TRANSCUTANEOUS OXYGEN TENSION IN ARMS OF WOMEN WITH UNILATERAL POSTMASTECTOMY LYMPHEDEMA


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ABSTRACT

Previous reports suggest that skin blood flow is reduced in arms of women with lymphedema due to breast cancer treatment. Since tissue oxygenation depends on blood flow, we sought to determine if transcutaneous oxygen tension (TcPO₂) is also reduced and if so, if therapy that reduces edema has a beneficial effect. TcPO₂ was measured in fibrotic areas of affected arms and in corresponding sites on non-affected arms of 15 women with unilateral arm lymphedema before and after CDP therapy sequences. Fibrosis was assessed by indentation recovery times (IRT) after applying an indenter-like device to tissue. Volumes and edema percentages were determined from circumferences using automated software calculations. Treatment significantly (p< 0.01) reduced arm edema from 28.6 ± 22.9% to 18.1 ± 17.7% (mean ± SD) and fibrotic segment edema from 42.6 ± 30.1% to 25.0 ± 20.4%, and softened fibrotic tissue judged by reductions in IRT (88.7 ± 60.7 sec vs. 23.1 ± 38.8 sec, p<0.001). TcPO₂ did not differ between arms initially and did not change with treatment, being 60.1 ± 8.8 mmHg at the start and 61.8 ± 9.2 mmHg at the end of treatment. Thus, despite significant amounts of initial edema, TcPO₂ was not initially less in affected arms nor was it changed by therapy that improved both edema and fibrosis.