A Method to Measure Local Tissue Water and its Application to Evaluate Breast Cancer Treatment-Related Lymphedema

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RESULTS (cont)

Subjects and Protocol
12 women with unilateral arm lymphedema (74 ± 16 yrs)
12 premenopausal women (25.5 ± 3.7 yrs)
12 postmenopausal women (61.0 ± 6.7 yrs)

- Triplicate dielectric values on each arm with each probe
- Segment volumes determined based on frustum model
- Segmental percentage edema

100 x \( \frac{V_A - V_C}{V_C} \)

Measurements on lymphedema patients prior to treatment
Measurements on premenopausal 4 days after menses

RESULTS

CONCLUSIONS
- This local tissue water method can serve as a rapid quantitative way to document edema/lymphedema
- May also have utility for early detection of incipient lymphedema not yet clinically seen
- Criteria as of now for the limited data set:
  - For at-risk unilateral cases: Arm TDC ratio > 1.2
  - For bilateral cases or using absolute values: Threshold depends on depth (>3 sd)

Depth: 0.5 mm - 1.5 mm - 2.5 mm - 5.0 mm
TDC >42 >37 >37 >32

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