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World Journal of Medical Education and Research

An Official Publication of the Education and Research Division of Doctors Academy

DOCTORS ACADEMY

BETTER EDUCATION. BETTER HEALTH.

ISSN 2052-1715

Abstracts from the 5th International Academic and Research Conference
1st August 2015, University Place, University of Manchester

Prize Winning Abstracts

Doctors Academy Award in Academia and Research 2015
WINNER OF THE GRAND PRIZE

INVESTIGATING THE GROWTH-PROMOTING EFFECTS OF APOPTOTIC AND NECROTIC TUMOUR CELLS

Williams S; Farnworth S; Gregory C
Centre for Inflammation Research, The University of Edinburgh, United Kingdom

Background: Solid tumours contain stromal cells, macrophages and rapidly dividing neoplastic cells. In addition to these highly mitotic cell populations, apoptotic cells are often seen in the tumour microenvironment. Apoptotic cells have been shown to secrete trophic factors which are integral to tissue repair and regeneration. However, these processes also have the potential to promote tumour growth and the proportion of apoptotic cells within some tumours correlates with poor prognostic outcomes. Burkitt's lymphoma typically shows high rates of apoptosis and was therefore used as a model system in these experiments. We sought to define the effect of supernatants collected from apoptotic and necrotic cell cultures on the growth and viability of tumour cells from a Burkitt's lymphoma cell line.

Method: Ultraviolet irradiation was used to induce apoptosis of the BL2 Burkitt's lymphoma cell line whilst necrosis was induced by freeze-thaw cycles. Annexin V and propidium iodide stains were employed to assess the stages of cell death. Viable BL2 cells were cultured with supernatant from a much greater number of apoptotic or primary necrotic BL2 cells. Cell proliferation was measured over seven days.

Results: Supernatants from apoptotic tumour cells significantly stimulated the growth of surrounding viable cells compared with untreated controls. A 15-fold increase in cell number was observed over seven days when treated with a high concentration of apoptotic BL2 supernatant compared to a five-fold increase of control cells ($P<0.0001$). Moreover, necrotic cell supernatants induced significant proliferative responses, resulting in a 13-fold increase in viable cell numbers ($P<0.01$).

Discussion/Conclusion: These results demonstrate that soluble products of apoptotic and necrotic cells can exert trophic effects on surrounding viable tumour cells. Identifying and harnessing the precise mechanisms involved has significant potential for the development of novel, adjunctive anti-cancer therapies.

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Winners in Individual Categories
Oral presentations

First Prize
Category: Clinical and Basic Science Research

A STUDY ASSESSING THE CLINICAL IMPACTS OF ANTI-PLATELET THERAPY IN PATIENTS UNDERGOING ELECTIVE COLORECTALSURGERY.

Briggs R; Barrie K; Sue F; Austin A
University of Nottingham, United Kingdom

Background: Anti-platelet therapy (APT) is used for secondary prevention in cardiovascular disease. It inhibits platelet function but may cause adverse effects in surgery through increased bleeding. APT withdrawal protocols vary due to minimal evidence on the necessity of preoperative discontinuation and optimum time point of cessation. P-selectin glycoprotein is expressed upon platelet activation, hence is a biomarker of platelet function. This study aims to identify if withdrawal of APT improves platelet function and impacts upon clinical outcomes.

Method: Platelet function was measured (using the P-selectin test) in colorectal surgical patients two weeks preoperatively, at surgery and two days post-operatively. Variations in platelet function were recorded along with patient demographics, co-morbidities, operative details and post-operative complications.

Results: One hundred and fourteen patients were included: 92 controls (no therapy), 12 discontinued aspirin for an average of six days, eight continued aspirin and five discontinued Clopidogrel. Platelet function increased significantly if APT was stopped prior to surgery (Aspirin $P \leq 0.01$ and Clopidogrel $P \leq 0.01$). With discontinued aspirin, control function was not reached before surgery. However, longer cessation was associated with significantly higher platelet function ($P \leq 0.05$). Lower platelet function at surgery was related to a greater post-operative drop in haemoglobin although not statistically significant. Twenty nine percent of control patients suffered post-operative complications compared to 71% who continued APT and eight percent who stopped. ($P \leq 0.01$)

Conclusion: Withdrawing Aspirin for six days is insufficient for complete recovery of platelet function which, in this study, was associated with larger post-operative haemoglobin decreases and was protective from post-operative complications compared to continuation of aspirin.

Winners in Individual Categories
Oral presentations

Second Prize
Category: Clinical and Basic Science Research

MOLECULAR REGULATION OF A NEWLY DISCOVERED STEM CELL MARKER PROTEIN. A STEP FORWARD TOWARDS CELL SELECTION FOR TISSUE ENGINEERING?

Kong KW; Brady K; Hollander A
University of Bristol, United Kingdom

Background: Cartilage tissue engineering using mesenchymal stem cells (MSCs) is a relatively new area of research. Previous laboratory data showed the existence of heterogeneity among MSCs harvested from the same patient such as the expression of the orphan receptor tyrosine kinase (ROR2) on the cell surface. ROR2 positive MSCs demonstrated enhanced chondrogenesis in comparison to MSCs lacking the ROR2 receptor and thus raised the question of whether ROR2 is a potential cell surface marker for MSCs with enhanced chondrogenic potential for which Wnt5a is a known ligand.

Method: MSCs were differentiated in monolayer and pellet cultures in the presence of Wnt5a with or without transforming-growth-factor-B3 (TGF-β3). RNA extraction and real time PCR were applied to the harvested monolayer and digested pellet cells for gene analysis. In addition biochemical analysis was carried out using the ELISA assay.

Results: In the presence of TGF-β3, Wnt5a induced a dose-dependent effect on the up-regulation of extra-cellular-matrix (ECM) synthesis and expression of cartilage-marker genes and in particular, type II collagen. These effects were shown to surpass those produced by the use of TGF-β3 only. TGF-β3, however was shown to increase ROR2 gene expression.

Discussion: The results show that Wnt5a was able to effectively promote chondrogenesis only when used in combination with TGF-β3 but not when used alone. Based on the receptor context/availability model, ROR2 up-regulation or availability is essential to the action of Wnt5a in chondrogenesis. The results suggest a role of TGF-β3 in up-regulating the expression of ROR2 receptors which optimises the interaction of Wnt5a with ROR2 to inhibit canonical signalling and promote chondrogenesis.

Conclusion: A hypothesis has been put forward suggesting that TGF-β3 facilitates Wnt5a in promoting chondrogenesis by the up-regulation of ROR2 receptor expression and that Wnt5a could be part of the signalling complex through which TGF-β3 exerts its pro-chondrogenic effects.

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Winners in Individual Categories
Oral presentations

Third Prize
Category: Clinical and Basic Science Research

CAN CORYNEBACTERIA CAUSE PIN SITE INFECTION?

Teng JJJ; Walker J; Bayston R; Ashraf W
University of Nottingham/Queen's Medical Centre, United Kingdom

Background: Pin site infection (PSI) is a significant problem in patients with external fixation. Bacteria can track down the pin and cause osteomyelitis. In a clinical study at Queen's Medical Centre, Nottingham, corynebacteria were found in eight percent of infected pin sites. However, the pathogenicity of corynebacteria in PSI has not been studied to date. This study aimed to investigate the ability of corynebacteria to form biofilm, track down the pin and to evaluate the antimicrobial activity of a novel antimicrobial-impregnated collar (AIC) against corynebacteria using in-vitro models.

Method: This study included eight strains of corynebacteria, which were classified into three different species (C. jeikeium, C. pseudodiphtheriticum, C. macginleyi). The ability of these strains to form biofilm and track down the pin was investigated using crystal violet assay and pin-track model assay respectively. A screening test (SPTT) was used to determine the duration of antimicrobial activity of AIC, which was impregnated with rifampicin, clindamycin and triclosan.

Results: All strains were found to be biofilm producers and were able to track down the pin. The AIC had an average antimicrobial activity of 37 days against the strains.

Discussion: PSI is the result of bacteria adhesion and biofilm formation on the pin. The ability of corynebacteria to form biofilm is a crucial indicator of their pathogenicity in PSI. The novel AIC is initially devised to target staphylococci, the most common pathogens. The three antimicrobials were selected due to their effectiveness against staphylococci and solubility in chemicals used in impregnation. The AIC has a longer antimicrobial activity against staphylococci (115 days) as the corynebacteria were found to be resistant to clindamycin and triclosan.

Conclusion: The strains investigated have the potential to cause PSI. The AIC is able to provide early protection against corynebacteria. However, further studies are needed to determine the ability of AIC to prevent pin-track infection.

Winners in Individual Categories
Oral presentations

First Prize
Category: Clinical Audit

AUDIT OF TINZAPARIN PRESCRIBING IN EMERGENCY SURGICAL ADMISSIONS

Aggarwal A; Puttick T
Royal Berkshire Hospital, United Kingdom

Background: Tinzaparin is the low molecular weight heparin (LMWH) of choice for prophylaxis of venous thromboembolism (VTE) in our trust. It is dosed by weight according to a local protocol. It was noted that a large proportion of prescriptions in emergency surgical admissions were incorrect. Due to the importance of VTE prevention in patient safety, an audit was conducted.

Methodology: Three days of emergency surgical admissions in a large DGH were retrospectively audited to see if dose by weight was correct according to the protocol.

Results: Forty seven percent of all prescriptions were incorrect. In all of these cases, the dose was sub-therapeutic according to the protocol. Information was disseminated electronically to all surgical juniors and nurse prescribers working in General Surgery. In a second round of audit approx one month later, only 33% of prescriptions were incorrect.

Discussion: There are a number of reasons why prescriptions were incorrect. These include lack of awareness of the protocol, patients not being weighed and inaccurate estimation of weight. The improvement seen after sending an email to surgical juniors was significant and shows how simply drug errors can be reduced. It is interesting to note that even though almost 50% of patients had sub-therapeutic VTE prophylaxis, no DVTs or PEs were reported over the time of the audit.

Conclusion: The significant number of prescribing errors demonstrates that drugs dosed by weight should be avoided where possible. Where it is imperative to use a drug that is dosed by weight, the protocol should be made very clear to prescribers. Including the protocol on the drug chart and weighing patients on arrival in A&E could be a solution to the problems we have highlighted in the prescribing of tinzaparin.

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Winners in Individual Categories
Oral presentations

Second Prize
Category: Clinical Audit

APPENDICECTOMY AUDIT – OUTCOMES IN LAPAROSCOPIC AND OPEN APPROACHES

Dyal ARS; Lall R; Ratu S; Reddy B
Institution: Alexandra Hospital, Redditch

Background: The objective of this audit was to assess current practice in appendicectomy within the trust and observe differences in laparoscopic and open approaches in relation to duration of antibiotic cover, duration of stay, complication rate and follow up.

Methodology: This clinical audit was a retrospective study in the management of acute appendicitis. The last 100 appendectomies were chosen from November to August 2014 across the Worcestershire Acute Hospitals NHS trust. Patient's age ranged from seven to 86 and patients were chosen who had either a laparoscopic, open or laparoscopic-to-open appendectomy.

Results: Of the 100 appendicectomies performed, 41% had an open approach with 48% of patient cohort undergoing a laparoscopic approach, eight percent had a laparoscopic-to-open approach. The complication rate of open appendectomies was 7.5% compared with a complication rate in laparoscopic approach of 12.8%. The complication rate of laparoscopic-to-open appendicectomies was 12.5% (p-value < 0.05).

