

Effect of hyperbaric oxygen treatment on skin elasticity in irradiated patients

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Abstract

Background: Hyperbaric oxygen treatment (HBOT) is often used in an attempt to reverse/treat late radiation-induced tissue fibrosis (LRITF). This study aimed to quantify the effects on skin elasticity.

Methods: Skin retraction time was used as a marker of skin elasticity in 13 irradiated breast cancer patients. The measurements were carried out on the affected side as well as the unaffected/healthy side at a mirrored location. Readings were taken at the start and end of HBOT (mean 43 sessions, 80 min at 243 kPa).

Results: Patient age ranged from 39-70 years. All patients underwent surgical lumpectomy and radiotherapy prior to undergoing HBOT. The mean time between radiotherapy and HBOT was 70 months. Seven of the 13 patients underwent chemotherapy. Mean irradiated skin retraction time improved from 417 (SD 158) pre-HBOT to 171 (24) msec post-HBOT ($P < 0.001$). Mean pre-HBOT retraction time in the non-irradiated skin was 143 (20) msec and did not change.

Conclusions: This promising pilot study suggests that HBOT may improve skin elasticity in patients with LRITF.