BreastCare
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Breast Care

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Supplemental Material

Table 2. 1-arm trials using irradiation and hyperthermia for the treatment of breast cancer. Results and toxicity of the combined treatment are presented

Study [ref.]	Tumor site	Pat./lesions, n	Treatment	Results	Toxicity of HT
Dragovic et al. [20]	locally recurrent breast carcinoma	30 pat.	Low-dose RT + HT	CR 57% PR 36%	N.A.
Dubois et al. [21]	chest wall recurrences from breast cancer	42 pat.	RT + HT (34 pat.) CT + HT (4 pat.) HT (4 pat.)	CR 52.3% PR 26.1% NR 21.4% *for RTHT:* CR 64.7% PR 17.5% NR17.6%	phlyctenae (11.9%) dry erythematous epidermitis with no desquamation (9.5%) no late skin reactions
Phromratanapongse et al. [22]	locally recurrent adenocarcinoma of breast	44 pat.	RT + HT	follow up 1 month CR 41% PR 23% NR 36% follow up > 12 months 27.5%	thermal blisters (24%) pain during HT (25%) catheter-related infection (2.3%) ulcerated infections (4.5%)
Engin et al. [23]	recurrences on the chest wall of advanced breast carcinoma	20 pat.	RT + HT	CR 95%	erythema (60%) thermal blistering (50%) ulceration (20%)
Lindholm et al. [24]	superficial recurrent breast carcinoma	59/81	RT + HT	CR 71% PR 29%	pain minimal erythema (49%) erythema with slight desquamation (19%) severe skin damage (desquamation with blisters, necrosis/ulceration) (32%)
Lee et al. [25]	recurrent breast carcinoma of the chest wall	151/196 (179 measurable, 17 microscopic)	RT + HT	after completion of therapy CR 39% PR 32% SD 49% at the time of maximum regression CR 63% PR 19% SD 16% *local control* 1 year 53% 2 year 42% 3 year 33% 4 year 22%	acute adverse effects: erythema, dry desquamation, moist desquamation, thermal blisters (27%) long-term effects: persistent ulceration/necrosis (17%)
Van der Zee et al. [26]	recurrent breast cancer	134/134 fields	reRT + HT	CR 71% (macroscopic disease) LC 73% (including microscopic disease) *433 MHz/2,450 MHz:* CR 74/58% LC 76/63%	thermal burns ulceration (3.7%)

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Study [ref.]	Tumor site	Pat./lesions, n	Treatment	Results	Toxicity of HT
Myerson et al. [27]	superficial tumors including breast cancer	44/47 15 lesions of chest wall or breast carcinoma	RT + HT	CR 79% PR 14% NR 7%	soft tissue ulceration (21%) transitory diminution of the left eye blink reflex (2.1%) bilateral pleural effusion (2.1%)
Feyerabend et al. [28]	inoperable recurrent breast cancer	25 pat.	RT + CT + HT	response rate 80% CR 44%	acute skin reactions > grade 2: 16% discomfort during HT treatment (most pat.)
Hehr et al. [29]	locally recurrent breast cancer	39 pat.	RT + HT	1-year survival 71% 2-year survival 54% LC 53%	erythema (28%) dry/moist desquamation (31/31%) small subcutaneous blisters (20.5%) soft tissue necrosis (7.7%)
Kouloulias et al. [30]	superficial carcinomas including breast cancer	88 postmastectomy relapses in front chest wall from breast cancer 27 supraclavicular lymph nodes from breast cancer	RT + HT	postmastectomy relapses CR 85.2% supraclavicular lymph nodes CR 70.4%	grade 3 skin reaction in postmastectomy relapses (6.8%)
Kouloulias et al. [31]	locally recurrent breast cancer	15 pat.	RT + CT +HT	CR 20% PR 80%	moist desquamation with blisters and skin burns (6.7%)
Ben Yosef et al. [32]	locally recurrent breast cancer	15/28 HT fields	RT + HT	CR 40% PR 26.7% NR/PD 20%	ulceration (20%)
Li et al. [33]	locoregional recurrent breast carcinoma	73/85 + (47/55)	(re) RT + HT	CR 56% (re-irradiation) CR 47% (irradiation)	skin ulceration (14%)
Welz et al. [34]	locally advanced or recurrent breast cancer with marginal resection	50 pat.: group1: 13 pat. group2: 37 pat.	group1: RTHT after resection as primary therapy group 2: RTHT for recurrent tumors	local control 80% DFS 68%	acute skin toxicity: grade I 37% grade II 12% grade III 16% grade IV 0% cutaneous blisters: 14%
Gabriele et al. [35]	superficial tumors including breast recurrences on chest wall	23/44	reRT + HT	follow up at 45 days CR 65.9% PR 29.5% NR 4.5% follow up at 18 months LC 72.7% SD 20.5% NC 6.8%	non-serious acute reactions: grade ≤ 2 100% grade >2 0%
Oldenborg et al. [36]	locoregional recurrences of breast cancer	78 pat.	reRT + HT	3-year LC 78% 5-year LC 65%	pain/discomfort: 41% blisters (< grade 3): 23% fat necrosis (< grade 3): 4% acute grade 3 toxicity (mainly moist desquamation): 32% late grade 3–4 toxicity: 43%

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Study [ref.]	Tumor site	Pat./lesions, n	Treatment	Results	Toxicity of HT
Yamamoto et al. [37]	local recurrent breast cancer	1 patient	RT + CT + HT	complete response	–
Linthorst et al. [38]	locoregional recurrent breast cancer	198 pat.	RT + HT	3-year LC 83% 5-year LC 78%	grade 3 acute toxicity (2.5%) abscess (1%) grade 3–4 late toxicity 5 years (11.9%)

RT = Radiotherapy; CT = chemotherapy; HT = hyperthermia; RTHT = RT + HT; CR = complete response; PR = partial response; NR = non-response; LC = local control; SD = standard disease; NC = non-control; PD = progressive disease; DFS = disease-free survival; N.A. = not available.