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Acute toxicity and quality of life in breast cancer patients treated by radiotherapy – results from the **REQUIRE** multi-centre cohort study

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Background

Although patient-reported outcomes (PROs) to assess health-related quality-of-life (QoL) are increasingly incorporated in radiotherapy trials, QoL in the acute period following treatment remains under-reported. This study assessed the relationship between QoL in the acute treatment phase with acute radiotherapy toxicity and patient and treatment variables in breast cancer patients.

Methods

Breast cancer patients (n = 2,071) were recruited following breast-conserving surgery across eight centres in Europe and North America into a multicentre prospective cohort study (www.require.eu). Treatment data, toxicity scored according to CTCAE v4.0, and PROs from EORTC-QLQ-C30 and –B23 were available for 1,750 patients at baseline and on completion of radiotherapy. Association of worsening QoL (≥ 10 point change from baseline, dichotomised) with acute toxicity, patient and treatment variables was investigated using mixed effects logistic regression.

Results

By the end of radiotherapy, 24.2 % of patients experienced \geq grade 2 erythema, 31.6 % \geq grade 1 oedema, and 9.5 % were affected by acute desquamation (skin loss). Overall QoL (global health status), fatigue, pain, and breast symptoms worsened significantly compared to baseline.

Worsening breast symptoms were significantly associated with acute erythema (OR 1.74, 95 % CI 1.43-2.18), acute desquamation (1.77, 1.18-2.67), radiotherapy dose including boost (1.04, 1.02-1.06 per Gy BED), and alcohol use (1.31, 1.04-1.64), while worsening pain was associated with acute erythema (1.24, 1.03-1.50) and increasing BMI (1.04, 1.02-1.06 per unit BMI).

There was no significant association of any acute toxicity endpoint with worsening global health status or fatigue. Worsening QoL (global health status) was associated with chemotherapy (1.77, 1.29-2.44), while alcohol use was inversely associated (0.62, 0.46-0.82). Worsening fatigue was associated with increasing BMI (1.02, 1.00-1.05) and alcohol use (1.32, 1.06-1.65) in this cohort.

Conclusions

Management of early toxicities that affect breast-specific symptoms and pain may improve QoL during radiotherapy. Overall QoL (global health status) and fatigue during breast radiotherapy is likely to be influenced by a range of non-radiotherapy treatment and patient factors.

No conflict of interest