A PILOT STUDY OF THE EFFECTS OF PULSED RADIO FREQUENCY ENERGY ON POST-MASTECTOMY LYMPHEDEMA

HN Mayrovitz, N Sims, J Macdonald
College of Medical Sciences, Nova SE Univ, NBHD, Ft. Laud, FL

INTRODUCTION

If arm lymphedema occurs after mastectomy and related cancer treatment, it often develops gradually, and if untreated leads to severe morbidity. There is compelling evidence that complete decongestive therapy (CDT) is the gold standard of treatment, while some evidence points to its effectiveness in reducing lymphedema. This pilot study was prompted by the observation that women extend the therapy to an extent that the therapists do not think is necessary. The current study was designed to address this issue by testing the effects of pulsed radio-frequency therapy on arm lymphedema.

BACKGROUND

Although there is no conclusive evidence that particular physical activity reduces the severity of lymphedema, hyperemic massage has been shown to reduce lymphedema in the short term. This modality is also referred to as short wave diathermy (SWD). It was reasoned that if a simple method were available to initially augment CPT outcomes and possibly provide evidence of potential efficacy. The specific objective of this part of the research was to determine if short-wave diathermy might also serve to similarly affect lymphatic channels.

OBJECTIVES

The specific objectives of this part of the research was to determine if short-wave diathermy at 27.12 MHz, and used on the women who had long standing residual lymphedema, might also serve to similarly affect lymphatic channels. Therefore, we sought to determine if such short-wave diathermy could serve to similarly affect lymphatic channels.

METHODS

Subjects and Treatments

Seven women (age 37-72) with arm lymphedema aged 1 to 10 years due to breast surgery (3-23 years ago) from the current study. All had previous CDT (6-18 months) and had long standing residual lymphedema. This pilot study had already received CDT therapy and had long standing residual lymphedema.

Arm Volumes and Calculations

Arm circumference was measured at 4 cm starting from the wrist and taken at the following circumferences: C1, C2, C3, C4. The total arm volume was determined as the difference between the volume of the affected arm and the controlateral control arm. Percent edema was calculated as the Edema Volume divided by the control arm volume.

RESULTS

The main findings of this part of the study indicate a potentially beneficial effect of pulsed radio frequency energy with respect to reduction in arm lymphedema. The initial edema volume was decreased after one treatment, with subsequent decreases through the 4th treatment. The percent edema decreased after one treatment, with subsequent decreases through the 4th treatment. Similar patterns of change occurred for percentage edema, which by the 4th treatment, was about half of that present prior to treatment start. However, the main effect appeared to occur early in the treatment sequence. Calculations of the change in percentage edema also indicates a progressive decrease but again the most dramatic decrease occurs early in the treatment sequence.

CONCLUSIONS

The main findings of this part of the study indicate a potentially beneficial effect of pulsed radio frequency energy with respect to reduction in arm lymphedema. These initial findings are especially encouraging in light of the fact that the women included in this pilot study had already received CDT therapy and had long standing residual lymphedema. The treatment related reduction in the percentage of lymphedema was rapid and significant, and was associated with a single treatment power level, which was deliberately maintained low at about 12% of the total device power. It is unknown whether increased power levels would improve the short-term outcome herein observed. Although these initial findings are extremely encouraging and the method tested may prove to be a useful complement to current therapeutic practice, final conclusions must await further and expanded placebo controlled tests that are currently underway.

REFERENCES

1. Collyer-Smith JF. Alterations of untreated lymphoedema and its grades over 100 lymphology 1999:20:174