Discussion: Post-op collections and ileus were more common in the open group that laparoscopic approach. Port site & post-op infections and port site haematomas were more common in the laparoscopic approach than open. The average number of days as an inpatient were significantly longer in laparoscopic-to-open approaches, with similar inpatient length of stay rates in open and laparoscopic approaches (p-value $\geq$ 0.05). Patients who underwent an open approach received an extra day of antibiotic cover compared to those who underwent a laparoscopic approach. Forty percent of patients who had an open appendicectomy were seen at follow up compared with nine percent of laparoscopic approach.

Conclusion: Based on the results of this audit, post-op complications were observed more often in laparoscopic approach as opposed to the open approach. The recommendations of this audit is to encourage the use of bird bags in laparoscopic appendicectomy, to circulate information regarding appropriate clinic followup arrangements and to reaudit to assess the impact of changes in practice.

Winners in Individual Categories
Oral presentations

Third Prize
Category: Clinical Audit

MANAGEMENT OF AROMATASE INHIBITOR-INDUCED BONE LOSS IN BREAST CANCER PATIENTS

Husnoo N; Abbas S
Kensington Partnership, Bradford

Background: Aromatase-inhibitors (AIs), used as adjuvant treatment in oestrogen receptor-positive breast cancer, significantly increase the rate of bone loss. This audit aims to evaluate management of AI-induced bone loss in patients at a large general practice (-~9000 registered patients) against the 'Guidance for the Management of Breast Cancer Treatment-Induced Bone Loss' (UK expert group consensus, 2008).

Methods: Data was retrospectively collected on all patients registered at our practice currently, or previously, on an AI for breast cancer treatment.

Results: Fourteen patients were identified. One male patient and one who finished treatment before guidelines were issued were excluded.

Eleven of our 12 patients were eligible for a baseline dual Xray absorptiometry (DEXA) upon AI initiation. Two did not receive one and received no subsequent fracture-risk management. Nine had a baseline DEXA: eight were subsequently appropriately treated with calcium and vitamin D +/- bisphosphonates and six required repeat DEXA at two years to assess efficacy of bone protection therapy but only three had the repeat scan (not within two years).

The remaining patient was 'high risk' (i.e. required bisphosphonates regardless of DEXA results), but is on no bone protection agent.

Baseline DEXAs were mainly requested by breast specialists (n=5) or by the GP at the breast specialist's request (n=3).

Discussion: Management of AI-induced bone loss in our patients needs improvement. Initial management is largely coordinated by breast specialists. Subsequent management (especially repeat DEXA) seems neglected at hospital and primary care levels. Management of male patients is unaddressed by current guidance.

Conclusion: Our results possibly reflect a bigger problem country-wide. We recommend that other practices audit their management. It should be clarified who the responsibility of bone loss management lies with (breast team vs. GP), but currently, increasing awareness among GPs may improve compliance with guidance as they are well-suited for long-term follow-up.

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Winners in Individual Categories
Oral presentations

First Prize
Category: Clinical and Patient Related Work

VIRTUAL PATIENTS IN A MEDICAL APPLICATION

Dobbs S; Iqbal J; Raudaschl A; Baxendale B; Rees B
University of Nottingham, United Kingdom

Background: The complexity and breadth of the medical curriculum presents many educational challenges. New technologies propose a potential shift in the educational paradigm. The integration of virtual patients into the medical curriculum allows for interactive learning; shifting the focus from a passive educator-centred model to an active and individually tailored learning approach.

Description: 'General Surgery' is an application currently in development for medical students on their surgical attachment. It aims to assist in the delivery of core learning objectives, and augment traditional learning strategies. Using a previously under-utilised resource we aimed to engage undergraduate medical students with e-learning in the form of virtual patients in a medical application for tablet and iPhone devices.

Discussion: This innovative application enables users to download and experience a virtual patient case scenario by assuming the role of a healthcare professional. Users obtain histories, conduct examinations and consider diagnostic and therapeutic strategies. During the patient journey, questions are asked in the areas of diagnosis, investigations, treatment, pharmacology, physiology, anatomy and prognostic factors. Fifty six medical students tested the pilot application. Analysis of the online questionnaire results and written feedback revealed that students found the application an enjoyable and efficient way to learn. Ninety six percent strongly agreed that they would use a medical application again in their studying. Eighty percent of students stated they found the application a more effective way of learning than using purely paperbased resources. Discussion groups revealed students would like applications covering other areas of the course, for example paediatrics.

Conclusion: The integration of e-learning into medical education presents an exciting opportunity. This application demonstrates the potential of virtual patient design, and its variability and utility within the educational framework. Further student and clinician evaluation will allow future development. These early results study suggest virtual patients are likely to play an increasing role in medical education.

Winners in Individual Categories
Oral presentations

Second Prize
Category: Clinical and Patient Related Work

THE ROLE OF ECHOCARDIOGRAPHIC SURVEILLANCE FOR COMPLEX AORTOPATHY - A CAUTIONARY TALE

Ahluwalia N; Jayapalen V; Bhatia VK
Tunbridge Wells Hospital, Kent, United Kingdom

Background: The primary intention of monitoring patients with chronic aortic pathology is to prevent the complications of dissection or rupture. We present an incidental finding of aortic dissection in a patient with known aortopathy and explore why it was missed despite regular review and imaging.

Case Report: A 44-year-old man presented to the Emergency Department with sudden onset left hand paraesthesia. He had a congenital bicuspid aortic valve and aortic root dilatation (48mm) and underwent metallic aortic valve replacement at age 32. He had been under annual echocardiographic surveillance in his local cardiology clinic. On presentation, his INR was subtherapeutic and CT brain scan was consistent with an ischaemic event for whsich he was admitted and treated appropriately. The patient underwent routine transthoracic echocardiogram (TTE) to assess for thrombus. This showed an aortic dissection flap which CT aortography characterised as a 63x69mm dilation of the ascending aorta and an extensive type-A dissection from the annulus to ligamentum with a fenestrated flap. The patient was started on labetolol infusion and transferred to a cardiothoracic centre for surgical consideration. He subsequently underwent successful replacement of the ascending aorta, hemi-arch and root.

Discussion: The risk of ascending aortic dissection is related to the extent of aortic dilatation and 60mm diameter is the recommended threshold for surgical referral. Dilatation of the aortic arch is independent of aortic valve dysfunction and continues to progress even despite valve surgery. Retrospective review of our patients' surveillance TTEs showed progressive dilatation of the ascending aorta. Accurate reproducible measurements of this region with TTE are limited by inter-operator variability and obtaining appropriate imaging windows. Transoesophageal echo, MRI or CT could have been considered for more accurate assessment of the proximal aorta.

Conclusion: The modality of imaging should be individualised to the patient and region of aortopathy.

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Winners in Individual Categories
Oral presentations

Third Prize
Category: Clinical and Patient Related Work

THE RECURRENCE OF SEVERE PERIANAL CROHN'S DISEASE IN A VRAM FLAP RECONSTRUCTION POST DISEASE EXCISION – THE CLINICAL IMPLICATIONS OF EXTRANEOUS CROHN'S DISEASE IN FLAP RECONSTRUCTION

Loh AYH; Loh M; Loh CYY; Athanassopoulos T; Davies M
Aberdeen Royal Infirmary, United kingdom

Background: Crohn's disease is characterised by transmural inflammation resulting in fistulation and abscess formation. Severe perineal disease can result in the "pepper pot" perineum with complex fistulation. Panproctocolectomy and resection of perianal disease is a last resort in this group of patients.

Case Study: A 35-year-old gentleman presented with extensive perianal Crohn's disease. He underwent a panproctocolectomy and resection of perianal disease for Crohn's with a Vertical Rectus Abdominis Myocutaneous (VRAM) flap reconstruction. The MDT composed of general surgeons, plastic surgeons and gastroenterologists managed his disease. He presented again, three years later with recurrent fistulae which intermittently discharged. Surgical debridement, with drainage of abscesses was performed and tissue biopsies were taken from the VRAM flap which appeared macroscopically to be involved. The histological findings have confirmed the presence of Crohn's pathology in the flap when compared with the adjacent tissues.

Discussion: This case is an interesting demonstration of how fistulating Crohn's disease occurs regardless of the perianal tissue structure. Due to the rarity of reported cases it is difficult to determine if the flap used had any impact on the interval to recurrence.

Conclusion: Reconstructive surgery is an effective option in treating severe perianal Crohn's but it does not offer a definitive solution. Patients need to be aware of this and ongoing medical therapy should continue to address the possibility of recurrent perianal disease.

Winners in Individual Categories
Poster presentations

First Prize
Category: Clinical Audit

PROPHYLACTIC ANTIBIOTIC USE IN LAPAROSCOPIC GALL BLADDER SURGERY

Falzon A; Conway L; Mitchell R; Harishbabu B
Southport and Formby District General Hospital

Background: Current literature and guidelines do not recommend prophylactic antibiotic use in laparoscopic gall bladder surgery unless the patient has identified risk factors (RF's) for developing a surgical site infection (SSI). We hypothesise inappropriate antibiotic use in this cohort.

Methodology: A retrospective audit. Thirty patients randomly selected from elective laparoscopic cholecystectomies performed at Southport District General Hospital (2014). Patient notes were used to decipher whether or not antibiotics have been administered, and if RF's indicating or negating prophylactic antibiotic use were unambiguously documented. RF's indicating antibiotic use includes age (≥70), diabetes, immunosuppression and obesity. Antibiotic prescription was deemed correct in patients with at least one RF, or if omitted in those without RF's documented. Antibiotic use was deemed inappropriate if administered to a patient with no identified RF, or if RF's were identified and antibiotics were omitted.

Results: Twenty-five (83%) patients received prophylactic antibiotics, and five (17%) did not. Eighteen (72%) patients who had received antibiotics had one or more RF's and therefore appropriately administered. Seven of these patients (28%) had no RF identified and therefore incorrectly prescribed. All five patients who did not receive antibiotics were correctly managed as no RF's were identified; however, this was not made explicit in documentation.

Conclusion/Discussion: Results are suggestive of antibiotic misuse in laparoscopic cholecystectomies. The presence or absence of RF's are rarely unambiguously documented, and antibiotics are administered in most cases. This may suggest a culture of blanket antibiotic use. The appropriateness of antibiotics should always be considered to minimise the risk of adverse affects our patients experience and reduce developing microbial resistance. It is also important, as health care professionals, to make appropriate use of the finite resources available in order to provide patients with the highest level of care as outlined in the NHS constitution.

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Winners in Individual Categories
Poster presentations

Second Prize
Category: Clinical Audit

AUDIT AND RE-AUDIT INTO THE USE OF CHAPERONES FOR INTIMATE EXAMINATIONS OF SURGICAL PATIENTS

Turvey S; Ramadan S; Fareed K
Broomfield Hospital, United Kingdom

Background: Intimate examinations are frequently performed on surgical patients during the initial clerking in the Accident and Emergency (A&E) department. It was observed that this was poorly documented, especially when it came to chaperones. This is particularly relevant as there have been several court cases against doctors accused of sexually assaulting their patients in recent history.

There are GMC guidelines on the topic written in 2013 which state the role of the chaperone and what parameters should be documented.

We aimed to audit the implementation of the GMC guidelines in the clinical environment.

Methodology: Using GMC guidelines as a standard, 50 consecutive patients admitted under the surgical take who had an intimate examination were included. The initial A&E clerkings were reviewed for any documentation. The standard used was 100% adherence to GMC guidelines.

Results: The results showed poor adherence to the guidelines. Only six patients (12%) had adequate documentation. Most patients had inadequate or absent documentation (88%).

The audit was presented at the local audit meeting and the staff was educated about the guidelines.A trial of a chaperone stamp in the A&E clerking booklets was agreed and a re-audit performed. Ten patients with the stamp present who had intimate examinations were audited. The results showed seven (70%) adequately documented examinations in concordance with GMC guidelines; a significant improvement.

Discussion: Limiting factors included physically stamping individual A&E cards in the hope that they would be used to clerk general surgical patients. It was found that the majority of general surgical patients were clerked in non-stamped cards.

