P-106 Could a pictorial breast screening invitation help to increase uptake to breast screening in a multi ethnic population?

Karen Wren
University Hospitals Coventry and Warwickshire

Study aim: To investigate the viability of a pictorial breast screening invitation producing a higher uptake for breast screening amongst a multi ethnic population when used in conjunction with the national standard invitation. The effectiveness will be judged by the effect it had on previous non-attenders (PNAs).

Design: A non-probability sampling technique with a purposefully selected homogenous population from three preselected GP practices serving multi-ethnic populations.

Need for study: The effectiveness of any screening programme is dependent on high acceptance. Low rates of coverage by certain populations would lead to health inequalities. Studies have established that screening coverage is not uniform across the population and that women from Black Minority Ethnic (BME) communities have lower uptakes to breast screening. Language has been cited as predominate barrier.

Services with populations of diverse culture, may find that translating invitations does not solve the problem. Converted transcripts are often of poor quality, inappropriate for people who cannot read their mother tongue or whereby there is no written form.

Whilst it is acknowledged that language problems may be a diminishing barrier amongst British born BMEs, it may still exist amongst older generations – the targeted population for breast screening.

There have been many worldwide interventions attempting to increase breast screening attendance amongst BMEs but a dearth in current UK studies which given the growing ethnic diversity is a concern.

Please note: This study is ongoing and forms part of the author's master's dissertation. Results will be available March 2016.

P-107 Creating 3D models of breast masses from digital breast tomosynthesis images

Stefanie Pohlmann[1]; Yit Lim[2]; Christopher Taylor[1]; Susan Astley[1]
[1]Centre for Imaging Sciences, University of Manchester; [2]University Hospital of South Manchester

We derive 3D models of breast masses from Digital Breast Tomosynthesis (DBT) images using pixel intensity, location and image texture, with the objective of facilitating 3D mass assessment for disease staging, treatment monitoring and interventional planning.

Anisotropic resolution and out-of-focus artefacts are inherent to DBT. We have thus developed a method which combines segmentation based on pixel intensity and location with the analysis of three texture measures indicative of in-focus structure. We build separate Gaussian mixture models based on intensity, edge strength (Gaussian energy), grey level variance and histogram range. The sum of modelled probabilities, weighted with the pixel locations, constitutes the final breast mass model.

Twenty-eight breast masses were annotated twice by a consultant breast radiologist in an in-focus slice; intra-observer variability was assessed by measuring the overlap between annotations of the same mass (min: 16%, median: 74%, max: 85%). Two masses for which the overlap between annotations was <50% were excluded. Probability-weighted ground truth was constructed from the annotations of the remaining 26 cases. Comparing the model with the ground truth , the median agreement is 60% (min: 21%, max: 76%).

Magnetic Resonance Imaging is often used to evaluate breast masses in 3D; although DBT is less costly and would be a more convenient solution, the complex 3D image properties necessitate advanced image analysis to extract lesion boundaries.

P-108 Iodine-125 breast localisation: Establishing a new service

Jenni Scott; Merilyn Cockburn; Carol-Ellen Holmes; George Petrides; Henry Cain; Louise Thew; Yvonne Bury; Richard Peace
Newcastle Hospitals NHS Trust

Aims: To establish a service for localising small impalpable breast tumours by inserting a single Iodine-125 seed under ultrasound guidance and to ensure the safety of the procedure for patients and staff. This is the first UK centre to evaluate and implement this service.

Content: An application was made to ARSAC to allow insertion of Iodine-125 seeds for diagnostic use. This use is 'off licence' therefore the legislation and documentation involved is significant. Loss of a single seed will result in serious consequences to the Trust.
A small core of personnel from each required discipline (Medical Physics, Radiography, Radiology, Surgery, Theatre Staff and Pathology) formed an initial team to establish this service.

Members of the Core Team visited an International Cancer Centre which had been using this technique for several years. Team meetings were held to establish safe procedures and protocols. Then following appropriate training the procedure was cascaded to the remainder of the team.
The whole procedure was initially performed using a phantom with 'dead' seeds, then with a phantom and live seeds. This ensured robustness of the documentation and training for ordering, storage, insertion, retrieval and return of the seed to the manufacturer.

Outcome: After these successful trial runs and with agreed procedures in place, the multi-disciplinary Core Team started with appropriately selected patients. Selection was made at the MDT from patients who had a confirmed impalpable, 5-25mm, single, and ultrasound visible breast cancer.

P-109 Male breast ultrasound and biopsy: Are we doing too many?

Taryn Kalami[1]; Caroline Costello[2]
[1]Leeds Teaching Hospitals; [2]Harrogate District Foundation Trust

Background: Male breast cancer is rare, with around 300 cases diagnosed per year in the UK. Male gynaecomastia is common. Only 1% of all cases of male breast enlargement are diagnosed with cancer. Standardisation of breast imaging reporting was introduced in 2009 by the Royal College of Radiologists (RCR) Breast Group to improve communication, remove ambiguity and prevent mismanagement.

