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Brachytherapy

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Brachytherapy

Salvage Brachytherapy as a New Indication After Previous BCT

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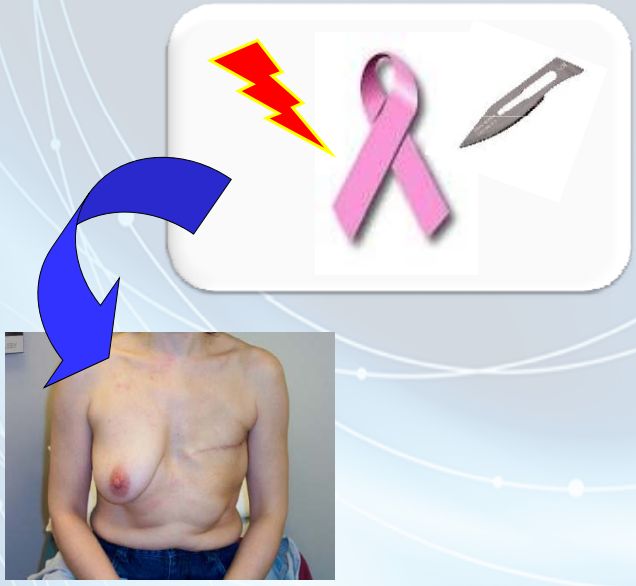
Disclosure

Jean-Michel Hannoun-Levi, MD, PhD, has received consulting fees from Nucletron/Elekta and BEBIG.

Local Treatment for IBCR?



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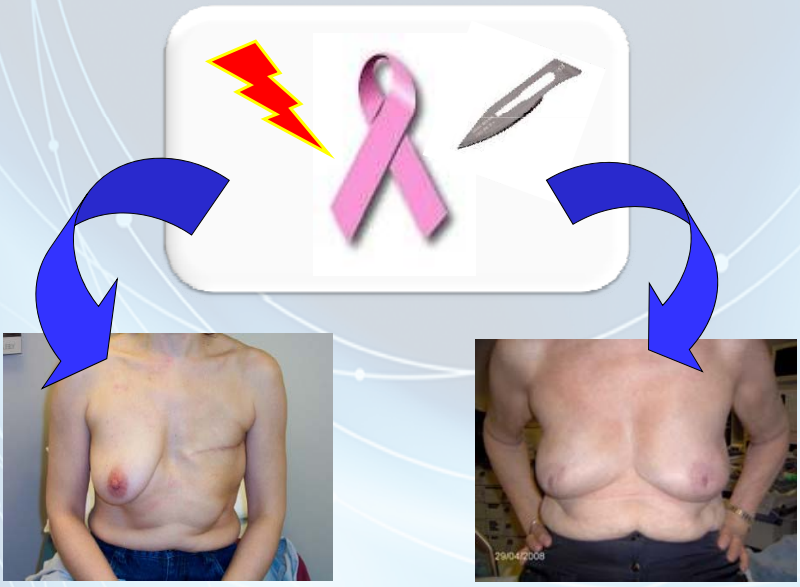

Salvage Local Treatment Options

- Mastectomy
- Lumpectomy
- Lumpectomy + Re-Irradiation

Mastectomy

Authors	# pts	MFU (months)	2nd LR (%)	5-year DMFS (%)	5-year DFS (%)	5-year CSS (%)	5-year OS (%)
Kurtz 1988	66	84	12	-	-	-	-
Fowble 1990	52	25	-	-	59	-	84
Osborne 1992	46	28	15	-	55	-	76
Cajucoum 1993	25*	52	32	-	51	-	65
Abner 1993	123	39	6	-	41	-	-
Voogd 1999	266	60	25	47	-	-	61
Salvadori 1999	134	-	4	55 (4-y)	-	-	70
Doyle 2001	112	44	3	47 (10-y)	-	-	69 (10-y)
Huang 2002	126	-	12	45 (10-y)	-	62 (10-y)	58 (10-y)
Alpert 2005	116	244	7	32 (10-y)	-	73 (10-y)	66 (10-y)
Chen 2008	568	-	-	-	-	-	78

≈10%

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Lumpectomy Alone

Authors	# pts	MFU (months)	2nd LR (%)	DMFS (%)	10-year CSS (%)	10-year OS (%)
Kurtz 1988/1991	50	51	32	-	64	42
Abner 1993	16	39	31	-	-	-
Dalberg 1998	17	-	12.5	-	-	-
Salvadori 1999	57	-	19	80 (4-y)	-	85 (5-y)
Alpert 2005	30	244	7	24 (10-y)	61	58
Chen 2008	179	-	-	-	-	57