Conclusion: Due to the results of the audit and the re-audit, the trust agreed to re-print the cards with a chaperone prompt next to the examination section. This audit cycle has triggered a change in clinical practice for the better.

Winners in Individual Categories
Poster presentations

Third Prize
Category: Clinical and Patient Related Work

A REFLECTION ON OUR DAY-TO-DAY CLINICAL PRACTICE: CAN WE INCREASE THE PREDICTABILITY OF PULMONARY EMBOLISM (PE) BY COMBINING D-DIMER WITH OTHER BIOCHEMICAL VARIABLES AND CXR FINDINGS?

Rahim S
Scarborough General Hospital

Background/Aim: PE can be quite difficult to diagnose. It is relatively common and can be fatal without adequate treatment. Conventionally, in patients with lower risks of PE, d-dimer can be used to stratify patients of its probability and influence subsequent decision on radiological imaging (CTPA/VQ) .

In a real life clinical setting, in patients with suspected PE, apart from d-dimer, other biochemical variables including CRP, WCC, neutrophils: lymphocytes and CXR findings were often included as part of the initial investigation. This study aimed to assess the diagnostic values of these variables and their influences on predictability of PE.

Method: A Retrospective, single institutional analysis (Scarborough General Hospital). Consecutive patients who underwent CTPA for suspected PE, between January 2013 and January 2014, were identified via IMPAX and included in the study if they also had d-dimer and other biochemical profiles requested. Formal reports of CTPA by local radiologists were used in the diagnosis of PE.

Results: In total, 193 patients who underwent CTPA were included of whom, 40 had PE (20.7%). Where CTPA showed no evidence of PE, other causes of raised d-dimer were identified including heart failure, pneumonia, pericardial effusion, pleural effusion. Higher magnitudes of d-dimer were associated with increased probability of PE. There was a positive correlation between CRP and d-dimer. ($r=0.33$, $p<0.001$). No specific pattern was seen in WCC in PE and WCC has limited statistical influence on predictability of PE. Similarly, CXR had limited contribution to predictability in PE diagnosis.

Conclusion: In the diagnosis of PE, d-dimer remained the current best parameter. Multiple multivariate regression models were examined and addition of CRP, WCC, CXR findings to d-dimer had little significance to the prediction model of PE.

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Oral Presentations

Category: Clinical and Basic Science Research

THE FEASIBILITY OF ROUTINE MONITORING OF COGNITIVE SYMPTOMS IN PATIENTS WITH SCHIZOPHRENIA USING A MOBILE PHONE

Shah D; Abel K; Lewis S
University of Manchester, United Kingdom

Background: Cognitive deficits in schizophrenia are profound and severely affect quality of life. Strategies to improve cognitive function in schizophrenia have thus far been limited. Use of routine clinical monitoring to personalise management of cognitive symptoms may improve engagement and outcomes in schizophrenia sufferers. This study exploits the recent emphasis on mobile technology to deliver more patient accessible approaches to heath intervention (mHealth) and is the first to investigate the feasibility of mHealth for routine cognitive assessment in schizophrenia.

Method: Nineteen participants with enduring schizophrenia were recruited from rehabilitation centres and community settings across Manchester, UK. Patients were consented to answer questions from a symptom monitoring application, 'ClinTouch' over a period of one or 12 weeks. The Matrics Cognitive Battery (MCCB) is the gold standard cognitive assessment tool in schizophrenia. MCCB was administered to assess a) cognitive function of participants and b) the relationship between cognitive deficits and compliance with mHealth. Qualitative interviews explored patient views using thematic analysis.

Results: Cognitive deficits in the group were profound (T-scores = 26.2- 40) Compliance as defined by completion of at least 33% of all possible data-points was 75% and no correlation was found between cognitive status and compliance (p=0.736) Patient interviews revealed several themes: i) Patients found using 'ClinTouch' interesting and manageable ii) they thought the development of a cognitive application would be useful, feasible and something they would use regularly and adapt into their lives iii) their cognitive function had a notable effect on daily function.

Discussion: mHealth offers a feasible and acceptable new approach to managing cognitive symptoms in schizophrenia and in conjunction with face-to-face clinical management, routine mHealth cognitive monitoring can determine when and how best to intervene and personalize approaches.

Conclusion: Mobile applications for cognition in schizophrenia are feasible and acceptable, potentially improving patient care experiences.

GOLDILOCKS MASTECTOMY - THREE YEARS

Camilleri R; Caruana Dingli G
Mater Dei Hospital, Malta

Background: Goldilocks mastectomy is a modification of the traditional mastectomy which can be used in patients with large, ptotic breasts. In this procedure, the skin is de-epithelialised and used to form a breast mound. This is a novel procedure, introduced in 2011, which is a compromise between a traditional mastectomy and a mastectomy with reconstruction. The technique is performed in a single step, by the breast surgeon, without the additional cost, time and effort associated with post operative reconstruction.

Method: All patients who underwent a Goldilocks mastectomy over the last three years at Mater Dei Hospital were selected. The patient files were reviewed and information regarding age at operation, BMI, indication for procedure, type of procedure performed were collected. All patients were given a quality of life questionnaire. The questionnaire evaluated bra size before and after the operation, body image, sexual functioning, arm symptoms, post operative radiotherapy, future perspective and overall satisfaction.

Results: Patients undergoing bilateral Goldilocks mastectomy were overall more pleased than those undergoing unilateral Goldilocks. Patients had minimal arm and breast symptoms and were overall very satisfied with their post operative body image.

Discussion: Goldilocks mastectomy is the balance between having no breast reconstruction and having plastic surgery during mastectomy.

Conclusion: Patients are overall very satisfied with their post operative result and therefore all patients who satisfy the criteria should be considered for this procedure.

THE EVALUATION OF A NOVEL, LONG-TERM ANTIMICROBIAL URINARY CATHETER; PREVENTING THE MIGRATION OF PROTEUS MIRABILIS

Malcolm F; Krishan A
University of Nottingham, United Kingdom

Background: Catheter-associated urinary tract infection (CAUTI) is a major cause of morbidity in patients undergoing long-term urinary catheterisation. Although symptomatic episodes can lead to complications such as pyelonephritis, a long -term catheter capable of preventing infection is not currently available. Proteus mirabilis, responsible for ~40% of CAUTI's, forms a crystalline biofilm that obstructs catheters. On contact with a surface, Proteus can differentiate into elongated swarmer cells which move rapidly in a coordinated manner. It has been hypothesised that this differentiation is responsible for migration along urinary catheters.

Objectives: This study aimed to further explore the role of swarming by P. mirabilis in migration along the extra-luminal catheter surface. A secondary aim was to investigate the ability of a novel, antimicrobial-impregnated catheter to inhibit Proteus migration along this surface.

Method: An *in-vitro* model was used to compare the ability of one wild type strain and four swarming-deficient transposon mutants to migrate along a silicone catheter. Each strain was examined using five identical models. The method was then repeated using a silicone catheter impregnated with rifampicin, sparfloxacin and triclosan, to determine the effect this had on P. mirabilis migration.

Results: Despite differences in their motility, 100% of P. mirabilis strains migrated along the plain catheter, and there was no significant difference between the rates of movement for each strain ($p=0.287$). In contrast, migration of P. mirabilis strains along the antimicrobial catheter was only observed in eight percent of models (2/25).

Conclusion: These findings suggest that swarming ability is not essential for migration of P. mirabilis along the extra-luminal catheter surface. Antimicrobial impregnation significantly inhibited movement of Proteus along the catheter ($p<0.05$). The small increases in minimum inhibitory concentration of the antimicrobials were not thought to be clinically important. Future research should investigate the ability of this novel catheter to prevent migration of P. mirabilis along the intra-luminal surface.

IMPROVING SELECTION FOR BONE MARROW DONORS WITH A PREDICTIVE COLLECTION TREE IN HLA-HAPLOIDENTICAL TRANSPLANTATION WITH POST- INFUSION CYCLOPHOSPHAMIDE

Rimondo A; Bramanti S; Crocchiolo R; Giordano L; Santoro A; Castagna L
Humanitas Cancer Center, Rozzano, Italy

Background: Many transplantation outcomes have been demonstrated to be associated with the infused total nucleated cell (TNC) dose/kg of recipient body weight (BW). Donor bone marrow density (BMD) is directly related to the TNC dose/kg of recipient's BW. The aim of our study was to identify donor-related factors associated with the collected cell dose.

Method: We retrospectively analysed the clinical data of 65 consecutive haploidentical (haplo) BM donors at our centre between 2009 and 2013. Target cell dose for haplo T-cell replete transplantation with post-infusion cyclophosphamide was $4x10^8$ TNC/kg of recipient BW. Linear regression model was adopted and a recursive tree was estimated to build up a prognostic score.

Results: Median age of donors was 46 years (range: 18-71). Twenty seven were siblings, 20 parent, 17 children and one cousin. Three Body mass index (BMI) and white blood cell (WBC) count were directly associated with BMD ($p <0.001$). Three mayor prognostic categories were identified. Probability to obtain a collection with high BMD was firstly predicted by BMI (BMI ≥30, BMD mean = 25.8 TNC/mL $x10^6$). Secondly, it was possible to split donors with BMI <30 into two categories according to WBC count (WBC <8 $x10^3/mm^3$: BMD mean = 18.4 TNC/mL $x10^6$; WBC ≥8 $x10^3$ mm^3: BMD mean=23.1 TNC/mL $x10^6$). Moreover, BMD of the first collected bag directly correlated with overall BMD ($R^2=0.69$, $p <0.001$).

Discussion: This retrospective study on 65 haplo BM donors was aimed to identify donor-related variables associated with high BMD, in order to build up a predictive score for optimal collection. BMI ≥30 and WBC count ≥8 $x10^3/mm^3$ were the only variables independently related to donor BMD.

Conclusion: Given the impact of infused TNC dose on many transplantation outcomes, donor-related features affecting TNC quantity obtainable with the harvest could support the choice of the best-suitable donor.

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IMPAIRED METABOLIC AND INFLAMMATORY PROFILE RELATED TO EATING BEHAVIORS IN OBESE SUBJECTS WITH A BINGE EATING DISORDER

Succurro E; **Mea P**; Ruffo M; Pelle MC; Garcia SC; Arturi F
University "Magna Graecia" of Catanzaro, Italy

Background: Obesity is a risk factor for major causes of morbidity and mortality and several evidence shows that a Binge Eating Disorder (BED) affects a subset of obese subjects. BED is a psychiatric disorder characterised by recurrent episodes of binge eating.

Aim: To evaluate whether obese subjects with BED have a different metabolic and inflammatory profile related to their eating behaviours compared with obese non-BED subjects.

Method: One-hundred-fifteen caucasian obese subjects consecutively recruited underwent biochemical, anthropometrical evaluation and a 75 goral glucose tolerance test. Participants answered the Binge Eating Scale and were interviewed by a psychiatrist. The subjects was subsequently divided into two groups according to diagnosis: non-BED obese subjects (n = 85) and BED obese subjects (n = 30). Insulin sensitivity was evaluated by Matsuda Index, HOMA-IR and Visceral Adiposity Index. SEM analysis was performed in order to clarify the relation between eating behaviours and metabolic and inflammatory profile.

Results: BED obese subjects exhibited significantly higher percentages of altered eating behaviours, BMI (P<0.001), waist circumference (P<0.01) fat mass percentage (P<0.001) and a lower lean mass percentage (P<0.001). BED subjects also had a worse metabolic and inflammatory profile, exhibiting significantly lower HDL cholesterol (P<0.05) and higher HbA1c (P<0.05), uric acid (P<0.05), VES (P<0.001) and hs-PCR (P<0.01) and a higher white blood cell count (P<0.01). No significant differences either in fasting glucose or two-hour post-challenge plasma glucose were found, but higher fasting insulin (P<0.01) and higher insulin resistance (P<0.001), assessed by HOMA IR and Visceral Adiposity Index (VAI) (P<0.01), were observed among obese BED subjects. SEM analysis confirmed the relation between the characteristic altered eating behaviours of BED and the metabolic and inflammatory profile.

