

Prospective study of shoulder strength, shoulder range of motion, and lymphedema in breast cancer patients from pre-surgery to 5 years after ALND or SLNB.

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Abstract

OBJECTIVE:

Determine the changes in shoulder strength, shoulder range of motion, and arm volume in breast cancer patients treated with sentinel lymph node biopsy (SLNB) or axillary lymph node dissection (ALND) METHOD: Sixty-eight SLNB and 44 ALND patients were followed up from pre-surgery to 5 years after surgery. Primary outcomes were the differences between affected and non-affected sides for the following: shoulder strength measured by dynamometry, shoulder range of motion measured by goniometry, and lymphedema measured by volume. As a secondary outcome, health-related quality of life (HRQL) was assessed by the Short Form-36 Health Survey (SF-36) and the Functional Assessment of Cancer Therapy for breast cancer (FACT-B+4) questionnaires. Changes over time were tested for SLNB and ALND using univariate repeated measures analysis of variance. Generalized estimating equation models were constructed to assess the effect of SLNB and ALND over time.

RESULTS:

After 5 years, the ALND group had significant loss of strength for internal rotators (1.39 kg, $p = 0.001$) and significant arm volume increase (132.45 mL, $p = 0.031$). The ALND group had a greater number of patients with clinically relevant internal rotator strength loss (38.7 vs. 13.6%, $p = 0.012$) and a greater number of lymphedema requiring treatment (33.3 vs. 3.4%, $p < 0.001$) than the SLNB group. A loss of strength for shoulder external rotators, shoulder range of motion, and HRQL in physical and arm domains persisted at 5 years in both SLNB and ALND groups.

CONCLUSION:

These results could help understand and plan the prevention, needs, and long-term care of breast cancer patients.

KEYWORDS:

Breast cancer; Lymphedema; Quality of life; Shoulder