

# Relieving the Pain of Sentinel Lymph Node Biopsy Tracer Injection

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Sentinel lymph node biopsy (SLNB) has been reliably accurate as a minimally invasive surgical alternative for identifying lymphatic breast metastasis. During mapping, the injection of a radioactive tracer or isosulfan blue dye to differentiate the SLN is acutely painful. The use of the eutectic mixture of lidocaine and prilocaine (EMLA) cream to reduce tracer injection pain has been reported anecdotally. A retrospective study compared injection discomfort of 20 women who had undergone SLNB without EMLA and 20 women who had undergone SLNB with the EMLA protocol. Results indicated a significant difference in mean pain rating. Standards of care should include the use of EMLA prior to intradermal SLN tracer injection unless contraindicated.

**B**reast cancer is the most common malignancy in women, with an estimated one million cases identified each year (McPherson, Steel, & Dixon, 2000). The American Cancer Society (2008) estimated that more than 40,000 women will die of breast cancer in 2008.

Therapy for breast cancer has dramatically increased survival, decreased morbidity, and improved quality of life for survivors. One of the most stressful aspects of a breast cancer diagnosis is the evaluation for metastasis. Sentinel lymph node biopsy (SLNB) has replaced traditional axillary node dissection in the staging of breast cancer. The advantages of SLNB over axillary dissection are numerous, including decreased scarring, numbness, lymphedema, and pain (Schwartz, 2004).

In preparation for the SLNB, lymphatic pathways are mapped using lymphoscintigraphy. During this radiologic procedure, the patient is awake and alert. A radioactive tracer is injected, usually intradermally, into the breast tissue near the tumor. Anecdotal reports from radiology nurses, who monitored patients during injection, provide description of patients' behaviors consistent with complaints that the injection procedure is extremely painful. Current standards for SLNB lymphoscintigraphy do not include pain management interventions for the tracer injection (Motomura et al., 2007).

The eutectic mixture of local anesthetics (EMLA) cream has been used effectively in a variety of painful dermal procedures for the past 25 years. In addition to dermal surgical procedures, such as removal of genital warts, debridement of leg ulcers, and laser treatment of port wine stains, EMLA has been used widely in reducing injection pain (Fetzer, 2002). Nurses routinely apply EMLA cream prior to lumbar puncture to reduce pain experienced by children (Prevent needless pain, 2007). Bloch et al. (2004) compared EMLA with a placebo cream to ameliorate injection pain during injection of depot antipsychotic medications. Using a double blind, placebo-controlled, crossover procedure, EMLA significantly reduced injection pain.

## At a Glance

- ◆ Intradermal injections of radioisotopes are extremely painful.
- ◆ The eutectic mixture of local anesthetics is effective at reducing injection pain prior to sentinel node biopsy.
- ◆ Nurses should advocate for interventions that minimize discomfort during diagnostic procedures.

Fetzer conducted a meta-analysis on the use of EMLA to reduce the pain of IV insertion and reported that 85% of the population would obtain pain relief from EMLA. However, research reporting the use of EMLA for SLNB tracer injection pain could not be identified.

## Background

The first lymph node to which lymphatic drainage and metastasis from breast cancer occurs is, by definition, the sentinel node (Schwartz, 2004). If the sentinel node(s) can be identified preoperatively and dissected and evaluated for cancer cells, then the appropriate surgical procedure can be performed. Two nonsurgical techniques are used to identify the sentinel node.

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