Conclusion: BED obese subjects exhibited an impaired metabolic and inflammatory profile; this different, unfavourable, profile is related to the characteristic eating habits observed in these subjects.

TWIST2 IS A KEY REGULATOR OF CELL PROLIFERATION IN ACUTE LYMPHOBLASTIC LEUKAEMIA

Goey MR; Strathdee G; Perkins N
Newcastle University, United Kingdom

Background: Acute lymphoblastic leukaemia (ALL) is the most frequent type of childhood malignancy, accounting for 25% of all cases. TWIST2, a basic helix-loop-helix transcription factor, has been implicated in ALL development. Prior studies found that TWIST2 undergoes epigenetic silencing in more than 50% cases of ALL through promoter hypermethylation and suggested that re-expression of TWIST2 may inhibit cell growth/survival of leukaemia cell lines. TWIST2 has also been implicated as a regulator of NF-kB activity, which is constitutively active in leukaemia. Here, we use a lentiviral transductions system to confirm the importance of TWIST2 in controlling leukaemia cell growth and to investigate whether this is achieved through altered regulation of NF-kB activity.

Method: Re-expression of TWIST2 in leukaemia cell lines was achieved using lentiviral-based transduction. The lentiviral vector also expresses enhanced green fluorescent protein (eGFP), allowing transduced cells to be tracked using flow cytometry. Analysis of apoptosis and cell proliferation were done using annexinV and VPD450 staining, respectively.

Result and Discussion: TWIST2-expressing cells were rapidly depleted from a mixed population in ALL cell lines (NALM6 and Reh), indicating that TWIST2 inhibited cell growth/survival of ALL cells. In contrast, myeloid cell lines (HL60 and K562) were comparatively insensitive to TWIST2re-expression. Analysis of apoptosis and cell proliferation found no significant induction of apoptosis, but did find a rapid induction of proliferation arrest in TWIST2-expressing Reh and NALM6 cells. Initial experiment with NF-kB inhibitor demonstrated that inhibition of NF-kB has similar impact on cell proliferation in the ALL cell lines, suggesting that TWITST2 may induce cell proliferation arrest through inhibition of NF-kB.

Conclusion: The results of this study suggest that epigenetic inactivation of TWIST2 in primary ALL leads to increased proliferation, potentially by altering the regulation of NF-kB.

WHAT ARE THE MUTATION RATES OF DORMANT AND NON-DORMANT MYCOBACTERIUM FORTUITUM CELLS WHEN SUBJECT TO CIPROFLOXACIN AS A SELECTIVE AGENT?

Hari Narayanan AK; Hammond R; Gillespie SH
University of St Andrews, United Kingdom

Background: Tuberculosis (TB) is a global public health concern as one third of the world population are disease carriers. Furthermore, antibiotic resistance is increasingly prevalent with the emergence of multidrug-resistant strains of mycobacteria. Fluoroquinolone antibiotics have excellent activity against TB and are critical in the treatment of antibiotic resistant disease. Mycobacteria also express drug resistance through phenotypic changes. This occurs as cells alter their normal physiology, changing from nondormant to dormant states. The progression to dormancy is due to environmental stressors, such that is seen in the tuberculous granuloma. These phenotypic changes contribute to disease latency and therapeutic difficulties.

Method: As dormant and non-dormant cells have never been studied in isolation, this study clarifies the mutation rates of both cell types when subject to the fluoroquinolone; Ciprofloxacin. Mycobacterium fortuitum was used as a model organism as it was fast growing and nontuberculous. It was grown in Middlebrook 7H9 broth where dormant and non-dormant cell isolates were extracted via 1G Centrifugation.
Both cell isolates underwent a Luria-Delbruck fluctuation analysis where mutation rates were determined via the Po method.

Results: The mutation rate for non-dormant cells were quantified as 1.098×10^{-6} while a numerical result was not obtained for dormant cells. Instead qualitatively, fluctuation analysis revealed that dormant cells had consistent resistant colonies.

Conclusion: Conclusively, dormant cells have higher mutation rates and are more likely to develop antibiotic resistance. Clinically, Ciprofloxacin should be discouraged in treatment of latent TB due to an increased risk of developing drug resistance. The role of fluoroquinolone antibiotics in the treatment of latent Tuberculosis must be evaluated.

PERCUTANEOUS TRANSLUMINAL FISTULA ANGIOPLASTY FOR FAILING ARTERIOVENOUS FISTULAE: A REVIEW OF SINGLE CENTRE PRACTICE

Zaidi A; Majeed A; Davies CD; Aziz R
Morriston Hospital, Swansea

Background: Arteriovenous fistula (AVF) is the preferred mode of vascular access for maintenance of haemo-dialysis (HD) in patients with ESRD. Fistulas can fail anytime and require surveillance. Native fistula should be kept working as long as dialysis can be done effectively with it. Failure of the fistula increases the morbidity and can cause complications.

Method: A retrospective study of all the patient admitted and treated for a failing AVF in a tertiary care hospital from August 2008 to August 2011 was done. Data was collected from the hospital's online radiology services (PACS) and a prospectively maintained renal registry (Vital Data).

Results: A total of 75 patients required 110 procedures. Median age was 59 years and 53.3% were males. Median time lapse between the initial fistula and the date it failed was 389 days (range 27 - 2344 days). Seventy one percent of the treated fistulas were snuffbox, radiocephalic and brachiocephalic. 23.7% and 37.3% of the AVF had peri–anastomotic and anastomotic site stenosis. 67.3% of the patients had a successful angioplasty result and 82.7% were dialysed within 24 hours of the procedure.

Discussion: Saving a native AVF prevents the complications of temporary dialysis lines and preserves future access sites. It also saves the patient from undergoing a repeat surgery for failed AVF which traditionally means six weeks to maturation before the AVF can be used for HD. A fistula with >50% stenosis in arterial inflow or venous outflow with clinical evidence of dysfunction requires intervention. Duplex ultrasound has been shown to have 100% sensitivity in diagnosing AVF dysfunction or failure. Using duplex ultrasound and the local expertise of our interventional radiologists, 67.3% of the fistulas were salvaged. Nineteen patients had a repeat angioplasty and five patients required new AVF.

Conclusion: Percutaneous Transluminal Fistula Angioplasty is safe, can successfully restore patency improve flow and prolong the useful life of AVF for haemodialysis.

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LEARN AND ACT: HOW INFORMATION AND PRACTICAL ACTION CAN IMPROVE CLINICAL PERFORMANCE PARAMETERS OF CPR

Adami F; Cecchini M
Cisanello Hospital, Pisa, Italy

Background: Two of the goals of teaching of cardiopulmonary resuscitation (CPR) are to improve the clinical performance of CPR and increase the confidence of the lay rescuer performing it.

Objectives: We examined how the clinical performance parameters of CPR are affected by different types of teaching (only theoretical teaching and theoretical and practical teaching).

Method: Thirty-six students studying medicine enrolled in an optional course of Cardiopulmonary Resuscitation were divided randomly into three groups of 12 students each. One group performed two minutes of CPR on a parameterised mannequin without having received any kind of didactic training (No Course Group), the second group performed CPR only after receiving the theoretical part of a Basic Life Support and Defibrillation course (Theory Only Group) and the third group performed CPR after a complete Basic Life Support course (Complete Course Group).

Results: We found a statistically significant difference in the actions of Early Response (27.27 vs. 100.00%, p <0.01), Shout for Help (18.18 vs. 72.72%, p = 0.08) and Proper Hand Position (60.90 vs. 84.00%, p = 0.012) between the NO COURSE GROUP and the COMPLETE COURSE GROUP. We also found a significant difference in the frequency of compression between the NO COURSE GROUP (mean 112.00 cpr / min)
and both the COMPLETE COURSE GROUP (mean = 139.54 cpr/min , p <0.01) and the THEORY-ONLY GROUP (mean 133.36 cpr/min p <0.01). A significant difference was also reflected in the number of compressions performed over two minutes between the NO COURSE GROUP (mean = 133.36 cpr) and the COMPLETE COURSE GROUP (mean = 231.72 cpr).

Conclusion: Exposure to information and subsequently to the practical action improves clinical performance parameters of CPR in the first two rings of the Chain of Survival.

INTERVENTRICULAR SEPTAL THICKNESS AND CAROTID INTIMA-MEDIA THICKNESS IN METABOLICALLY HEALTHY OBESE (MHO) SUBJECTS AND OBESE INSULIN RESISTANT (IRO) SUBJECTS

Succurro E; **Mea P**; Ruffo M; Pelle MC; Arturi F
University "Magna Graecia" of Catanzaro, Italy

Background: Several studies suggest that the metabolically healthy obese (MHO) subjects are relatively insulin sensitive and have a rather favourable cardio-metabolic risk profile.

Aim: To evaluate the interventricular septal thickness (IVS) and the carotid intima-media thickness (IMT) in MHO subjects and compare them with those of both insulin resistant obese (IRO) and normal-weight subjects.

Method: A total of 1563 subjects consecutively recruited underwent biochemical, anthropometrical evaluation and a 75g oral glucose tolerance test. High resolution B-mode ultrasound was used to measure IMT while IVS was evaluated by echocardiography. According to BMI the subjects were divided in obese (n=708), and non obese (n=855) and stratified into quartiles according to their insulin sensitivity: subjects in the upper quartile were categorised as MHO (n=177), while subjects in the two lower quartiles were defined as IRO (n=353)

Results: MHO subjects exhibited significant lower BMI (P<0.001), waist (P<0.001), systolic and diastolic blood pressure (P<0.006 and P<0.001, respectively), fasting glucose (P<0.001) and insulin (P<0.001), both 2-h post-challenge plasma glucose and plasma insulin during OGTT (P<0.001, P<0.001) than with IRO subjects. IMT was significant higher in IRO subjects (0.77+0.2 mm) than MHO (0.71+0.1 mm) and non obese subjects (0.72+0.2 mm) (P<0.01 and P=0.004, respectively). IVS was significant higher in IRO subjects (1.14+0.4 cm) than MHO (1.05+0.3 cm) and non obese subjects (1.03+0.3 cm) (P<0.001 and P<0.001, respectively). In a logistic regression model IRO showed an increased risk of having an increase of IMT (>0.9 mm) (OR 1.6, 95.0% C.I. 1.029-2.335) and an increased risk of having an increase of IVS (>1.1 cm) (OR 3.07, 95.0% C.I. 2.1-4.3) than normal weight subjects. No differences in increase of IMT and IVS were observed between MHO and normal weight subjects.

Conclusion: MHO subjects showed a lower IVS and a lower IMT, both independent predictor of cardiovascular disease, than IRO subjects.

THE ROLE OF HDAC2 IN THE REGULATION OF APAF-1 IN OESOPHAGEAL CANCER.

Arnold M; Sanderson D; Petty R
University of Aberdeen, United Kingdom

Background:
- Five year survival rate of oesophageal cancer is 15% and one year survival is 40%. Most patients already have advanced disease when presenting so urgent research is needed to develop clinical treatment.
- Previous target discovery project showed APAF-1 to be poorly expressed in patients not responding to chemotherapy.
- Other studies in cell lines have shown HDAC-2 to decrease the expression of APAF-1 and a number of HDAC inhibitors are currently in clinical trials.
- HDAC inhibitors could be used to 'restore' APAF-1 expression in oesophageal cancers, and thereby reverse resistance to chemotherapy and increase overall survival.

