

RE-IRRADIATION AND HYPERTHERMIA AFTER MACROSCOPIC COMPLETE RESECTION FOR LOCOREGIONAL RECURRENT BREAST CANCER IN PREVIOUSLY IRRADIATED AREA: AN UPDATE

Oldenburg S.*, van Rij C.M., Geijssen E.D.*, van Os R., Zum Vörde Sive Vörding P.J.*, Crezee J.*, van Tienhoven G.

Dept. Radiotherapy, Academic Medical Center, Amsterdam, The Netherlands.

Background: Local control of locoregional recurrent breast cancer in previously irradiated area is poor. Retrospectively a cohort of 77 patients was analysed to evaluate the therapeutic effect and side effects of adjuvant re-irradiation (RT) and hyperthermia (HT) for locoregional recurrent breast cancer in previously irradiated area, after excision or complete remission (CR) after chemotherapy (CT). All patients treated in the AMC from 1979-2001 were included.

Patients/methods: All patients, 76 female and 1 male, were previously irradiated to an equivalent dose of ≥ 50 Gy in 5 weeks and most had received one or more lines of systemic therapy. Primary tumor stage included stage 1-4 (37.7, 36.4, 13 and 1.3%, respectively). Concurrent metastases occurred in 5 (6%) patients. Thirty patients (39%) had one or more previous locoregional recurrences before current treatment. Median time interval between primary treatment and current recurrence was 67 months. At start of RT+HT there was no macroscopically detectable tumor. This was achieved by surgery in 74 patients and by CT in 3 patients.

RT for the current recurrence consisted of 20-40 Gy/ 3-5 weeks, given twice a week. Four (1-9) sessions of superficial hyperthermia were added once a week within 60 minutes after radiation, using CFMA-434 MHz applicators. Aim temperature was 41-43°C for one hour. Temperatures were measured on the skin and occasionally also invasively, using 7 sensor thermocouples. Different flexible CFMA applicators were applied, depending on the size and location of the target area.

Results: 16 out of 77 patients had invasive temperature measurements. Mean steady state T_{10} , T_{50} , T_{90} were 43.2 (± 0.5), 42.2 (± 0.6), 41.1 (± 0.7) °C measured on the skin and 42.3 (± 0.9), 41.0 (± 0.8), 40.0 (± 0.8) °C measured invasively. Mean CEM 43°C T_{90} was 22.2 (± 17.9) measured on the skin and 6.6 (± 6.3) measured invasively.

Median survival was 46 months with a median follow up time of 56 months (3-121). 3 and 5-year local control rates were 66% and 61%, respectively.

Predictors for local control were: number of previous recurrences, time interval from start of the primary treatment to the current loco-regional recurrence and original TNM classification. So far, none of the thermal parameters analysed correlated with local control.

Most commonly seen early complications were blisters (22.1%), ulceration (13%) and fat necrosis (1.3%) Severe late toxicity included osteo radio necrosis (11.7%), frozen shoulder (10.4%), rib fracture (2.6%) and brachial plexopathy (1.3%)

Discussion/Conclusion: Interpretation of these results is difficult due to the small size and heterogeneity of this group. However, the combination of resection of macroscopic tumour, re-irradiation and hyperthermia appears to achieve good loco-regional control with an acceptable risk of side effects, particularly in view of the poor prognosis and resistance to previous treatments.