

Effects of Pulsed Radio Frequency Energy on Arm Skin Blood Perfusion and Transcutaneous Oxygen in Post-Mastectomy Lymphedema

Preliminary pilot work suggests that pulsed radio frequency energy (27.120 MHz), applied by dual coils* may possibly be useful to treat arm lymphedema¹. To clarify possible operant mechanisms, the present report describes changes in laser-Doppler skin blood perfusion (SBF) and transcutaneous oxygen (PO₂) that accompanied treatments in seven women with post-mastectomy unilateral lymphedema. Patients were treated 4-6 times for 60 minutes during a two-week interval. SBF was measured on treated arms and PO₂ measured on both arms before, during and after treatment. During individual treatments, SBF progressively increased from its baseline value of 266 ± 10 a.u. (Friedman test, $p < 0.001$) and was significantly greater than baseline after 30-40 minutes of treatment (371 ± 38 a.u., $p = 0.018$ Wilcoxon test). By 60 minutes, SBF reached 705 ± 122 a.u. which was on average 4.10 ± 0.87 times greater than baseline. Initial PO₂ values were not significantly different between affected and treated arms (72.7 ± 6.9 vs. 64.1 ± 6.4 mmHg) and there was no treatment related change in PO₂. The relationship between the SBF increase and treatment related reduction in arm edema is unknown. However an intriguing possibility is that mechanisms similar to those that increase SBF also act to increase lymphatic flow.

*(Magnatherm, International Medical Electronics, Kansas City)

1. Mayrovitz HN, Sims N, Macdonald J. A Pilot Study of the Effects of Pulsed Radio Frequency Energy on Post-Mastectomy Arm Lymphedema. Abstract this meeting.

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