Method:
- Immunohistochemistry staining of tumour biopsies from patients some of whom underwent surgery alone, and others who had chemotherapy prior to surgery (n = 153).
- HDAC-2 and APAF-1 expression scientifically verified by independent scoring.
- Statistical analysis and comparing survival rates/response to chemo of each patient to one another.

Results:
- HDAC-2 and APAF-1 expression were inversely correlated.
- High HDAC-2 expression was associated with lack of response to chemotherapy but not overall survival.
- APAF-1 was not significantly associated with response to chemotherapy and was only associated with survival in patients who went straight to surgery and not those that had chemotherapy prior to surgery.

Discussion/ Conclusion:
- In oesophageal cancer HDAC2 and APAF-1 expression are inversely correlated, consistent with preclinical work suggesting that HDAC-2 inhibits APAF-1 expression.
- APAF-1 expression does not correlate with response/resistance to chemotherapy but low APAF-1 expression does correlate with worse survival independent of chemotherapy *i.e.* prognostic but not predictive.
- In patients with low APAF-1 a HDAC2 inhibitor could be a useful therapy and this warrants further investigation as a potential personalised medicine strategy.
- We have therefore validated a cause for more research into the possible use of HDAC inhibitors to treat oesophageal cancer.

THICKNESS OF SCALP IN BALD VERSUS NON-BALD

Pace Moore G; **Borg J**; Schembri-Wismayer P
University of Malta, Malta

Background: The basis and influences responsible for balding have still not been fully comprehended. Several hypotheses have strived to explain the trend of baldness. Currently, it has been shown that testicular hormones are a prerequisite for alopecia, however certainly not the sole factor. As other research showed, scalp thinning over time may be playing an essential role. The aim of this study is therefore to determine whether the scalp thickness differs between bald and non-bald individuals in different areas of the scalp.

Method: Eighty seven volunteers mainly from old people's home were chosen at random and their scalp thickness was measured using an Ultrasound machine. Of these, ten were female all of whom were not bald and 67 were males of which 25 were non-bald, eight partially bald and 44 balding. The four standard areas measured were the right frontal area, the vertex, the right temporal area and the occipital area.

Results: From the results obtained we can conclude that in both bald and non-bald, there is a difference in the thickness of the scalp in all four areas chosen, with the temporal and occipital areas being thicker, while the vertex and right frontal are thinner.

Discussion: This same trend was seen in women, balding and non-balding men. All these four areas are reduced significantly in thickness in the bald versus the non-bald.

Conclusion: The total scalp thickness in all four different areas chosen decreases in bald males versus females and the non-bald. In all individuals, the scalp is thinner over the frontal and vertex areas compared to occipital and temporal areas.

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THE EFFECT OF ISCHAEMIA/REPERFUSION ON MITOCHONDRIAL FUNCTION: AN ANIMAL MODEL

Griffiths A; Horvath R; Boczonadi V; Afridi F; Sheerin N; Talbot D
Newcastle University, United Kingdom

Background: Ischaemia reperfusion injury (IRI) is a major problem in organ transplantation. The damage incurred with ischaemia and reperfusion causes delayed graft function and impacts the long term graft survival. Accumulation of mitochondrial electron transport chain (ETC) intermediates during ischaemia alters the function of the protein complexes, increasing the production of reactive oxygen species during reperfusion. This not only damages tissues directly, but also contributes to immune activation. This identifies mitochondria as a potentially important target for pharmaceutical therapies for the prevention or treatment of IRI. In this research we aimed to determine whether ischaemia and reperfusion injury in mouse kidneys affects the expression and function of mitochondrial ETC complexes and if this could contribute to cellular injury.

Method: Ischaemic injury was produced by renal pedicle clamping in a murine model. Clamping and unclamping the pedicle replicated warm ischaemia and re-perfusion. The unclamped kidney acted as a control. The kidneys were harvested and snap frozen in liquid nitrogen and subsequently analysed for mitochondrial ETC protein complex expression. Western Blotting and Blue Native Polyacrylamide Gel Electrophoresis were used to determine the effect of different durations of warm ischaemia on ETC protein complex expression.

Results: The gel analysis has shown the presence of five ETC protein complexes. So far no quantitative differences have been shown between these complexes however these experiments have just begun and the hope is that we will see differences which will be augmented by subsequent histology in the next few months.

Discussion: Although no differences have yet been found, Chouchani *et al.* demonstrated a significant short term mitochondrial metabolic change in ischaemia and reperfusion. It is therefore possible that changes in protein expression are short lived and not seen in our current model. Henceforth, there is a need to modify the clamp/reperfusion times to investigate this further.

CORNEAL CONFOCAL MICROSCOPY (CCM) IN CANCER ASSOCIATED NEUROPATHY

Javed S; Malik R
University of Manchester, United Kingdom

Background: Peripheral neuropathy can occur in patients with cancer and furthermore, is a common complication of chemotherapy (chemotherapy-induced peripheral neuropathy (CIPN). There are limitations in existing methods to diagnose CIPN which may be overcome with corneal confocal microscopy (CCM), a non-invasive ophthalmic instrument which images nociceptive C-fibres.

Aims of study: We wish to establish whether both manual and automated analysis of images obtained using CCM could be used to diagnose peripheral neuropathy in patients with upper gastrointestinal (GI) cancer and assess the development of CIPN.

Method: Twenty two healthy controls underwent CCM and the sub-basal nerve plexus was analysed manually and using automated software. Images for patients with upper GI cancer and 11 aged-matched controls were analysed using manual and automated image analysis to quantify corneal nerve morphology pre (n = 11) and post (n = 3) chemotherapy.

Results: There was a good correlation between manual and automated software for the quantification of the following parameters: CNFD ($p<0.0001$), CNBD ($p<0.0001$) and CNFL ($p<0.0001$). There was a significant reduction in CNFD (25.18 ± 1.45, $p<0.0001$), CNBD (79.44 ± 6.59, $p<0.0001$), and CNFL (19.99 ± 1.16, $p<0.0001$) in patients with upper GI cancer compared to control subjects. There was no significant change in corneal nerve morphology following one cycle of chemotherapy in three patients ($p>0.05$).

Conclusion: Both manual and automated CCM can detect nerve damage in a substantial proportion of patients with upper GI cancer. We show no change in three patients after one cycle of chemotherapy.

Dissemination: CCM has the potential to be used as a non-invasive diagnostic tool to detect neuropathy in CIPN as well as in other pathologies such as in diabetic neuropathy, Fabry disease and idiopathic small fibre neuropathy.

GESTATIONAL TROPHOBLASTIC DISEASE: PATIENT SATISFACTION & SUBSEQUENT PREGNANCY SEQUELAE

Wong YL; Chien P; Leigh B
Ninewells Hospital and Medical School, United Kingdom

Introduction: The Scottish Hydatidiform Mole Follow-Up Service has been established since 1973 in Dundee to receive patient referrals for suspected hydatidiform mole from all over Scotland. Patient satisfaction is important to improve patient compliance on follow-up. The main purpose of this study is to examine, through a descriptive research the quality of service provided to patients. Patients may wish to conceive after having a molar pregnancy. Undoubtedly, they would like to know the probability of having a normal live birth in the future. The second aim of this study is to look into subsequent pregnancy sequelae in patients with prior experience of a molar pregnancy and to provide evidence for the sequelae.

Method: To evaluate the service, questionnaires were sent to 132 NHS molar pregnancy patients registered in 2013. Data were obtained for patient demographics on referral Health Boards, Age Group and the Clinical Presentation of these patients. Furthermore, the Scottish Hydatidiform Mole Follow-Up database was interrogated to generate a subsample of 609 participants registered from 2009 to 2013 in order to investigate subsequent pregnancy outcomes.

Results: Of the 132 patients who were given a survey, 47 (35.6%) patients responded. Most patients who responded to the survey were highly satisfied with the service they received. Most of them added how good the counselling services were. Among 609 patients with gestational trophoblastic disease (253 Complete Mole, 333 Partial Mole and 23 Choriocarcinoma), 357 (58.6%) patients were pregnant with 412 subsequent pregnancies. The incidence of live births in patients with complete mole is slightly higher than that of partial mole (72.9% versus 68.28%). At the same time, miscarriage rate is approximately two times less common in patients with complete mole (12.5% versus 19.8%). There is a five-fold increase in miscarriage rate in patients with molar pregnancy. For patients who had a molar pregnancy, they have 1.4% chance of having a recurrent molar pregnancy. The rate of them having an ectopic pregnancy or twin pregnancy in a subsequent pregnancy is similar to the general Scottish population.

Conclusion: In conclusion, most patients are highly satisfied with the service provided. On top of that, they could anticipate a normal subsequent pregnancy outcome provided that the follow up is completed despite the increase in incidence of first trimester miscarriage.

KEY DIFFERENCES BETWEEN OSTEOARTHRITIS AND SEROPOSITIVE RHEUMATOID ARTHRITIS ON HAND ULTRASOUND

Hussain S; Sivakumaran P; Ciurtin C
University College Hospital, United Kingdom

Background: Rheumatoid arthritis (RA) joints display synovial hypertrophy (SH) and positive Doppler (PD) signals. Patients with erosive osteoarthritis arthritis (EOA) have increased synovial thickening and PD compared to non-EOA – indicating inflammation, suggesting overlap between osteoarthritis (OA) and RA.

Method: A retrospective, observational study was conducted using 299 rheumatology clinic attendees, comparing 42 OA and 108 seropositive RA patients by: age, inflammatory markers (ESR and CRP), ultrasound (US) and clinical joint examination (CJE). On US, SH, PD signal, number of osteophytes (OPs) and erosions were noted. On CJE, tender joint count (TJC), swollen joint count (SJC) and global assessment score (GVAS) were obtained.

Results: OA patients (mean: 61.3 +/-10.1 years old) were older than RA patients (mean: 53.6 +/-15.2 years old) ($p=0.0028$). Inflammatory markers did not differ (CRP: $p=0.532$, ESR: $p=0.726$) between groups. US showed more OPs in OA patients (median: 7, IQR: 7.25) than RA (median: 1, IQR: 4) ($p<0.001$). SH grade 1 in more joints in RA patients (median: 2, IQR: 4) than OA (median: 0, IQR: 3) ($p=0.015$). PD signal was more frequent in RA (median: 0, IQR: 1) than OA (median: 0, IQR: 0) ($p<0.001$). RA patients had more erosions (median: 2, IQR: 8.75) than OA (median: 0, IQR: 4.5) ($p=0.004$). CJE showed similar TJC scores in both groups ($p=0.437$). SJC in RA (2.69 +/- 3.24) was higher than OA (1.44 +/- 2.55) ($p=0.048$). GVAS scores were not significantly different ($p=0.718$).

Discussion: Our findings reflect known differences between hands in RA and OA. OA, a predominantly degenerative condition, affects older patients, with more OPs detected on US. RA patients have more inflammatory changes on US (SH, PD and erosions) and CJE (higher SJC).

Conclusion: Hand US can help differentiate between OA and RA. Further work is needed to determine an objective cut -off for inflammatory changes on US.

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MEDIAL TIBIAL STRESS SYNDROME IN AEROBIC DANCERS: A SINGLE-CASE STUDY

Skelly L; Richards J
University of Central Lancashire (UCLAN), United Kingdom

Background: Medial tibial stress syndrome is one of the most common injuries found in athletes and soldiers due to their chronic, intensive, weight-bearing training. MTSS has been reported to cause 22% of injuries in aerobic dancers. However, little research has been carried out to explore if biomechanics can shed light on the risk factors within this group. This study investigated the effect of kinesiotaping on the threedimensional kinematics of the lower limb of an experienced aerobic dancer with MTSS whilst performing a star jump, a common form of aerobic choreography.

