Breast Cancer Lymphedema: Pathophysiology and Risk Reduction Guidelines

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**Purpose/Objectives:** To review the normal physiology of the blood capillary-interstitial-lymphatic vessel interface, describe the pathophysiology of lymphedema secondary to treatment for breast cancer, and summarize the physiologic bases of the current National Lymphedema Network (NLN) risk reduction guidelines.

**Data Sources:** Journal articles, anatomy and physiology textbooks, published research data, and Web sites.

**Data Synthesis:** Lymphedema occurring after treatment for breast cancer significantly affects physical, psychological, and sexual functioning. About 28% of breast cancer survivors develop lymphedema. When arterial capillary filtration exceeds lymphatic transport capacity, lymphedema occurs. NLN risk reduction guidelines may decrease lymphedema risk.

**Conclusion:** Lymphedema is chronic and disfiguring. Most NLN risk reduction guidelines, although not evidence-based, are based on sound physiologic principles. Evidence-based research of the effectiveness of NLN risk reduction guidelines is indicated.

**Implications for Nursing:** Until evidence-based research contradicts NLN’s risk reduction guidelines, nurses should inform patients with breast cancer about their risk for lymphedema, guidelines to reduce that risk, and the physiologic rationale for the guidelines.

Lymphedema is a serious problem for many breast cancer survivors. Lymphedema results from an imbalance in capillary filtration and lymph drainage (Ramos, O’Donnell, & Knight, 1999), which leads to collection of fluid and protein in the extravascular and interstitial spaces of the affected limb. Axillary lymph node dissection, radiation therapy, and postsurgical infections appear to be contributing factors (Coward, 1999). Lymphedema can occur during treatment or many years later (Ramos et al.; Stanton, Levick, & Mortimer, 1997) and often is chronic and disfiguring. Prevalence of lymphedema appears to be influenced by type of breast cancer treatment (Hull, 2000).