Audit Template

Audit title
Preoperative sonographic evaluation of axillary lymph nodes in breast cancer patients; a local experience.

Descriptor
Efficacy of preoperative axillary ultrasound interpretation.

Background
Axillary ultrasound is useful in the preoperative assessment of breast cancer patients. Ultrasound-guided fine needle aspiration (FNA) biopsy of pathological nodes avoids the need for a sentinel lymph node biopsy (SLNB). Benign nodes on imaging or cytology require SLNB prior to complete nodal dissection. SLNB is more extensive, requiring nuclear medicine and intraoperative pathological assessment.

Standard
Pathological appearing nodes are biopsied; a positive FNA avoids the need for SLNB.

Target
Sensitivity of preoperative axillary ultrasound to range from 40-65%, with several studies up to 90%.

Methods
- Retrospective review of preoperative axillary ultrasound reports and images.
    - Location: local breast imaging center.
    - Recorded patient age.
- Using PACS, all axillary ultrasound reports from study period reviewed. Study population formed by patients who underwent axillary ultrasound preoperatively as part of the work-up for breast cancer. Patients with ductal carcinoma in citu (DCIS) and those with no further work-up excluded.
- Ultrasound interpretations coded as "positive" if the radiologist noted features concerning for malignancy (e.g. thickened cortex, decreased or absent fatty hilum). Non-pathological interpretations coded as "negative."
- Coded FNA results as "positive, "negative," or "insufficient material for diagnosis" using cytology reports.
- Compared ultrasound and FNA results to ALND using final pathology reports. Number of nodes containing metastases and total number of nodes dissected also recorded.
- Data entered into Excel spreadsheet.
- Descriptive statistics calculated for US interpretations and FNA biopsies (sensitivity, specificity, positive predictive value, negative predictive value, and accuracy). Calculated rate of SLNB avoided.
- Relevant literature reviewed.

Interventions

In-house education about (1) morphological features of pathological nodes and (2) axillary node level anatomy to ensure complete axillary scanning. Prospective audit of similar timeframe.

Resources required

Access to PACS, cytology reports, pathology reports, Excel, and literature databases.

Time required to perform the audit

2-4 working weeks.

References

Bonnema, van Geel, van Ooijen, Mali, Tjiam, Henzen-Logmans, Schmitz, & Wiggers. (1997). Ultrasound-guided aspiration biopsy for detection of nonpalpable axillary node metastases in breast cancer patients: New diagnostic method. *World Journal of Surgery*, *21*, 270-274.

Canadian Association of Radiologists. (2013). CAR Practice Guidelines and Technical Standards for Breast Imaging and Intervention. Retrieved from: http://www.car.ca/en/standards-guidelines/standards.aspx#2

Houssami, Ciatto, Turner, Cody, & Macaskill. (2011). Preoperative ultrasound-guided needle biopsy of axillary nodes in invasive breast cancer: Meta-analysis of its accuracy and utility in staging the axilla. *Annals of Surgery*, *254*(2), 243-251.

Pinheiro, Elias, & Nazário. (2014). Axillary lymph nodes in breast cancer patients: sonographic evaluation. *Radiologia Brasileira*, *47*(4), 240-244.