Method: An experienced aerobic dancer was asked to complete a star jump under two different conditions: with and without kinesiotaping. Reflective markers were positioned on the lower limb following the Calibrated Anatomical Systems Technique (CAST).

Results: Applying the tape reduced the knee range of motion by five degrees in the coronal and transverse planes of the injured side, and moved the pattern movement to that similar to the uninjured side. The lateral knee moment generated was five times greater on the injured side. This moment reduced by 20% when taping was applied, but it was still significantly larger on the injured side.

Discussion: The symptoms of MTSS that were experienced were reduced by the application of kinesiotaping. The use of kinesiotaping reduced the lateral knee moment, which could indicate a change in strategy of the movement. There was also reduced range of motion in the coronal and transverse planes of the knee when performing a star jump.

Conclusion: This could indicate a change in movement strategy brought about by the tape, which reduced the symptoms of MTSS, however further research is required for the use of kinesiotaping in other sportspersons.

EXOSOMES: SECRETED NANOPARTICLES WHICH CAN PROMOTE APOPTOSIS RESISTANCE AND ENHANCE CELL PROLIFERATION OF CANCER CELLS AND FIBROBLASTS IN THE COLORECTAL TUMOUR MICROENVIRONMENT.

Goh R; Bhome R; Primrose J; Sayan E; Mirnezami A
University of Southampton, United Kingdom

Background: Exosomes are nanoparticles (40 – 100 nm diameter) secreted and transferred between tumour and stromal cells. They carry nucleic acids and proteins. Exosome transfer influences cellular function but the mechanisms are not well-defined, particularly in colorectal cancer (CRC). We aimed to isolate exosomes from CRC cells and fibroblasts, and demonstrate their transfer to recipient cells. We also investigated the cellular effects of CRC exosomes on fibroblasts, as well as that of fibroblast exosomes on CRC cells.

Method: Exosomes were isolated from culture media of DLD-1 CRC cells and MRC5 fibroblasts by serial centrifugation and validated by transmission electron microscopy, immunogold staining and flow cytometry. Fluorescent and confocal microscopy was used to visualize acquisition of fluorescent-labelled exosomes by recipient cells. Cell lysates were analysed by western blotting for activation of Ras (ERK) and AKT pathways. Apoptosis assays were analysed by flow cytometry; proliferation assays analysed by a semi-automated cell quantification software programme.

Results: Microscopy revealed presence of fluorescent labelled exosomes within recipient cells. CRC-derived exosomes induce AKT/BAD phosphorylation in fibroblasts. Fibroblast exosomes induced AKT/BAD phosphorylation in CRC cells, and reduced CRC cell death in the presence of oxaliplatin. Fibroblast exosomes induced ERK activation in CRC cells, and enhanced proliferation of CRC cells.

Discussion: AKT is the key signalling pathway for cell survival, and the ERK pathway is an important regulator of cell proliferation. These pathways are often dysregulated in cancers. It is well-established that cancer cells influence their surrounding stromal fibroblasts, and vice versa. Exosomes are novel players in this important two-way transfer of information, by modulating key signalling pathways in cancer.

Conclusion: CRC exosomes can be transferred to fibroblasts *in-vitro*, and vice versa. Acquisition of CRC exosomes may promote resistance to apoptosis in fibroblasts. Acquisition of fibroblast exosomes contributes to chemoresistance mechanisms and enhanced proliferation in CRC
cells.

BIOENERGETIC CONSEQUENCES OF MUTATIONS OF MITOCHONDRIAL CALCIUM UPTAKE 1 (MICU1) IN PATIENT-DERIVED FIBROBLASTS

Myers S; Sharpe J; Duchen M
University College London, United Kingdom

Background: Energy is made available to the cell through mitochondrial oxidative phosphorylation. Mitochondrial Ca^{2+} uptake via the mitochondrial calcium uniporter (MCU) stimulates this process. The MCU is regulated by MICU1 to limit Ca^{2+} uptake at rest but to allow Ca^{2+} influx during cytosolic Ca^{2+} spikes. A group of patients have been recently described with loss-of-function mutations of MICU1, presenting in childhood with a brain and muscle disorder. Our aim was to assess the consequences of MICU1 mutations for mitochondrial bioenergetics function in these patients to understand the pathophysiology underlying the disease.

Method: MICU1 deficient (MICU1D) fibroblasts were obtained from skin biopsies from affected individuals and compared with fibroblast from subjects matched for age and gender. Confocal microscopy was used to measure changes in cytosolic and mitochondrial Ca^{2+} levels using the fluorescent indicators Fluo4 and Rhod2 respectively. Confocal imaging, using the indicator Mitosox, was also used to measure the generation of reactive oxygen species (ROS) before and after a rise in Ca^{2+} in response to histamine. Mitochondrial membrane potential was measured using the dye TMRM. Oxygen consumption was measured using the Oroboros-oxygraph.

Results: Resting mitochondrial Ca^{2+} was increased by 21.5±2.4% in cells from MICU1D patients compared to matched controls. Mitochondria were fragmented in the MICU1D cells (72.0±9.1% vs. 16.0±4.4%). The mitochondrial membrane potential showed no significant change. Oxygen consumption was also unchanged in the MICU1D cells. Basal ROS production was increased by 12.2±4.8% in the MICU1D cells.

Conclusion: These experiments suggest that MICU1 deficiency leads to a loss in the gatekeeper Ca^{2+} regulation of the MCU. Increased fragmentation is a prominent feature of the MICU1D mitochondria yet their bioenergetics state is maintained. It is important to develop these studies in neurons and muscle, more energy dependent cells that are affected in the patients.

FIRST NATURAL GNRHR MUTATION CAUSING ACCELERATED PUBERTAL PROGRESSION

Choo S
University of St Andrews, United Kingdom

Background: The gonadotropin releasing hormone receptors (GnRHR) and the gonadotropin releasing hormones (GnRH) are key components of the initiation and regulation of puberty. When the GnRHR are activated, it causes transcription of downstream Luteinising hormone (LH) and Follicle Stimulating Hormone (FSH) genes, and up-regulation of transcription of its own genes. The GnRH system is crucial for the development of secondary sexual characteristics and sensitisation of the pituitary during puberty. To date, all identified GnRHR mutations have only been known to cause full or partial Hypogonadotropic Hypogonadism (HH). However, this novel Val94Ala (P.281 T>C) GnRHR mutation was sequenced from a French girl presenting with accelerated pubertal progression.

Method: This study characterises the Val94Ala receptor by determining its impact on G-protein coupled signalling in In-Vitro cells, as well as the cellular distributions of the receptors were also assessed by immunofluorescence microscopy.

Results: The Val94Ala receptors displayed higher maximal IP accumulation and increased receptor expression on the plasma membrane.

Discussion: The Val94Ala mutation was likely to cause enhanced receptor trafficking to the plasma membrane. With the substitution of a larger Valine residue with a smaller Alanine residue, it causes increased trans-membrane (TM) helical packing, augmenting the hydrogen bond of the salt bridge, formed between the Glu90 and Lys121 residues. This increased stabilisation of the GnRHR, enabled it to pass the Quality Control System of the cell more efficiently.

Conclusion: The increased trafficking efficiency of the Val94Ala receptor was likely to be the cause of her accelerated pubertal progression due to the up-regulation of GnRHR expression on the pituitary during the onset of puberty. The mutant Val94Ala receptor is the first natural GnRHR to cause increased activation of the receptor. Knowledge of this mutation site can be applied to future developments of pharmacoperone drugs for the rescue of trapped GnRHR causing HH.

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A RETROSPECTIVE STUDY OF THE IMMEDIATE POST-OPERATIVE COMPLICATIONS ENCOUNTERED IN TOTAL GASTRECTOMY VARIANTS PERFORMED IN PATIENTS WITH GASTRIC CARCINOMA: A THREE YEAR EXPERIENCE AT THE BUCHAREST CLINICAL EMERGENCY HOSPITAL

Stancu S; Popescu B
Bucharest Clinical Emergency Hospital (Spitalul Clinic de Urgenta Bucuresti), Romania

Introduction: Total Gastrectomy, despite disrupting the continuity of the alimentary tract and accounting for significant post-operative complications, is the procedure of choice in attempt at curative resection for adenocarcinoma. The aims of this study were to analyse the immediate post-operative complications encountered in different Total Gastrectomy (TG) variants and identify the safest variant.

Method: A retrospective comparative study of 80 patients, 54 male, 26 female, ages between 33-91 years old (average age 64.2 years) diagnosed with gastric carcinoma underwent a variant of Total Gastrectomy between January 2010 and December 2012 in the Surgery Department of the Bucharest Clinical Emergency Hospital.

Results: A total of 88 immediate post-operative complications were encountered in 38 patients (47.5%), classified into local (n=24, 27.7%) and general (n=64, 72.3%). Twenty-five associated surgical procedures were necessary, the most common being splenectomy (n=15, 60%). Reintervention was imperative in five cases (6.25%), all after Roux-en-Y Side-End Esophagojejunostomy, due to peritonitis of faecal and biliary origin as well as pancreatic and subdiaphragmatic abscesses. Two deaths (n=2, 2.5%), one of each after Roux-en-Y Side-End Esophagojejunostomy and Omega-Braun TG were reported.

Conclusions: Roux-en-Y Side-End Esophagojejunostomy yielded the highest number of complications, both local and general. Patients who underwent Henley loop TG and Double Loop Jejunal Interposition TG did not experience any post-operative complications and had the shortest hospital stay, although the longest operative time. Omega-Braun TG was associated with the lowest number of local complications, however significant life-threatening complications such as haemodynamic instability and multi-system organ failure. The End-End variant of the Roux-en-Y generated the longest hospital stay.

Discussion: TG is a complex procedure with numerous complications which calls for an improved surgical technique to minimise complications. The limitations of this study were a modest patient number included in the study and its temporal nature of being retrospective.

A NEW RADIOLOGICAL CLASSIFICATION FOR MASSIVE PULMONARY EMBOLISM (UHNM PE SCORE)

Chubsey R; Watson N; Satur C
The Royal Stoke University Hospital, United Kingdom

Background: Massive pulmonary embolism (PE) carries a mortality of 11% however current classifications do not identify those most at risk. Lack of direction prevents effective utilisation of options of treatment. We have undertaken this study to develop a radiological classification of massive PE that shows correlation with clinical outcome.

Method: The study was conducted using the radiology database to identify all patients who had a CT pulmonary angiogram during the 12 months of 2014. A total of 1923 CTPAs were conducted, of which 210 were reported as large PE. These were examined, those with a segmental PE or poor quality imaging were excluded, leaving 154, 91 (59%) females in the study. The classification assessed location of clot (L) in major pulmonary arteries (scores one, two and four), the degree of occlusion (o) (score one, two and three) and the impact on the right ventricle (RVR) (scores one,two and three). Interventricular septum morphology (S) was also assessed (scores one, two, three and four). Multipliers were used obtain the total score, [(L x O) x RVR] + S.maximum score 64. This score was correlated with clinical outcome.

Results: Average age of 69 years (range 20-98 years), with 13 deaths, four primarily from PE (group A), the remainder from causes other than PE (group B). Group A had a median score of 24 (IQR 8.5-33.5) compared with survivors, median score of six (IQR 3-13.5), p=0.0393.2 patients with scores 14 and 24 respectively died following thrombolysis and interventional radiology. One patient with a score of 30 survived after surgical pulmonary embolectomy.

Discussion: The results from this study demonstrate that the UHNM PE score is able to distinguish those patients with a massive PE that are lifethreatening. We suggest the score requires further evaluation.

Conclusion: The UHNM PE Score, a new radiologic classification of massive PE that may be utilised in evaluating available therapies.

