

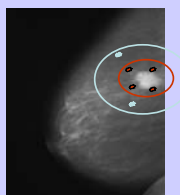
LONG-TERM TOXICITY OF AN IORT-BOOST USING LOW-KV X-RAYS DURING BREAST-CONSERVING SURGERY

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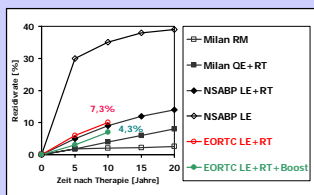
PURPOSE/OBJECTIVE

I. More than 90% of all local recurrences in breast cancer patients occur in or around the tumourbed



Holland Cancer 1985

II. A boost of the tumourbed might further reduce the risk of local recurrences



Bartelink N Engl J Med 2001

III. There are several boost-techniques:

- A. Electrons- or high energy photons (Standard linear accelerator)
- B. Interstitial/intracavitary brachytherapy (Afterloading)
- C. Intraoperative RT (IORT) with electrons/low-KV-X-rays (Dedicated devices)

IV. IORT for breast cancer delivers a high single dose to a late reacting tissue, therefore late toxicity is of particular interest and long term follow-up is warranted. To date there is only limited data available on breast cancer patients treated with IORT using low energy X-rays.



METHODS



Intrabeam™ IORT-device



Surgical site



Photodocumentation 14days, 2 and 40 months after IORT

To analyze toxicity and cosmesis after IORT as a boost with a minimum follow-up of 18 months, 73 patients treated with IORT (20 Gy/50 kV x-rays, Intrabeam™/Carl Zeiss Surgical/Oberkochen) during BCS as a boost followed by whole breast radiotherapy (WBRT, 46 Gy) underwent a prospective, predefined follow-up (median 25 months, 18 – 44), including clinical examination and breast-ultrasound at 6 monthly and mammographies at yearly intervals. Photodocumentation was done for all patients. Toxicities were documented using the CTC/EORTC- and the LENT SOMA-score. Cosmesis was evaluated with a 1-4 score.

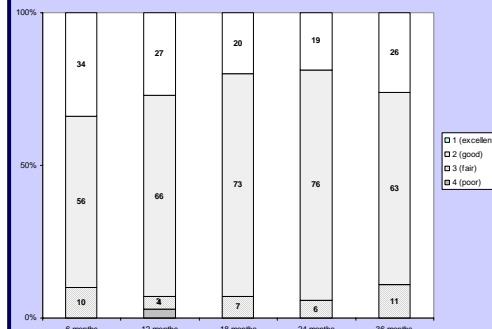
Age (years)	≤ 50	12
	≤ 70	45
	>71	16
Tumour size	T1a/b	12
	T1c	38
	T2	23
Histology	Ductal-inv.	36
	Lobular-inv.	18
	Tubulo-lobular-inv.	13
	Other	6
Grading	1/ 2/ 3	14/ 44/ 15
Nodal status	N0/1mic	54
	N1a	14
	N2a/3a	5
Receptor status	positive	67
	negative	6
Endocrine therapy	yes/no	66/ 7
Chemotherapy	yes/no	18/ 55

RESULTS

I. Toxicity (%)

	6 months	12 months	18 months	24 months	36 months
Clinically evident tumourbed fibrosis	16	24	27	22	21
LENT SOMA 1	12	8	16	9	4
LENT SOMA 2	4	14	11	13	16
LENT SOMA 3	0	1	0	0	0
Clinically evident breast fibrosis	3	4	3	4	5
LENT SOMA 1	0	0	0	0	0
LENT SOMA 2	3	1	1	2	5
LENT SOMA 3	0	3	3	2	0

II. Cosmesis



CONCLUSION

IORT as tumourbed-boost + WBRT
 (73 patients)

- ➡ Low-grade fibrosis limited to the tumourbed in less than 30%
- ➡ Clinically evident fibrosis of the entire breast in less than 5%.
- ➡ Cosmetic results good/excellent in ≥ 90%
- ➡ No higher-grade skin toxicities or teleangiectases after low-KV IORT