≥20%

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Lumpectomy + Re-irradiation (APBrI)

Authors	# pts	MFU (months)	IT	Dose (Gy)	2nd LR (%)	5-year DFS (%)	5-year OS (%)	G3-4 tox (%)	Exc/Gc CR (%)
Maulard 1995	15	48	ILB	30	26	31	61	8	53
	23	36	ILB*	60-70	17	41	50		
Deutsch 2002	39	63	e- TB	50	21	68	78	-	69
Hannoun-Levi 2004	24	50	ILB	30	25	69	92	10	-
	45		ILB	46	11				-
Chadha 2008	15	36	ILB	30-45	7	-	100 (3-y)	0	100
Trombetta 2008/2009	25	38	ILB/MHB	45-50/34	4	-	-	14	92
Guix 2010	36	89	IHB	30	3	64 (10-y)	97 (10-y)	0	-
Hannoun-Levi 2010	42	21	IHB	34	2	-	-	3	97
Kauer-Dorner 2012	39	57	IPB	56	7	77	87	7	37

≈10%

* Without 2nd lumpectomy

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GEC-ESTRO Breast Cancer WG Study

Radiotherapy and Oncology 108 (2013) 226–231

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Radiotherapy and Oncology

journal homepage: www.thegreenjournal.com

Accelerated partial breast irradiation

Accelerated partial breast irradiation with interstitial brachytherapy as second conservative treatment for ipsilateral breast tumour recurrence: Multicentric study of the GEC-ESTRO Breast Cancer Working Group

Jean-Michel Hannoun-Levi [a,*], Alexandra Resch [b], Jocelyn Gal [c], Daniela Kauer-Dorner [b], Vratislav Strnad [d], Peter Niehoff [e], Kristina Loessl [f], Gyoergy Kovács [g], Erick Van Limbergen [h], Csaba Polgár [i], On behalf of the GEC-ESTRO Breast Cancer Working Group

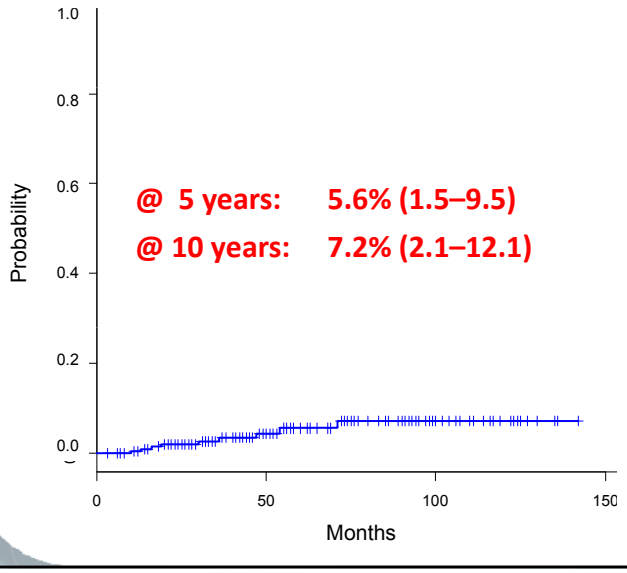
Materials & Methods – Patient Features

- ✓ 217 patients
- ✓ Median age (years): 61 (28–85)
- ✓ Time interval (years): 9.4 (1.1–35.4)
- ✓ Median FU (years): 3.9 (1.1–10.3)

Technical Features of Brachytherapy

Dose Rate	No. of Patients	CTV (cm^3)	Ref. iso. (Gy/h)	Dose (Gy)	No. of Fractions	No. of Needles	No. of Plans
LDR	27 (12.4%)	-	0.80 (0.40–1)	46 (30–55)	-	5 (3–7)	2 (1–2)
PDR	88 (40.6%)	67.9 (18–165)	0.80 (0.70–1)	50.4 (49–50)	-	9 (3–18)	3 (1–5)
HDR	102 (47.0%)	62.0 (23–157)	-	32 (22–36)	8 (5–10)	8 (4–19)	2 (1–4)

