

Surgeons, Radiologists and Cytologists all convene to aid a streamlined service. With the addition of 'instant feedback' to the FNA procedure i.e operators find out immediately if patients require a further FNA, patient diagnosis will be quicker and require less repeat appointments.

Student Radiography

P-148 Distribution of common cardiac disorders diagnosed by echocardiography in a tertiary cardiac care centre: a descriptive study

Saima Shaffaque; Annum Dawood; Muhammad Masudul Hasan Nuri; Iffat Tasneem; University of Bradford;; Shaukat Khanum Memorial Cancer Hospital and Research Centre, Lahore, Pakistan.; Tahir Heart Institute, Rabwah, Pakistan;

The objective of this study was to outline common abnormalities, observed in a population of patients who came to a tertiary cardiac care centre. Moreover, to review the spectrum of these abnormalities those are encountered in a high volume.

We conducted a retrospective study in 296 consecutive patients with heart abnormalities. Of these 11.1% paediatric, 63.5% adult and 25.3% geriatric patients were identified. Both out-patients and in-patients were examined and their reports subsequently formulated. Out of these 53.0% were males and 46.6% females. Patients' age, sex and medical record number were extracted from their reports after obtaining consent from ethical review committee of the hospital. Three echo-cardiographers interchangeably performed the examinations that were enrolled in the study. Toshiba Nemio XG machine was used. Standard views were obtained depending upon clinical information; however for most of the patients the operators obtained conventional four views.

Out of 296 patients, 64.5% were normal of which 31.4% were females and 32.0% were males. Most common abnormalities identified were Myocardial Infarction (35.1%), Congenital Cardiac Disorders (5.4%), Acquired Heart Diseases (19.5%), Pulmonary Stenosis (1.0%) and Pulmonary Embolism (0.3%). Eighty two [27.2%] cases were reported as technically difficult study.

In a tertiary care centre, a wide variety of diseases with a large number of patients normally presents. It is deduced from the current study that echocardiographic information must always be correlated with clinical information. Owing to high sensitivity of echocardiography, it must be made first choice for the assessment of heart disorders along with other baseline imaging

P-149 An observational study on the outcome of the diagnostic imaging in the management of pulsatile tinnitus

Ali Al-Omari; Caroline Holland; Ziad Husain; Sheffield Teaching Hospitals NHS Trust; Walsall Healthcare NHS Trust; Boston Hospital NHS Trust;

No abstract available

P-150 Paediatric extrapulmonary TB – new concepts in imaging

Ranbir Sandhu; Afshin Alavi; Joanna Danin; MaiAi Seah; Bhanu Williams; Sam Walters; Imperial College Hospitals NHS Trust

Objectives : Extrapulmonary Tuberculosis (TB) is an increasing problem accounting for more than 20% of cases. Children appear to have a higher risk of contracting extrapulmonary TB involving any organ.

TB is difficult to diagnose and the standard established diagnostic tests (including indirect signs of low epidemiological specificity, symptoms, a chest radiograph and an intracutaneous tuberculin test) are often inconclusive and microbiology tests are time consuming.

The purpose of our study is to highlight the necessity of new imaging concepts, to rule out the role of different modalities and to review the characteristic imaging findings of various forms of extrapulmonary TB.

Content : We reviewed the Paediatric extrapulmonary TB cases in our hospital (a referral centre for paediatric infectious disease) in the last 3 years. Subsequently we evaluated the diagnostic value of different imaging modalities including US, CT & MRI and correlated these with the disease activity.

Relevance/Impact : From a total of 81 paediatric TB cases, 15 had extrapulmonary TB in the last 3 years in our hospital (including abdominal, musculoskeletal, lymphatic, middle ear, CNS and miliary spread).

Outcomes: Extrapulmonary TB in children is increasing in prevalence and severity partially due to their immature immunity, social and economic dependency with adults and also from the increasing number of HIV infections.

Our study shows the need for using new imaging concepts using different modalities (US, MRI and CT) to improve the diagnosis of extrapulmonary TB.

P-151 **Imaging findings in early and metastatic pancreatoblastoma**

Zahia Zaitout, Thuzar Win;

The Neuroradiology Department, The Royal Hallamshire Hospital, Sheffield.

Pancreatoblastoma is a neoplasm of the paediatric population, which generally has a favourable prognosis. Metastatic pancreatoblastoma, in the other hand, has a poor prognosis. The aim of our poster is provide image illustrations of pancreatoblastoma appearances on different modalities including ultrasound, computed tomography CT and magnetic resonance imaging MRI (including DWI). The poster also emphasises the role of blood LDH level and MRI with DWI in the follow up and detection of metastases.

