**INTRODUCTION**

Clinical evaluation of the axilla is an area of increasing interest in managing breast cancer. Axillary lymph node status is a critical prognostic indicator. Tissue diagnosis of axillary metastases influences cancer therapeutics and is key to breast cancer staging. Physical exam has proven to be inadequate; with some studies demonstrating error rates as high as 41% and false positive rates as high as 53% [1].

Ultrasoundography combined with fine needle aspiration or core needle biopsy has shown discrepant results in the sensitivity, specificity and predictive value of this method [2,3]. Breast MRI is another modality that can be used; however it is time consuming, expensive and not readily available. A meta-analysis of the literature on this method shows promise but remains inconclusive [4]. One recent study found abnormal nodes on US, MRI, or mammogram in clinically node-negative patients are not reliable indicators of the need for ALND [5]. Metabolic information provided by high resolution breast PET could play a major role in guiding the preoperative investigation, to include decisions regarding neoadjuvant chemotherapy and the use of sentinel lymph node biopsy (SLNB) and/or axillary lymph node dissection (ALND).

The objective of this study was to evaluate the ability of high resolution breast PET imaging (BPI) with Fluorodeoxyglucose ¹⁸F(¹⁸F-FDG) to assess axillary lymph node status prior to surgery in patients diagnosed with breast cancer.

**METHODS**

Patients who had a tissue confirmed diagnosis of invasive breast cancer and in some cases extensive ductal carcinoma in situ underwent high resolution breast PET imaging to include the axilla on the affected side and bilaterally in four subjects. The determination of abnormal lymph nodes was based on visible radiotracer uptake and lesion to background (LTB) ratio measurements. In our initial experience malignant nodes tend to have > 2x the uptake as compared to normal background tissue.

**RESULTS**

Results were obtained on one hundred thirty three patients, one hundred thirty nine at the breast level, who completed imaging and proceeded to sentinel lymph node biopsy (SLNB) and or axillary lymph node dissection (ALND). Breast PET imaging (BPI) results are presented in Table 1.

**REFERENCES**