexual Function

Ronald C. Chen, Jack A. Clark, and James A. Talcott

- 409 patients categorised at Normal, Intermediate and Poor function at Baseline and at 3yr using PCSI

  RP =127: NSRP- 74, NNSP - 53

  BXT = 92

  EBRT = 190

VOLUME 27 · NUMBER 24 · AUGUST 20 2009

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Individualizing Quality-of-Life Outcomes Reporting: How Localized Prostate Cancer Treatments Affect Patients With Different Levels of Baseline Urinary, Bowel, and Sexual Function

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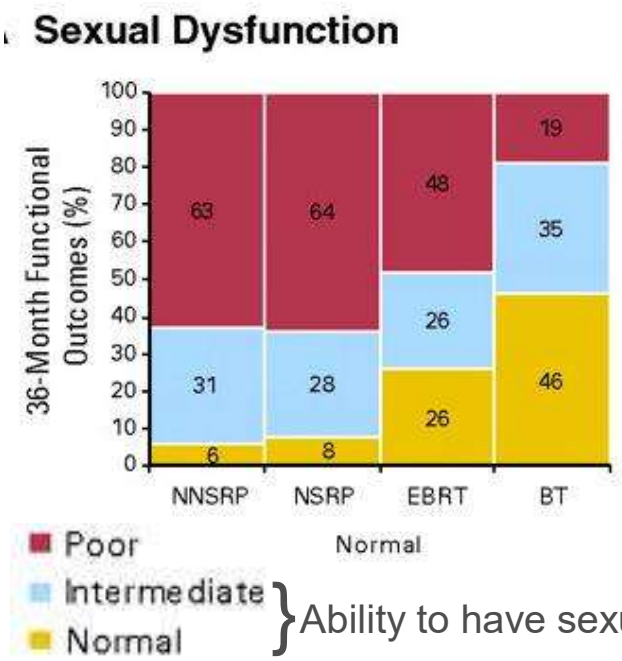
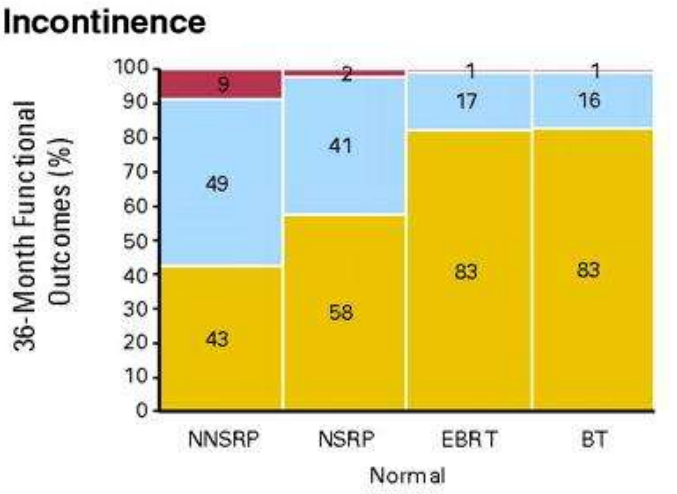
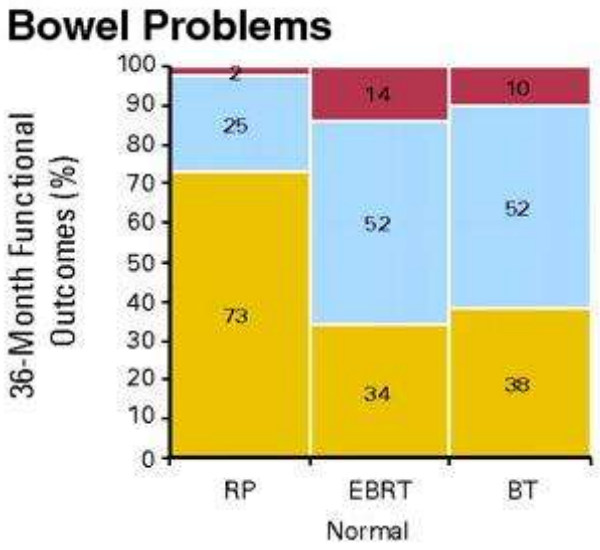
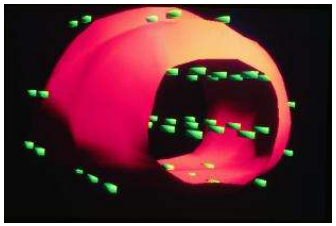


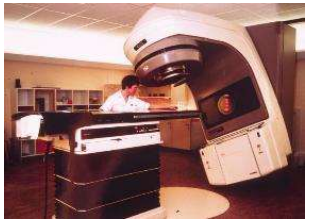
} Ability to have sexual intercourse





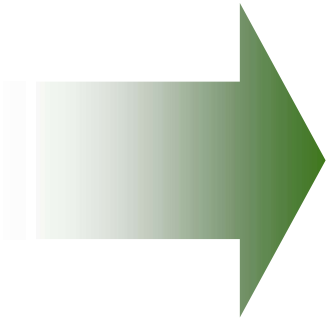
Prostate Cancer Treatments





PSA free survival @ 10 yrs / Cure		- similar -	
Incontinence	<1%	2-7%	5-25%
Erectile Function	80-85%	40-60%	35-60%
Treatment time	Day case	2-8weeks	1-10 days
Time off work	2-3 days	variable	4-6 weeks

Where can patients get Brachytherapy?



UK & Ireland LDR Brachytherapy Treatment Centres

Dublin
- St Luke's Hospital
- St Vincent's Hospital

UPMC Ireland **(Whitefield & Kildare)**

Galway Clinic, & Galway University, **Galway**

Cork University Hospital, **Cork**

Royal Berkshire Hospital, **Reading**

Beatson West of Scotland Cancer Centre, **Glasgow**

Edinburgh Cancer Centre, **Edinburgh**

St James Institute of Oncology, **Leeds**

The Christie NHS Foundation Trust, **Manchester**

United Lincolnshire Hospitals NHS Trust, **Lincolnshire**

Addenbrookes Hospital, **Cambridge**

London
- London Bridge Hospital
- Guy's and St Thomas' Hospital
- The Royal Marsden Hospital
- Mount Vernon Hospital

Kent Oncology Centre, **Maidstone**

Royal Surrey County Hospital & St Luke's Cancer Centre **Guildford**

Queen Alexandra Hospital, **Portsmouth**

University Hospital, **Southampton**

Conclusion

- Brachytherapy is a very effective treatment for all risks of prostate cancer, +/- hormone therapy +/- EBRT.
- It is suitable for young patients.
- Cost effective
- Improved side effect profile
- Only minimally invasive treatment with NICE endorsement
- It should be discussed and offered to newly diagnosed patients

Surviving 5000 LDR Brachytherapy implants..

1999

2022