A Review of the Literature Related to Limb Precautions After Lymph Node Dissection

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BACKGROUND: Upper extremity limb precautions are recommended for patients who undergo axillary lymph node dissection (ALND) or sentinel lymph node biopsy (SLNB) to lower the risk of lymphedema. Limb precautions involve avoiding use of the affected arm for point-of-care testing, venipuncture, and blood pressure measurement, all of which can affect quality of life and create delays in care.

OBJECTIVES: This review provides a summary of the evidence regarding limb precautions and evidence-based interventions to lower the risk of lymphedema after ALND or SLNB.

METHODS: A literature search was conducted using CINAHL®; PubMed®; Education Resources Information Center; History of Science, Technology, and Medicine; Cochrane Library; and Joanna Briggs Institute databases.

FINDINGS: Evidence supports exercising the affected limb, maintaining a body mass index of less than 25, and massaging to lower the risk of lymphedema. There is limited evidence for avoiding IV catheter placement and venipuncture in the affected arm following ALND and SLNB. Best practice is to assess the patient for risk factors of lymphedema before recommending selected evidence-based limb precautions.

KEYWORDS
lymphedema; limb precautions; lymph node biopsy; lymph node dissection

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LIMB PRECAUTIONS ARE COMMONLY RECOMMENDED to prevent lymphedema, particularly for selected breast cancer and melanoma survivors, and it is critical for nurses to consider how those precautions might affect survivorship for these patients. Survival in these patient populations is increasing, with five-year survival rates for all stages of breast cancer and melanoma having increased to 84% and 93%, respectively (American Cancer Society, 2021). Patients are often asked to follow limb precautions for the remainder of their life, despite research findings indicating that upper extremity lymphedema does not exert a significant effect on most patients' functional status, which is an aspect of health-related quality of life (Shaitelman et al., 2015). According to the National Comprehensive Cancer Network (NCCN, 2021a, 2021b), axillary lymph node dissection (ALND) or sentinel lymph node biopsy (SLNB) is indicated for many patients with invasive breast cancer and melanoma to stage their cancer, offer prognostic information, and guide treatment choices (see Figure 1). These axillary operations can impair lymphatic flow, thereby increasing the risk of lymphedema. SLNB reduces the risk of lymphedema by about 5% as compared to 20%–30% following ALND (Asdourian et al., 2016). Radiation therapy following surgery for breast and other cancers also has the potential to increase the risk of secondary lymphedema if administered to the operative nodal basin (Cormier et al., 2010; DiSipio et al., 2013). More than 20% of women who undergo breast cancer surgery will develop secondary lymphedema, with 70% of them developing lymphedema within the first two years, and 90% developing lymphedema in the third year after surgery. The risk declines to 1% incidence per year after three years postsurgery in women who develop lymphedema (Larocque & McDiarmid, 2019). Women with and without factors associated with increased risk can develop lymphedema, which may indicate the possibility of genetic predisposition (Newman et al., 2012; Shaitelman et al., 2015).

Lymphedema has the potential to drastically affect the lives of cancer survivors. Damage to (through radiation therapy) or resection of lymphatic channels can result in blocked lymphatic flow, which, in turn, can lead to lymphedema of the affected limb, causing decreased mobility, pain, altered sensation, numbness, and altered appearance (Centers for Disease Control and Prevention, 2021). Available treatments for lymphedema include exercise, massage, compression devices and sleeves, and liposuction, as well as surgical options, such as lymphovenous bypass, lymphedema excision, or tissue transfer, but there is currently no cure for lymphedema (Chang et al.,