Audit standard: The 2010 best practice national guidelines recommend; (1) Imaging of any unexplained unilateral breast enlargement with results recorded using the RCR classification (U1-5). (2) Imaging if there is clinical uncertainty between true gynaecomastia and fatty breast enlargement. (3) Needle core biopsy of any uncertain or suspicious clinical or radiological findings.

Method: All referrals for breast ultrasound over a 12 month period to our institution and the imaging and histological results were included in this audit. The reason for referral, physical examination (P1-5) findings, ultrasound diagnosis, ultrasound RCR classification (U1-5) and histopathology results were recorded.

Results: 96 male ultrasounds were performed. Of these 71% were diagnosed with gynaecomastia. Only 22% of referrals had a graded physical examination documented. 95% of ultrasound reports included an RCR classification score. 3 patients had radiologically suspicious lesions. 2 patients underwent biopsy and 1 aspiration. 1 patient was diagnosed with breast cancer.

Discussion: The referring clinicians inadequately recorded the physical examination scores. The vast majority of ultrasound scans were normal or diagnosed benign pathology. All radiologically suspicious lesions were biopsied. Based on these audit findings our institution referral guidelines have been adjusted.

P-110 "Sentinel node biopsy positive" in breast cancer patients - reasons explored

Rodwan Husein; Seema Datta; Sumohan Chatterjee; Zahida Saad
SRFT

Self-audit of our practice of SNB over the last 4 years have helped us improve our practice at SRFT. We have manged to bring it down from 22% to 11%. However for last two years, we have failed to improve any further. Various factors were analysed in this retrospective audit, one of them being the multiple number of SN; which has not been previously attributed to.

Content: Retrospective analysis was performed of 280 breast cancers over a period of 23 months (Jan 2014-Nov 2015). Correlation was performed of all 189 operated cancers taking pathology as gold standard.

Outcome: Of the 189 patients, 21 were found to be SNB positive (sensitivity 11%, specificity 100%). Of these 21 patients, 33% were found to have ILC in comparison to 5.4% of SNB negative patients (p=0.03). In addition the SNB positive patients had an average of 3.25 nodes sampled compared to 2.35 nodes in negative patients (p=0.04). Statistical significance was also found for tumour size with SNB positive patients having larger tumour (26mm Vs 20mm, p=0.03), however no statistical significance was found in relation to the multi-focality or grade of tumour (p>0.05).

Discussion: Of all the variables affecting false negative pre-operative assessment of axilla, multiple number of harvested SN has not been reported before. It needs further study for evaluation.

At SRFT, we plan to FNA upto two radiologically suspicious nodes (instead of one uptill now); pre operatively as a change of practice and reaudit our results in one year time.

P-111 Palpable breast mass in lactating women

Bilal Sethi[1]; Georgia Priona[1]; Jessica Watts[2]; Alim Yucel-Finn[1]; Gerald Lip[1]
[1]University of Aberdeen, [2]NHS Grampian

Lactating breast lesions are a common occurrence and can cause anxiety to patients and doctors; we aim to present the sonographic features of different pathologies presented during lactation, including benign and malignant aetiologies.

A wide range of benign and malignant breast problems may be encountered during lactation. In our pictorial review we present and describe sonographic findings of the most common differential diagnosis: milk cyst, fibroadenoma, lactating adenoma, galactocele, abscess and pregnancy associated breast cancer, and their appearances on ultrasound

Breast masses are encountered frequently during lactation and may be a cause of concern and great anxiety. Most findings in lactating patients are benign. The physiological changes during pregnancy and lactation make the clinical and radiological evaluation of these masses challenging. The hypertrophic changes during lactation increase the radiographic density of the breasts reducing the sensitivity of mammography. Taking into account the availability and risks associated with different modalities, ultrasound is the diagnostic tool of choice to characterize the nature of the mass. It has high sensitivity, is readily available and is reproducible. In majority of cases tissue sampling is usually warranted for a definite diagnosis. There is a limited role for breast MRI.

Radiologists commonly come across palpable breast masses in lactating women. Changes occurring in the breast during pregnancy and lactation makes evaluation challenging. A good understanding of the potential differential diagnosis and the use of appropriate imaging modalities and available investigations can help the radiologist make the diagnosis.

Chest, lung and heart

P-112 Experience of using active breathing co-ordinator (ABC) to manage tumour motion

Suzanne Jordan; Ruth Smith
Nottingham University Hospitals NHS Trust

The Nottingham Cancer Centre was accepted as one of the 17 sites to take part in the Stereotactic Ablative Body Radiotherapy Commissioning through Evaluation scheme (SABR CTE). In October 2015 the first patient to be entered in to the scheme presented with a metastasis in his left lung from a colorectal primary.

A 4D planning CT scan was acquired and exported to MIMvista version 6.5.5 where the maximum intensity projection (MIP) demonstrated a large degree of tumour motion. This motion made the patient unsuitable for SABR in free breathing as the internal target volume (ITV) would be too large.

Using the Elekta Active Breathing Co-ordinator the motion of the tumour was successfully managed reducing the ITV to half that of the free breathing volume. This involved coaching the patient to be able to hold their breath comfortably for 20 seconds at a measured volume of air. By having a set volume of air the tumour was kept in a