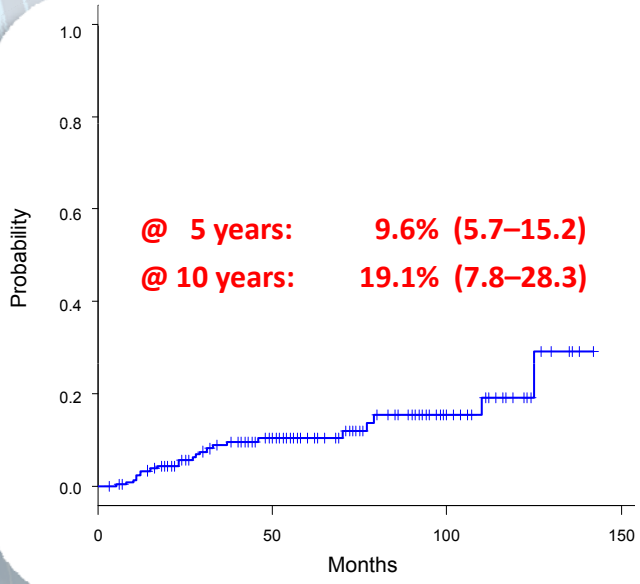
Actuarial 2nd Local Recurrence Rate



@ 5 years: 5.6% (1.5–9.5)

@ 10 years: 7.2% (2.1–12.1)

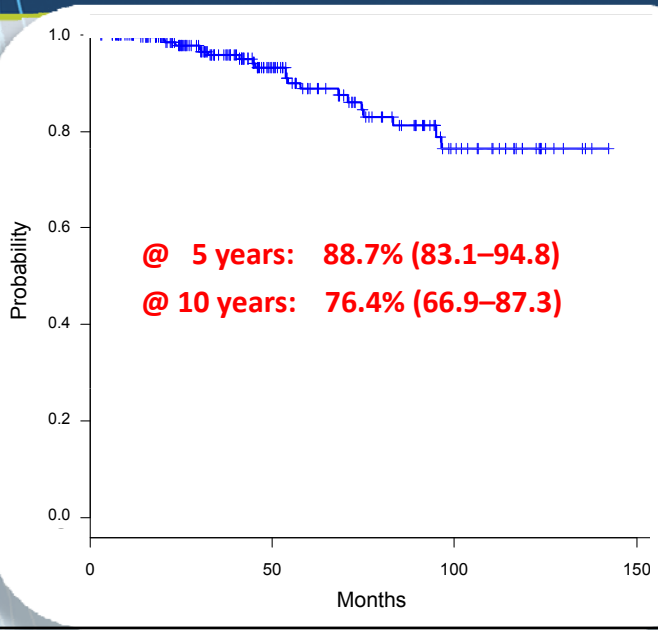
Actuarial Distant Metastasis Rate



@ 5 years: 9.6% (5.7–15.2)

@ 10 years: 19.1% (7.8–28.3)

