

patients have undergone this procedure in the last year. We discuss the resources required, administration technique, imaging procedures, and the need to work as a multidisciplinary team in order to provide an efficient and responsive service. We consider factors including ARSAC licence (research at present), patient preparation, information for wards, liaison with theatre and urology teams, availability and QC of gamma probe, training of urology team in use of gamma probe, coordination with ultrasound imaging and fine-needle aspiration (FNA), technologist/radiographer training, experience and resources (requires 2 members of staff), and potential for radiographer reporting. We will present some case studies demonstrating drainage pathways and technical issues that may arise.

A36 PET/CT scan with ^{18}F -FDOPA in the diagnosis of congenital hyperinsulinism in children

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Background Congenital hyperinsulinism (CHI) is a neuroendocrine disease characterized by profound hypoglycaemia caused by inappropriate insulin secretion from neuroendocrine tumours (NETs) with both diffuse and focal forms. NETs can take up amine precursors and convert them into biological amines. This study evaluates the findings of [^{18}F]fluorodihydroxyphenylalanine (^{18}F -FDOPA) PET/CT scans in children with CHI and also describes the aspects and challenges of carrying out this type of scan in paediatrics.

Methods Five patients with CHI were initially enrolled in this study. All patients were injected with 4 MBq \cdot kg⁻¹ ^{18}F -FDOPA and imaging performed 1 h later. The scan was acquired for 10 min in the abdomen area.

Results Four of 5 scans showed diffuse abnormality rather than focal uptake in the pancreas. One patient showed abnormality of the pancreas with focal areas of intense activity in an almost nodular pattern throughout the head, body and tail.

Conclusion The ability of this noninvasive method is in visualizing NETs and also distinguishing between focal and diffuse forms of CHI in children. Maintaining a stable blood sugar and keeping the child calm and occupied post-injection were 2 of the major challenges.

A37 A study to assess the feasibility of introducing radiographer reporting in a nuclear medicine department

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Purpose To determine whether a radiographer could attain the same diagnostic accuracy as a consultant radiologist in the reporting of nuclear medicine studies; to implement a radiographer reporting protocol; to establish radiographer reporting in nuclear medicine.

Methods A senior 1 radiographer and a consultant radiologist independently reported 500 nuclear medicine bone, lung V/Q and renal scans. The radiographer had completed an accredited course in 'Clinical Nuclear Medicine Double Reporting'. Reports were compared and categorized by both radiologist and radiographer. Cases where agreement was not reached were referred to a second consultant radiologist for decisional scoring.

Results The agreement rate for bone scans was 98.5% with 7.8% having a trivial difference, 3.3% having a sustainable difference and only 1.4% having a non-sustainable (potentially affecting patient management) difference. For renal scans 99.37% totally agreed, 3.67% had trivial differences, 0.2% had a sustainable difference and 0.6% had a non-sustainable difference. Lung V/Q scans had agreement of 98.1%, 4.37% with trivial, 5.0% with sustainable and 1.87% with non-sustainable differences.

Conclusion The overall average agreement rate was 98.7% and it is concluded that it is therefore feasible to train radiographers to report nuclear medicine examinations with protocols in place as required by trust governance bodies.

BONE

A38 $^{99\text{m}}\text{Tc}$ -depreotide: a potent imaging marker of the activity of bone inflammation

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Aim Somatostatin receptors are over-expressed in inflammatory cells (macrophages and activated lymphocytes). The purpose of this study is to assess the utility of $^{99\text{m}}\text{Tc}$ -depreotide – a somatostatin analogue with high affinity for the receptor's subtypes 2, 3 and 5 – as a bone inflammation marker.

Methods Seventeen patients underwent depreotide scintigraphy, a three-phase bone scan as well as imaging by other modalities (CT, MRI, gallium scan). The patient population consisted of 9 active osteomyelitis cases and 8 various other pathologies (avascular necrosis, fracture, healing osteomyelitis, aseptic loosening, periodontal infection with concomitant bone reaction, septic arthritis and 2 cellulitis cases).

Results The depreotide scan was positive in the 9 cases of verified osteomyelitis as well as in the osteonecrosis case (probably due to the co-existing inflammation). Three scans were negative in the cases of the bone fracture, the aseptic loosening and the healing osteomyelitis, indicating the success of therapeutic interventions. In the remaining 4 cases, the depreotide scan, when interpreted along with the bone scan, enabled us to identify the exact site of infection and rule out osteomyelitis.

Conclusion The results suggest a potential role of $^{99\text{m}}\text{Tc}$ -depreotide as a marker of the activity of bone inflammation.

A39 Wrist registration scintigraphy: Use by specialist hand surgeons

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Background and aim Wrist registration scintigraphy (WRS) combines functional information with anatomic detail to localize pathology. The objectives of this study are (1) to evaluate the referral base, indication and use of WRS, and (2) to develop an algorithm for its clinical use.

Method All WRS performed between May 2003 and July 2005 at Guy's Hospital were reviewed with referrer and indication noted. Where available, follow-up information was obtained via case notes and orthopaedic lead consultant.