VASCULAR ENDOTHELIAL GROWTH FACTOR, THE EHD PROTEIN FAMILY AND GLOMERULAR ENDOTHELIAL CELL FENESTRATIONS IN DIABETIC NEPHROPATHY

Carter H; Ramnath R; Foster B; Welsh G; Satchell S
University of Bristol, United Kingdom

Background: Eps15 homology domain containing proteins (EHD) are recycling regulators residing in the endosomal compartment of Glomerular Endothelial Cells (GEnC). Their interaction with Vascular Endothelial Growth Factor Receptor 2 (VEGFR2) is implicated in the formation of GEnC fenestrae. Fenestrae maintain a high filtration rate across the filtration barrier. A loss of fenestrae has been associated with many disease processes, such as diabetes. Thus, aberrant EHD interaction with VEFGR2 in diabetes causes this associated loss of glomerular endothelial fenestrae.

Method: GEnC from Tie2-GFP mice were isolated using endothelial specific CD31 coated dynabeads. MACS reagent induced a stronger magnetic field, increasing GEnC collection. Modulation of dynabeads experiment allowed for successful isolation of human GEnC sourced from fresh kidneys. Analysis for EHD3 and EHD4 expression in isolated GEnC and ciGEnC was carried out to find the appropriate model for investigation and in diabetic vs. non-diabetic samples to quantify and compare differences in EHD3 expression. Immunoprecipitation was used to analyse EHD3 interactions as would be the case *in-vivo*.

Results: MACS system of isolation was successful with concentrated VEGFR2 (GEnC specific) signal in the beads bound population. For the human GEnC isolation from fresh kidney samples, dynabeads discriminated GEnC adequately. EHD3 and EHD4 displayed opposite expression patterns in immortalised and isolated GEnC. Immunoprecipitation indicated EHD3 interacted with VEGFR2 in isolated samples and EHD3 expression was reduced in diabetic murine samples compared to control.

Conclusion: Confirming the current model to analyse the behaviour of EHD3 *in-vivo*, this study also allowed for the observation of compensatory up-regulation of EHD4 in ciGEnC. It proved useful in confirming a novel interaction between EHD3 and VEGFR2. With the subsequent down-regulation of EHD3 in diabetic models, it provided preliminary data to suggest alternative pathology, the 'VEGFR2-EHD3 axis', in DN, that has been previously unreported. Future work could investigate therapeutic targets in this condition.

PROTECTIVE EFFECT OF GINGER EXTRACT ON CYCLOPHOPHAMIDE INDUCED BLADDER TOXICITY: HISTOPATHOLOGICAL STUDY

Badawi A; Elsaed W
Taibah University, Saudi Arabia

Introduction: Cyclophosphamide (CP) is a known drug in treatment of variety of diseases. One of its known adverse effects is the bladder toxicity in the form of inflammation and tumour development liability. Because of known antioxidant activity of ginger extract, its safety and availability in different forms, it was used is this study in an attempt to evaluate its histopathological counteracting activity on CP induced bladder toxicity.

Method: Forty-five adult male Wistar rats used in the study. They were divided into three groups. The first group was the control group. The second group received CP (100 mg/kg, i.p.). The third group received same dose of CP and ginger extract. All animals were sacrificed seven days from CP injection. The bladders were fixed in relaxed state and sections were stained by haematoxylin and eosin and Bcl2. Thickness of the bladder epithelium and grades of epithelial damage were assessed.

Results: Single dose of CP induced extensive cystitis with epithelial ulceration and cellular degeneration. Reduction of the epithelium thickness, inflammatory cells infiltration with oedema in the submucosa were remarkable. Ginger administration protected the bladder epithelium. Only areas of blood vessels congestion and oedematous submucosa was still evident. Thickness of the epithelium and epithelial damage score showed a significant improvement compared to the CP only treated group.

Discussion: CP decreases the endogenous antioxidants and initiates inflammatory process that end in tissue damage. Ulceration and exfoliation of the mucosa with oedema in the submucosa and increased expression of Bcl2 and decreased thickness of the mucosa was detected. The antioxidant effect of ginger alleviated the toxic effect of CP on urinary bladder epithelium.

Conclusion: This work has shown that ginger extract is able to reduce the histopathological side effects of CP on urinary bladder.

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SATISFACTION, TOLERANCE AND INSIGHT IN FIRST AND SECOND GENERATION INJECTED ANTIPSYCHOTICS IN SCHIZOPHRENIA: A CROSS SECTIONAL SURVEY

Harris K; Brownell L; Upthegrove R
University of Birmingham, United Kingdom

Introduction: Satisfaction and tolerance are key considerations in clinical decision-making and are closely related to compliance. There is a paucity of data assessing patient satisfaction and tolerance in injected antipsychotics but a large difference in cost of first generation and second generation injected antipsychotics.

Method: Participants were recruited from five community mental health clinics in Birmingham. Satisfaction was assessed using the Medication Satisfaction Questionnaire (MSQ) and tolerance with the Liverpool University Neuroleptic Side Effect Rating Scale (LUNSERS). Scores were used to compare first generation and second generation injected antipsychotics in patients with schizophrenia spectrum disorders. Demographic profiles of participants with all diagnoses were additionally compared between the two classes.

Results: One hundred and fifty one participants completed the survey, 113 of these whom had schizophrenia spectrum disorders. Nonparametric testing revealed no significant difference between satisfaction scores ($p=0.771$) nor tolerance scores ($p=0.345$) in first generation and second generation injected antipsychotics. A moderate correlation between MSQ and LUNSERS was revealed, with LUNSERS decreasing by 5.92 points for every point increase in MSQ ($p=0.001$). Demographically, significant differences in ethnicity were observed, with Asian individuals being 4.71 times more likely to be prescribed second generation injected antipsychotics ($p=0.006$).

Discussion: This study has suggested there are similar levels of tolerance and satisfaction between first generation and second generation injected antipsychotics, although further work is required to confirm this.

Conclusion: Given the vast economic differences between the groups, patient satisfaction and tolerance are vital to consider when initiating and continuing injected antipsychotics.

COMPARE BETWEEN THE COMPLICATION OF SIMULTANEOUS AND STAGED BILATERAL KNEE REPLACEMENT AT KING ABDULAZIZ MEDICAL CITY (KAMC) - RIYADH

Muath AA; Wazzan A
King Abdelaziz Medical City, Saudi Arabia

Introduction: Total knee replacement is a procedure commonly performed for degenerative joint disorder, *e.g.* osteoarthritis and rheumatoid arthritis. It is considered to be the most common and successful joint replacement. There will be an increase demand for a bilateral total knee replacement in the future due to increase of ageing population and the indication to perform the surgery. There are controversies in the post surgical complication following simultaneous and staged bilateral total knee replacement.

Method: This study is a retrospective study, where we reviewed charts of all the adult patients whom have had simultaneous bilateral total knee replacement, staged bilateral total knee replacement and unilateral total knee replacement of both genders at KAMC between 2005 until 2014. The collected data included demographic data, surgical data, complications and length of stay. We also have collected some variables of interest; demographic (gender, age and weight), type of surgery (study groups), hospital stay, duration of procedure, amount of bleeding, haemoglobin level before and after the operation and type of anaesthesia.

Results: We have a total of 245 patients. One hundred and ten (44.9%) underwent staged bilateral total knee replacement (BTKR), 84 underwent simultaneous bilateral total knee replacement (BTKR), and 51 of did the surgery on only one. Out of the 245, 194 (79.18%) did not develop any complication and their operation went smoothly, 62 (73.81%) were simultaneous BTKR, 89 (80.91%) of the staged BTKR and only 43 (84.31%) were bilateral TKR. Only eight patients have developed major complication (3.27%) of the general population. Four (4.76%) of the simultaneous BTKE and four (3.64%) of the staged BTKR. We found a mean ± SE of the total days of hospital stay for all the groups was 12.58±. Fifty two, for the simultaneous BTKR patients, the mean ± SE of hospital stay was 11.05±0.39 days, and for the staged was 16.19±1.31 days and 9.96±0.58 days, with a p value <0.0001.

Conclusion: We can say that simultaneous TKR is a save procedure to be performed especially in hospital where there is long waiting list as well difficulty of having elective bed as in our hospital. We also found an increase in the hospital stay with staged grouped compared to simultaneous group.

HPV GENE EXPRESSION AS A BIOMARKER FOR CIDOFOVIR EFFICACY IN HIGH-GRADE VULVAL INTRAEPITHELIAL NEOPLASIA

Finney J; Jones S; Hibbitts S
University Hospital of Wales, United Kingdom

Background: Vulval intraepithelial neoplasia is a premalignant condition of abnormal skin growth, with unpleasant symptoms and unsatisfactory treatment. It is associated with infection by human papilloma virus, raising the possibility that the condition might be noninvasively treated by clearing the infection. Cidofovir is a topical antiviral effective in approximately half of patients- it would be beneficial to identify those patients in advance to minimise harm from side-effects. The drug works through DNA damage in infected cells; cells capable of effective repair should thus be less susceptible. This might be predicted by the expression of viral genes- E6 and E7 inhibit the action of tumour suppressor genes, and are regulated by E2. Cidofovir efficacy should thus be greater in cells with high E6/7 and low E2 expression.

Method: Biopsies from cidofovir-treated high-grade VIN patients were supplied by the RT3VIN trial. RNA was extracted from these samples and used to make cDNA, upon which qPCR was performed to measure expression of the three HPV genes. Blinding was then lifted and relative expression compared statistically with the clearance of HPV infection.

Results: High E2 expression was found to be strongly correlated with failure of viral clearance. No statistically significant relationship was found between viral clearance and E6 or E7 expression.

Discussion: The finding that E2 expression was predictive of failure to clear HPV was as predicted. The absence of a directly inverse relationship for E6/7 was unexpected, but the ratio of E6/7 to E2 was in fact correlated with viral clearance- the overall transcriptional activity of each cell may have masked the true relationship. This work must now be built upon with a larger sample size and matched with clinical data.

Conclusion: This work provides promising preliminary evidence for the use of HPV gene expression as a biomarker for cidofovir efficacy in VIN.

EVOLUTION OF FUNCTIONAL MITRAL REGURGITATION AND PROGNOSIS IN MEDICALLY MANAGED HEART FAILURE PATIENTS WITH REDUCED EJECTION FRACTION

Nasser R; Assche VL ; Vermeulen T; Claeys MJ
University Hospital of Antwerp, Belgium (UZA)

Background: Functional mitral regurgitation (FMR) is associated with a worse prognosis in HF patients with reduced ejection fraction (HFrEF). It is uncertain to what extent medical HF management may improve the severity of FMR and its prognosis. This study evaluates the evolution of FMR in patients with HFrEF and relates alterations in severity of FMR to longterm prognosis.

Method: The extent of FMR was assessed at baseline and during an average follow-up of 43 ± 25 months in 164 consecutive HFrEF patients (LVEF<40%) from the HF outpatient clinic between 2007 and 2014. Severe FMR was defined as MR grade 3-4 based on a validated integrative method. All patients received maximal tolerable HF medication. Major adverse cardiac event (MACE) was defined as a composite of cardiac death, need for heart transplantation or hospitalisation for heart failure and/or malignant arrhythmias.

Results: A total of 57 (35%) patients showed severe FMR and had a baseline risk profile comparable to HF patients without severe FMR except for slightly worse EF (27% vs. 30%). During follow-up, 48% of the severe FMR patients showed improvement to non-severe FMR (grade <3) whereas 15% of non-severe FMR patients developed severe FMR despite optimal HF treatment. Deterioration of FMR was associated with a poor outcome comparable with the outcome of patients with sustained severe FMR (MACE 87% vs. 77%, adjusted HR 1.2 (95% CI 0.6-2.7)) whereas outcome of improved FMR was as good as with sustained non-severe FMR. (48% vs. 44%, adjusted HR 1.4 (95% CI 0.7-2.7)). Severe MR during follow-up despite optimal treatment was the most important determinant of MACE independent of ejection fraction, NYHA class or baseline FMR severity (adjusted HR 1.9 (95% CI 1.1-3.2)).