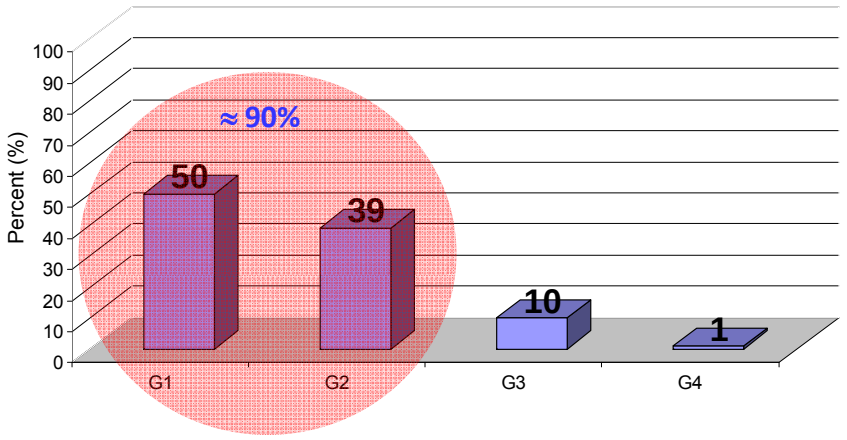
Actuarial Overall Survival



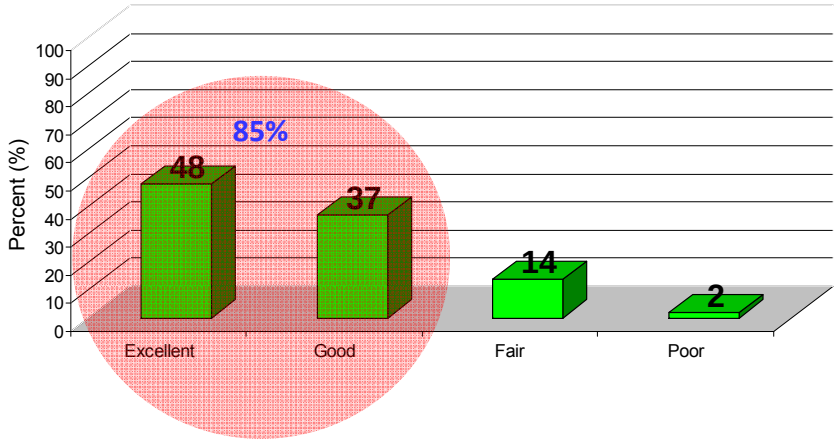
@ 5 years: 88.7% (83.1–94.8)

@ 10 years: 76.4% (66.9–87.3)

Results – Grades



Results – Cosmetic Results



Remaining Questions…

Indications

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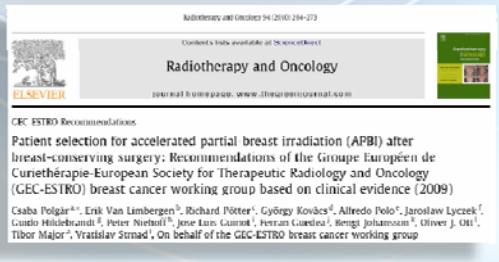
ELSEVIER

doi:10.1016/j.ijrobp.2009.02.031

CONSENSUS STATEMENT

ACCELERATED PARTIAL BREAST IRRADIATION CONSENSUS STATEMENT FROM THE AMERICAN SOCIETY FOR RADIATION ONCOLOGY (ASTRO)

Benjamin D. Smith, M.D.,*† Douglas W. Arthur, M.D.,‡ Thomas A. Buchholz, M.D.,† Bruce G. Haffty, M.D.,§ Carol A. Hahn, M.D.,‖ Patricia H. Hardenbergh, M.D.,¶ Thomas B. Julian, M.D.,# Lawrence B. Marks, M.D.,** Dorin A. Todor, Ph.D.,† Frank A. Vicini, M.D.,†† Timothy J. Whelan, M.D.,‡‡ Julia White, M.D.,§§ Jennifer Y. Wo, M.D.,‖‖ and Jay R. Harris, M.D.¶¶



Radiotherapy and Oncology 94 (2010) 264–273

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GEC ESTRO Recommendations

Patient selection for accelerated partial breast irradiation (APBI) after breast-conserving surgery: Recommendations of the Groupe Européen de Curiethérapie-European Society for Therapeutic Radiology and Oncology (GEC-ESTRO) breast cancer working group based on clinical evidence (2009)

Csaba Polgár[a,*], Erik Van Limbergen[b], Richard Pötter[c], György Kovács[d], Alfredo Polo[e], Jaroslaw Lyczek[f], Guido Hildebrandt[g], Peter Niehoff[h], Jose Luis Gutiérrez[i], Ferran Guedea[j], Bengt Johansson[k], Oliver J. Ott[l], Tibor Major[a], Vratislav Strnad[l], On behalf of the GEC-ESTRO breast cancer working group

Recommendations APBI ≠ APBrI?

Characteristic	A/low risk group – good candidates for APBI	B/Intermediate risk group – possible candidates for APBI	C/high risk group – contraindication for APBI
Patient age	>50 years	~40–50 years	<40 years
Histology	IDC, mucinous, tubular, medullary, and colloid ca.	IDC, ILC, mucinous, tubular, medullary, and colloid ca	–
ILC	Not allowed	Allowed	–
Associated LCIS	Allowed	Allowed	–
DCIS	Not allowed	Allowed	–
HG	Any	Any	–
Tumour size	pT1–2 (<30 mm)	pT1–2 (<30 mm)	pT2 (>30 mm), pT3, pT4
Surgical margins	Negative (>2 mm)	Negative, but close (<2 mm)	Positive
Multicentricity	Unicentric	Unicentric	Multicentric
Multifocality	Unifocal	Multifocal (limited within 2 cm of the index lesion)	Multifocal (>2 cm from the index lesion)
EIC	Not allowed	Not allowed	Present
LVI	Not allowed	Not allowed	Present
ER, PR status	Any	Any	–
Nodal status	pN0 (by SLNB or ALND*)	pN1mi, pN1a (by ALND*)	pN2c ≥ pN2a (4 or more positive nodes)
Neoadjuvant chemotherapy	Not allowed	Not allowed	If used

Polgár C et al. Radiother. Oncol. 2010;94:264–273

Recommendations APBI ≠ APBrI?