P-152 **A critical appraisal of the information available to and given to bone scan patients in South Wales**

Hywel Rogers; Zainab Bello; Cardiff University

Aim and objectives: To critically evaluate the information available and given to bone scan patients in South Wales. This was carried out by assessing bone scan information leaflets from 10 hospitals in South Wales and information available on the internet.

Method: The information sent out by nuclear medicine departments was gathered and information sources available on the internet were searched using a general search engine. Evaluation of the quality of information was assessed by an experienced radiographer in radionuclide imaging and considered procedure preparation, contraindications, complications/risks, aftercare, result availability, links to other relevant websites, visual support and contact details. The readability of the material was assessed using the Flesch reading ease tool.

Results: The overall quality of the information from all sources was low, with scores between 27% and 66%. Readability scores from the Flesch reading ease chart showed that most sources were easy to read except for 3 hospital leaflets and 2 websites, which were below an agreed standard score of 60.

Conclusion: The information available and given to patients for a radionuclide bone scan examination is not comprehensive. While the readability score for most of the information was good, there were some sources that could be difficult for patients to read.

P-153 **Dose creep in chest radiography – the potential for over exposure**

Wang Kei Ma; Peter Hogg; Michael MacKenzie; Kelly Judith;

University of Salford; Pennine Acute Hospitals NHS Trust; Countess of Chester Hospital NHS Trust;

Purpose It is said that digital medical imaging technology allows for effective dose (E) to be increased whilst image quality is preserved. This 2nd year BSc Radiography experiment investigates how image quality and lesion visibility vary with E. Acquisition parameters (SID, kVp, mAs) were manipulated to vary E.

Method Using computed radiography, 545 radiographs were acquired of an anthropomorphic chest phantom under different acquisition parameters. Two 5mm bead nodules were inserted to mimic lung lesions. E was calculated by MonteCarlo modelling and measured using TLDs. Using a 5 point likert scale, image quality and lesion visibility was evaluated using a forced choice perceptual comparison method. Bespoke JAVA software, employing dual screen display, was written for this task. Image quality criteria were adapted from the Commission of the European Communities chest X-ray criteria. 2 of 5 volunteers (radiologists / reporting radiographers) have scored the images so far. Minimum and maximum E values for images of acceptable image quality / lesion visibility were identified at SID and kVp values. Results so far Measured and modelled E correlated closely ($R^2=0.9554$). The window width of acceptable image quality varies with SID and kVp. For the acquisition parameters, minimum and maximum E which may be used to produce an acceptable chest radiograph varies from $2\mu\text{Sv}$ to $198\mu\text{Sv}$.

Conclusion Potential for overexposure increases at lower kVp and higher SID values. For the chest phantom, an overexposure factor of 99 is permissible. This gives significant latitude for dose creep to occur if unchecked.

P-154 **The effect of KVP and focal spot size on perceptual image quality of a hand X-ray image**

Wang Kei Ma; Peter Hogg; Sue Norton;

University of Salford

Background: Year I Radiography students conduct a week-long laboratory-based research project to determine the relationship between kilovoltage (kVp), focal spot size and perceptual image quality.

Purpose: For posterior-anterior (PA) oblique hand, determine how kilovoltage (kVp) and focal spot size affect perceptual image quality.

Method: Using computed radiography (CR), 36 images of a PA oblique hand phantom (PIXY) were acquired at 40kVp stepping through 5kVp increments to 125kVp. At each kVp setting an image was acquired under fine and broad focal spot sizes. mAs was fixed. Images were displayed on quality controlled monitors with dimmed ambient lighting. Look up table (LUT) for hand was used for image display. 6 participants scored each image twice using a 5-point Likert scale for perceptual image quality.

Results: No difference in image quality was found between fine and broad focal spot sizes ($t=2.0322$, $df=34$, $p=0.7408$, two-tailed). For both spot sizes, quality increases gradually from 40kVp; around 65kVp it starts to decrease. This sharp reduction is likely due to CR system overexposure. To take this into account the experiment should be repeated at lower mAs values.

Conclusion: Broad focal spot size can be used for PA oblique hand imaging without affecting perceptual image quality. This may lengthen tube life. Whilst perceptual image quality is around 50-55kVp further research is recommended to establish whether a reduced mAs beyond this kVp value could result in further improvement in image quality.

P-155 **Radiology reporting turnaround from exam ordered time to sign off on intensive care unit requests**

Natalie Byrne, Countess of Chester Hospital

Introduction. Intensive care units treat those with acute, reversible and critical medical problems, and radiology utilised in patient investigation can be of great use. Guidelines suggest a turnaround time of 30 minutes for all urgent cases and a same day turnaround for inpatient and A&E requests[i].

