Prevention and Treatment of Upper Extremity Dysfunction in Tissue Expander Patients

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Objectives

• Discuss common signs and symptoms of breast cancer and current statistics

• Review the forms of treatment for breast cancer

• Identify upper extremity dysfunction secondary to breast reconstruction with tissue expander placement

• Discuss teaching methods and resources available to minimize long term upper extremity limitations and optimize patients’ quality of life
Breast Cancer

• Most common cancer in women of all ages other than skin cancer
  - More than 1 in 8 or 12% of women each year diagnosed in US

• High survival rates
  - 5 year survival rates:
    - 72% for Stage III
    - 93% stage II
    - 100% stage 1 and 0
Treatment

• Surgery
  – Lumpectomy
  – Mastectomy
  – Oncoplastic Reduction

• Chemotherapy
  – Neoadjuvant
  – Postoperative

• Radiation (RT)
Complications Leading to Upper Extremity Dysfunction

- Pain/Muscle Weakness/Decreased Range of Motion
  - Patients <40 years old report more pain
    - Persistent pain occurs in 25% to 50% of patients
  - Adhesive Capsulitis (frozen shoulder)
    - Common in Axillary Lymph Node Dissection, reconstruction, and radiation
  - Range of Motion compromised short term and long term
    - Pain, surgery, sensory loss, radiation changes
Complications Leading to Upper Extremity Dysfunction

• **Numbness and Sensory Disturbances**
  – Post Mastectomy Pain Syndrome (PMPS)
    • Less prevalent due to less ALND
    • Doubles for patients receiving RT, increases with chemo
  – Injury to intercostobrachial nerve
    • Pain on the back and inside of the upper arm, which can also radiate to the chest
  – Injury to the brachial plexus
    • Can extend down arms to hands
  – 20% to 80% affected
  – Will improve over 3 months, can last up to 5 years
Breast Surgery Nerve Injury

Cutaneous and glandular innervation of the breast and axilla. Innervation of the breast arises from intercostal nerves 3–6. Innervation of the nipple is from the fourth intercostal nerve. The intercostobrachial nerve arises from the second intercostal nerve and courses through the superficial axilla to innervate the axilla and skin of the upper arm. All of these nerves may be injured during mastectomy, which may lead to neuropathic pain.


Memorial Sloan Kettering Cancer Center
Complications Leading to Upper Extremity Dysfunction
Complications Leading to Upper Extremity Dysfunction

• Edema/Cording
  – Early or late complication after surgery and/or radiation
  – Often associated with pain

• Lymphedema
  – Potentially debilitating condition
  – Incidence varies greatly
  – Prevention is primary goal
Complications Leading to Upper Extremity Dysfunction

Cording
Complications Leading to Upper Extremity Dysfunction

Lymphedema
American Society of Clinical Oncology

• Studied 250 women for 18 months following breast surgery
• Evaluated every 3 months
  – Numbness and swelling were the most common symptoms, both at 6 months and 18 months after surgery
  – Mild Problems
    • 85% of the women had at least one mild problem at 6 months.
    • 75% of the women still had at least one mild problem at 18 months
  – Moderate to Severe Problems
    • About half the women had a moderate or severe arm problem at 6 months
    • At 18 months after surgery, more than 37% of the women still had a moderate or severe problem
What are the GOALS for our patients?

- Activities of Daily Living (ADLs)
- Exercise
- Work
- Overall good Quality of Life
Role of Nursing

- **Preoperative Visit**
  - **Baseline of upper extremity function**
    - Medical history sheet
    - Physical Therapy referral if patient has a history of shoulder problems

- **Teaching**
  - Tissue Expander (TE) power point
  - Video link of ROM exercises through MSK website
  - Educational printouts
    - About your Breast Surgery folder
  - Adjust teaching to level of education of patient

- **Determine level of exercise and activity**
Role of Nursing

• **Inpatient**
  – Evidence shows Upper Extremity ROM exercises should be initiated within 1-2 weeks after surgery
  – Physical Therapy assessment and teaching prior to patient discharge

• **Postop**
  – Phone call within 24-48 hours
  – 1st visit 1 week post op
  – Review ROM exercises with return demonstration
Role of Nursing

PT/OT Referral Quick Screen

Exam 1:
- Tests: shldr external rotation (ER), abduction (abd), UE symmetry
- Position: » stand facing forward with back against wall
  » arms ER & abd 90°/90° (A)
  » slide arms up wall into full overhead extension (B)
- Refer to PT: » pain, pulling, tightness across ant/lat chest
  » lack full AROM in ER/abd
  » arms/elbows lift away from wall

Exam 2:
- Tests: shldr internal rotation (IR), UE symmetry
- Position: » in standing or sitting
  » arm IR as far up back as comfortable (A)
    *start w/less affected arm first for comfort
  » test opposite UE (B)
- Refer to PT: » pain, pulling, tightness in affected shoulder
  » lack full AROM into IR
  » significant asymmetry compared bilaterally

Clinical Question: Are you using your ___ arm comfortably and as much as your ___ arm? (e.g. dressing, washing head/back, reaching into cabinets)

PT referral: impaired ROM, strength, pain
OT referral: impaired daily activities (dressing, bathing)
Role of Nursing

- **Postoperative Referrals**
  - **Occupational Therapy**
    - Common Impairments treated
      - Decreased participation in ADLs (activities of daily living)
      - Upper extremity peripheral neuropathy
      - Upper extremity joint stiffness and weakness
      - Decreased strength and ROM
  - **Rehabilitation Medicine**
    - Nerve pain
      » Gabapentin
  - **Lymphedema Clinic**
    - Manual Therapy
    - Compression garments
    - Exercise
    - Elevation
Role of Nursing

What do we do at MSK to improve our patient care?

- **Education**
  - Preoperative education packet
  - Preoperative teaching with return demonstration in clinic
  - Refer all ALND pts to PT at 6 weeks (Placed on order set)
  - Patients seen by PT before discharge
  - Postoperative assessment call within 72 hours
  - Consistency in education materials and demonstration for better patient retention of information

- Weekly written assessments and screening of patients to ensure all pts have full ROM at 6 weeks
  - PT order placed at 4 weeks post-operatively, if patient is not advancing in ROM
Role of Nursing

• Range of Motion Exercises and Proper Demonstration
  – Deep breathing exercise
  – Shoulder rolls
  – Shoulder wings
  – Arm circles
  – W exercise
  – Back climb
  – Hands behind neck
  – Forward wall climb
  – Side wall climb
Demonstration Video

• Exercises After Breast Surgery With Reconstruction Using a Tissue Expander

Resources

- Breastcancer.org
Resources

- Edstrom Elder, Elisabeth; Brandberg, Yvonne; Bjorklund, Tina; Rylander, Richard; Lagergren, Jakob; Jurell, Goran; Wickman, Marie; Sandelin, Kerstin. Quality of life and patient satisfaction in breast cancer patients after immediate breast reconstruction: A prospective study. The Breast 2005; 14(3), 201-208.
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Questions