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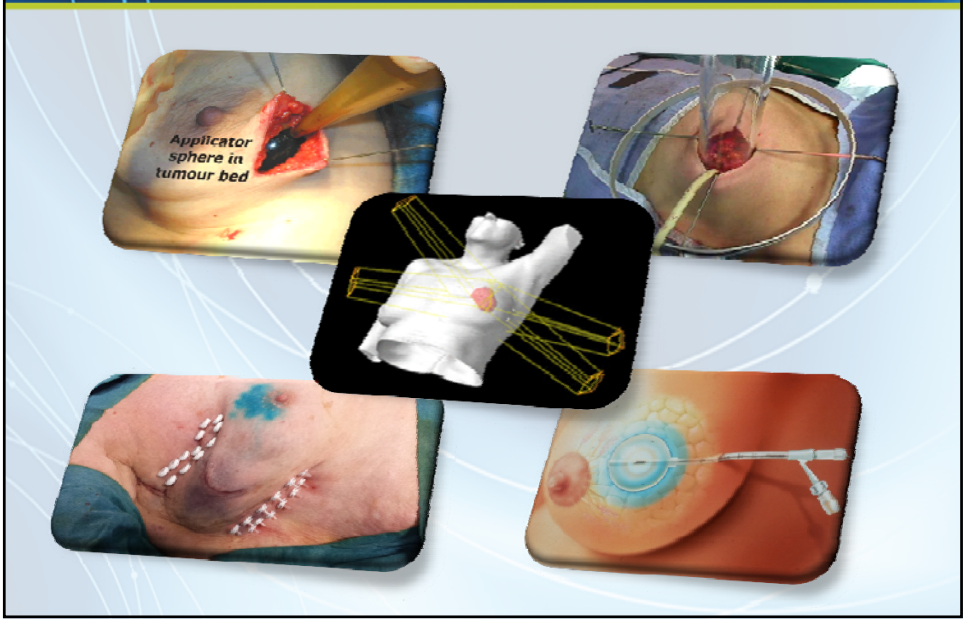
Polgár C et al. Radiother. Oncol. 2010;94:264–273

Technical Considerations



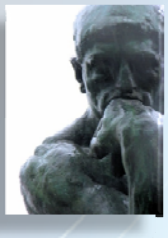
Going Forward With Clinical Trials

RTOG 1014

APBrI
3D-Conformal External Beam RT
1.5 Gy x 15 (BID) to 45 Gy Total

Conclusions

- IBCR TTT ≠ Primary TTT ?
  - ✓ Local control
  - ✓ Overall survival
  - ✓ Breast preservation
  - ✓ Cosmetic result



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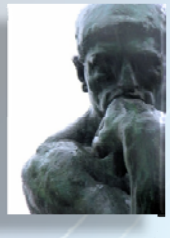
Impact of Primary TTT on recurrence TTT



Conclusions

- IBCR TTT ≠ Primary TTT ?
  - ✓ Local control
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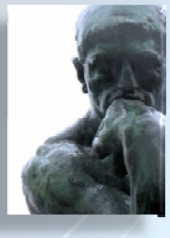
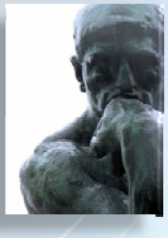
  - ✓ Cosmetic result
- Indications



Conclusions



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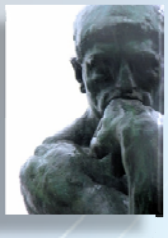
- Indications
- Irradiation techniques

Conclusions



- IBCR TTT ≠ Primary TTT ?
  - ✓ Local control
  - ✓ Overall survival
  - ✓ Breast preservation
  - ✓ Cosmetic result
- Indications
- Irradiation techniques
- Systemic therapies +++


CHANGING
PLACE
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TIME
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THOUGHTS
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FUTURE
Thank you for your attention