Aims. This retrospective audit was conducted to analyse the reporting turnaround time for radiology requested from the intensive care unit at the Countess of Chester Hospital between January 2011 and June 2011 inclusively.

Method. A list of 438 requests was pulled from the MEDITECH database of all X-ray, CT, MRI, ultrasound and interventional radiology requests. Dates entered into the system for radiology orders were compared to dates for exams carried out and final report sign off dates.

Results. 13 of the 438 entries had an exam date that did not match the ordered for date however only 19% of radiological images were signed off on the same date as they were ordered in ITU. Of the 350 X-rays ordered only 9% were completed on the same day. 84% CT head scans were completed on the same day. 63% of ultrasounds were completed inside the order date.

Conclusion. A delay in radiology turnaround times can lead to suboptimal care for ITU patients. Departmental procedures have to be reviewed and modified to ensure optimum treatments and care for this group of patients.

[i] National Diagnostic Imaging Board - July 2008 Radiology Reporting Times Best Practice Guidance

P-156 Comparing the use of PGMI scoring systems used in Cambridge and Oslo to assess the technical quality of screening mammograms: A pilot study

Michelle Boyce; Soph Willis; Deepak Parashar; Kathryn Taylor;

University Campus Suffolk, Ipswich; Cambridge Cancer Trials Centre. Dept of Oncology, University of Cambridge, Cambridge Breast Unit, Addenbrookes Hospital

Aims: To compare use and interpretation of the PGMI image evaluation system within and between two breast units (UK and Norway). To determine differences in technical quality (TQ) of mammograms and contributory factors, enabling suggestions for future assessment of TQ.

Content: Digital mammograms from 112 consecutively screened women were sourced in each centre. Test-sets contained mammograms (four images each) from each PGMI category which were individually scored by 4 mammographers, each with ≥ 4 years' experience, using their local version of PGMI. Each image was categorised P, G, M or I and reasons for scoring less than perfect documented. The mammogram was then given an overall PGMI score. Mammograms were individually assessed as adequate or inadequate by 4 breast radiologists each with ≥ 4 years' experience. Test-sets were exchanged and the process repeated. Kappa statistical analysis was used to assess the significance of differences in PGMI use and agreement between the two centres (analysis:ongoing).

Relevance/Impact: Classification systems such as PGMI may be subjective and interpreted locally. Mammographer training varies between countries and TQ may be perceived differently by radiographers and radiologists. An objective and standardised critique of mammographic TQ in breast screening may increase cancer detection, reduce technical repeats and facilitate accurate comparison of radiographic performance between centres and countries.

Outcomes: To inform future research and practice in the standardised assessment of breast screening TQ.

Discussion: Preliminary findings suggest variation in practice assessing TQ of screening mammograms. Further research is recommended comparing multiple scoring systems to inform practice on an international scale.

P-157 Assessment of basic bio-chemical parameters: An aid for assessing stroke severity?

Sneha Ananth; Komala Govindharajalu; Vijayalakshmi M; Nagendran R;

Kilpauk Medical College, Chennai, India

Aim: To assess the alterations in fasting blood glucose(FBS), potassium, magnesium and uric acid in acute stroke patients. Compare it with CNS score (MRC grading/Ashworth scale) for assessing stroke severity.

Methodology: This is a case control study with a population of 90, equally divided into 3 groups- Acute stroke patients, previous history of stroke and controls, all with no previous history of diabetes. The samples collected were immediately analysed for FBS and routine parameters using standard enzymatic kits in Autoanalyser. Electrolytes were analysed using flame photometer. Student's t test and spearman's rank correlation was used.($p < 0.050$ is significant).

Impact: 60% of those who suffer stroke die or become dependent according to WHO. Assessing common bio-chemical parameters as markers of neuronal recovery would be valuable in primary care level and it may also serve as an aid in imaging studies to arrive at a correlation about the lesion

and its impact. Alteration, if normalized, could also lead to a faster and better recovery, with due caution of toxicity.

Outcomes: 2/3rd of study population has hyperglycaemia. Comparative hyperkalemia and hypomagnesemia was also observed. Hyperuricemia was prevalent in acute stroke group with a mean value of 7.5mg/dl. On comparing with CNS score, glucose showed negative relationship whereas magnesium and uric acid showed positive correlation.

Discussion: Uric Acid emerges to be a new marker of stroke severity. Magnesium, with the greatest significance with CNS score(lower the value, lower the CNS score) in this study, may indicate its neuro-protective effect and future trials confirming its supplementation may have an positive impact on neuronal recovery of the patient.