Results Of the 61 scans performed, 54 were for the investigation of occult wrist pain referred by specialist orthopaedic hand surgeons. Follow-up is ongoing and presently is available in 20/54 cases. WRS altered the management in 13/20. Five arthroscopies were avoided, 8/20 proceeded to different surgery, 3 were discharged and 1 patient was medically managed. Although WRS did not alter management in 7/20 cases, in 4 provisional management was confirmed. In 3/20 cases WRS was non-contributory.

Conclusion WRS is a useful tool in the specialist management of occult wrist pain, which can avoid unnecessary arthroscopy and alter the surgery offered to patients. We will present an algorithm for the use of WRS in the management of occult wrist pain.

A40 Paediatric wrist injury: Scintigraphic evaluation and clinical management

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Aim To evaluate the role of skeletal scintigraphy in the diagnosis and management of paediatric wrist trauma.

Materials and methods All bone scintigrams and plain radiographs performed over 2 years in children under 16 years were reviewed retrospectively. Patients were referred when the immediate and post-injury radiographs (mean 10 days) were considered normal.

Results Fifty children were studied, 31 were normal in both studies. Six, however, were treated for a further median period of 9 days on clinical grounds. Four patients with scintigraphic soft tissue injury received no further treatment. Four of 6 patients with suspected fracture on scintigraphy were treated for 20–44 days (median 27 days). Two patients with possible fracture on radiographs and definite fracture on scintigraphy were treated for 17 and 35 days. One of 3 patients with a positive radiograph and normal scintigraphy was treated for 36 days. All 4 patients with positive scintigram and negative radiograph went on to have treatment for 2–47 days (median 35 days). No complications were recorded.

Conclusion Bone scintigraphy is a useful non-invasive method for the assessment of paediatric wrist injury in the context of normal plain radiographs. Clinicians generally treat the scintigraphic information seriously.

A41 Bone SPECT following spinal surgery

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Background Back pain following spinal surgery is difficult to evaluate with multiple diagnoses possible. This study investigated the importance of sacroiliitis in this setting and the potential role of the bone scan with SPECT of the sacro-iliac joints (SIJs).

Methods Patients with low back pain of more than 7/10 on a VAS scale 6 months post-decompression or discectomy without other post-operative complications were investigated with 2-phase bone scintigraphy of the lumbar spine and pelvis with SPECT.

Results Of 76 patients in total, 32 had lumbar decompression, 24, discectomy, 12 decompression with posterolateral fusion, and 8 dynamic stabilization. Sacroiliitis was diagnosed by identification of high uptake in the SIJs on expert physician judgment using visual inspection of the images aided by quantification. Fifty-six (73%) patients were considered positive for sacroiliitis and 1 or both joints treated with periarticular

corticosteroids (80 mg triamcinolone) under fluoroscopy. The mean VAS score was reduced from 7 to 3 at 6 weeks follow-up, a reduction of 42%.

Conclusion We conclude that bone SPECT of the SIJs in the post-surgical setting can identify patients with sacroiliitis who may then benefit from local steroid therapy.

A42 A retrospective study of GP referrals for undiagnosed bone pain in patients at risk of metastatic disease

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Background From January 2002 to February 2005, 200 patients were referred by GPs for isotope bone scanning in bone pain where conventional radiography has proved inconclusive. A majority of these patients have had a previous carcinoma.

Method Analysis of the clinical records and scans was carried out to determine indication and reports.

Result Metastatic disease was present in 23.5% of (47/200) patients. A majority of patients had breast cancer 40.4% (19/47), lung carcinoma 10.6% (5/47), and prostatic carcinoma 8.5% (4/47).

Conclusion Referral from a GP is shown to be clinically effective and obviates the need for initial referral to an oncologist. In this model, a patient would see the primary care physician and be referred only if in need of further management. This would result in considerable cost and time savings and reduce the psychological pressures on the patients. This study suggests this should be offered routinely, rather than the informal provision presently in departments. The clinical effectiveness of a primary referral system within this context is demonstrated. This study raises future research opportunities into the nature of bone pain and its relationship to osteoclastic and osteoblastic disease.

CARDIOLOGY II

A43 The impact of arrhythmias during gated myocardial perfusion tests: Is there a need to repeat the acquisition?

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Previous publications have indicated that functional parameters [1] and possibly the summed perfusion images [2] derived from gated myocardial perfusion tests can be erroneous if the patient suffers from an arrhythmia during the acquisition. Currently, we repeat the study with an ungated acquisition when there is data loss due to arrhythmias to ensure the perfusion images are uncorrupted. Clinicians felt that there were no significant differences in the perfusion images between the two studies. The aim of this study was to confirm this impression and reduce the need to repeat scans.

The original data from 10 patients were altered to decrease the total counts in various frames to simulate arrhythmia. Several datasets were produced for each patient varying from count losses in a single frame to multiple frames. An experienced observer reviewed the original data and the altered data to look for changes in the reconstructed perfusion images. In most cases no significant changes were observed. The same observer confirmed the study findings in a number of patients where the test had been repeated, due to the loss of data caused by an