Discussion/Conclusion: Severe FMR is present in more than one third of patients with HFrEF and can be successfully treated with medication in almost 50%. However, severe FMR despite optimal HF treatment is associated with a dramatic prognosis and may need a more invasive approach.

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CHARACTERISING OOCYTES PRIOR TO FOLLICLE FORMATION

Browne RR; Anderson R
The Centre for Reproductive Health, The University of Edinburgh, United Kingdom

Background: The human ovarian reserve is established during foetal life and must last the length of a woman's reproductive life. Ovarian physiology raises many questions; this is exemplified by foetal oogenesis where widespread germ cell apoptosis depletes initial oocyte numbers by two thirds. It is imperative that a population of germ cells survive and develop to form follicles but the factors regulating this selection process are unknown.

Method: This project used immunohistochemistry to investigate specific factors thought to be important in germ cell survival, proliferation and primordial follicle formation. Nuclear diameter was measured in oocytes showing positive staining and used to assess oocyte growth. Data collected was analysed by ANOVA and student's t-test.

Results: Results showed that oocytes expressed MCL-1 in the first and second trimester of human ovarian development. Furthermore, measurement of nuclear diameters showed that these MCL-1 expressing oocytes increased in size as gestation progressed. Double IHC demonstrated that later in their development MCL-1 expressing oocytes also upregulate Growth and Differentiation Factor-9 (GDF-9), activin and Boll. Nuclear measurements suggest that MCL-1 expressing oocytes may upregulate these proteins at a similar point in their development. Furthermore, it was shown that the pro-apoptotic factor BH3 interacting-domain death agonist (BID) is expressed specifically be somatic cells during the first and second trimester of ovarian development.

Discussion/Conclusion: These results suggest that oocytes upregulate MCL-1, GDF-9, activin and Boll during specific developmental windows which may enable their survival and development. They also suggest that BID may indirectly regulate oocyte survival by controlling somatic cell number. Understanding the normal cellular control or survival and development may be important in deciphering the pathological basis of primary ovarian insufficiency and unexplained infertility.

IMPACT OF PRO-INFLAMMATORY AND ANTI-INFLAMMATORY CYTOKINES IMBALANCE ON MODS INCIDENCE IN CARDIO-SURGICAL PATIENTS WITH DIFFERENT VOLUMES OF BLOOD LOSS

Sushchevskaia I; Burov A; Bugaenko D; Babaev M
Petrovsky Russian Research Centre of Surgery, Moscow

Background: Cytokine imbalance is the cause of MODS in patients with complicated post-operative period.

Method: Sixty nine cardiac patients with intra-operative blood were included. Post-operative period was complicated by MODS in 78% of patients (group I), in 22% MODS was prevented (group II). In subgroup A blood loss was 15-20ml/kg and 20 ml/kg in subgroup B. The study assessed the level of pro-inflammatory (IL6) and anti-inflammatory cytokines IL10). Correlation of IL6/IL10 in value healthy donors was 2.4 - 2.6.

Results: IL6 concentration did not differ significantly in groups (345 ± 61 (I) and 381 ± 32pg/ml for group II). Significant differences between IL10 levels were obtained in groups (56.2±21, 131±30 pg/ml resp. P=0,047). Correlation IL6\IL10 was higher in group I (6.2 and 2.9 respectively). The values of IL6 and IL10 were significantly different in subgroups A and B in patients of both groups. Group I subgroup A IL6 695±13 and subgroup B 354±64pg/ml, p= 0.0001; IL10 39±7 and 20+4 pg/ml p=0,029. Group II: subgroup A IL6 387±46 and subgroup B 698±23pg/ml, p=0,0001; IL10 70±27 and 138±15pg/ml, p=0.04. The differences between the levels of cytokines were obtained in subgroups A and B. Subgroup A: IL6 – p=0.001, IL10 – p=0.029. Subgroup B: IL6 – p=0.001, IL 10 – p=0.001. Correlation of cytokines in group I and II and between subgroups A and B did not differ. (In group I: 17.8 and 17.7; In group II: 5.4 and 5.1). Sixty three percent mortality was associated with MODS. No mortality was registered without MODS.

Discussion: Hemorrhagic complications lead to the increase of IL6 level and the relevant decrease of IL10. If the blood loss in the patient is associated with a decrease of both pools of cytokines MODS occurs. If the cytokines are increased, MODS does not occur.

Conclusion: The level of cytokines and their correlation may predict the severity of organ dysfunction.

THE VALIDITY OF THE CLINICAL SCAPHOID SCORE IN DIAGNOSING SCAPHOID FRACTURES

Otubu O; Thomas-Chirnside L; Shahid R; Gulati A; Cutler L
University Hospitals Leicester: Leicester Royal Infirmary, United Kingdom

Background: A number of patients with normal radiographs are diagnosed with scaphoid fractures based on clinical findings. Consequently, a number of clinical signs and symptoms have been described in literature including the clinical scaphoid score (CSS), a cumulative score of commonly used clinical tests. The aim of this study was to assess the validity of CSS.

Method: In this retrospective study CSS data on 65 patients presenting to ED with suspected scaphoid fractures between 1st March 2014 and 1st August 2014 was analysed. The CSS criteria includes anatomical snuffbox tenderness (Three points), scaphoid tubercle tenderness (two points) and tenderness on axial compression/longitudinal compression (One point) with a maximum total of six. Additional information was collected regarding mechanism of injury, admissions, diagnosis and for each review; symptoms, examination findings, imaging results and outcome. CSS of patients with scaphoid fracture confirmed by imaging was compared to those with no fracture found.

Results: The average age of patients was 35.5 years (SD= 15.43) and the most common mechanism of injury was falls (63%). Fractures were confirmed in 21 patients and their average CSS was 5.71 (SD= 0.765, range= 3-6). In contrast, patients with no fracture at final follow-up had a mean CSS of 5.66 (SD = 0.767, range= 3-6) (p= 0.549). A CSS of six has 85% sensitivity, 20% specificity, PPV 34% and NPV 75%.

Discussion: Although the CSS is quite sensitive, it is not specific to scaphoid fractures.

Conclusion: The CSS could be a useful screening tool to aid diagnosis, but it is not specific enough and has low PPV. The clinical diagnosis should therefore be supplemented by a good history and if there is a strong clinical suspicion, MRI/CT would help to provide early diagnosis.

FACTORS ASSOCIATED WITH ADMISSION TO CRITICAL CARE FACILITIES IN A UK INFLUENZA PANDEMIC HOSPITAL SURVEILLANCE COHORT

Singhal R; Myles P; Muthuri S
University of Nottingham, United Kingdom

Background: The 2009-2010 influenza A (H1N1) pandemic placed considerable strain on critical care facilities. As policy makers review pandemic preparedness plans, it has emerged that there is not much data on care & treatment pathways among critically ill patients in the UK.

Method: Clinical and epidemiological data were systematically collected between May 2009 and January 2010 by the Influenza Clinical Information Network (FLU-CIN) Cohort on 1520 hospitalised patients with confirmed influenza infection. Using logistic regression, characteristics of critical care patients were compared to general ward patients. Multivariable regression models were developed to identify independent risk factors.

Results: Two hundred and fifty patients were admitted to critical care. Patients with neurological disorders (adjusted OR [adjOR] 2.68, 95% Confidence Interval [CI] 1.67-4.29), obesity (adjOR 2.32, 95%CI 1.23-4.40), an increased respiratory rate (adjOR 1.62, 95%CI 1.06-2.48), oxygen saturation≤ 92% (adjOR 7.44, 95%CI 1.06-12.48), respiratory exhaustion (adjOR 4.14, 95%CI 1.35-12.68), severe clinical dehydration or clinical shock (adjOR 3.00, 95%CI 1.81-4.99), altered consciousness (adjOR 4.90, 95%CI 2.71-8.87), other clinical concerns (adjOR 2.74, 95%CI 1.42-5.28) or those who took antibiotics before hospital admission (adjOR 1.67, 95%CI 1.03-2.70) were independently associated with an increased risk of critical care admission. In contrast, a protective effect of asthma (adjOR 0.44, 95%CI 0.24-0.79) and inhaled corticosteroids (adjOR 0.44, 95%CI 0.27-0.70) was found. The most common treatments in critical care were: antivirals, antibiotics, intravenous fluids and mechanical ventilation.

Discussion: Every patient in the FLU-CIN cohort had laboratory confirmed influenza A (H1N1) pdm09 therefore increasing the validity of these findings. But a limitation is that recruitment of patients to the study only occurred after clinical suspicion rather than use of a rigorously applied testing criteria on all patients.

Conclusion: We identified several patient clinical characteristics and risk factors for admission to critical care. This can help estimate the burden of an influenza pandemic on healthcare resources in the United Kingdom.

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COMMUNITY ACQUIRED MRSA OSTEOMYELITIS AMONG CHILDREN IN KING ABDUL-AZIZ MEDICAL CITY IN RIYADH, THEIR RISK FACTORS, MORTALITY RATE AND LENGTH OF HOSPITALISATION - CASE CONTROL STUDY

Almaziad H; Kattan R; Bawazeer M
King Abdulaziz Medical City in Riyadh, Saudi Arabia

Background: CA-MRSA infection has increased in prevalence especially in children population and in Saudi Arabia.

Objectives: - Identify risk factors and outcomes of MRSA + compared to MSSA osteomyelitis.
- Estimate the prevalence of bacteraemia in MRSA +/- Osteomyelitis.

Method: A retrospective case control study was conducted in King Abdul-Aziz Medical City (KAMC) in Riyadh, Saudi Arabia. The case included patients with CA-MRSA osteomyelitis and the control was CA-MSSA osteomyelitis. All admitted children aged between one month-14 years with osteomyelitis between January 2000-December 2012. Fifty nine patients were recruited. The case included 22 patients and the control included 37. Variables included demographic data, history of surgery, trauma, chronic illness, medical device, organism culture and antibiotics. Outcomes included length of stay and in hospital mortality. Data was collected using data collection sheets through chart review and uploaded to SPSS for statistical analysis.

Results: Demographic data was similar in both groups. Risk factors were not significantly different. There was significant difference observed in culture sources (abscess and aspirate) which were higher in the case group. Need for incision and drainage was insignificantly more in MRSA osteomyelitis. The LOS was 25.2 and 24.6 days for the case and control, respectively. Bacteraemia was present in 45.9% in MSSA osteomyelitis and 27.3% in MRSA osteomyelitis.

Discussion: Males were more in both groups, which was considered one of the risk factors for CA MRSA in another study. Risk factors similarity between the two groups which was observed in a study that was conducted in Taiwan. LOS was similar in both groups in contrast to a study that showed increased total admissions and the days of hospitalisation in patients with bacteraemia due to CA-MRSA.

Conclusion: MRSA + osteomyelitis and MSSA osteomyelitis showed similar risk factors and mortality. Preventative measures should be applied to prevent both MRSA+ and MSSA osteomyelitis.

LEVEL OF GLYCEMIC CONTROL AND BARRIERS OF GOOD COMPLIANCE AMONG DIABETIC PATIENTS IN AL-MADINA, KINGDOM OF SAUDI ARABIA

Jabri G; Abou-Gamel M
Taibah University, Saudi Arabia

Background: Diabetes mellitus (DM) is an important health problem which necessitates long term follow up and control.

Aim: This study is designed to determine the level of glycemic control among diabetic patients in Al-Madina and to explore which type of DM shows better glycemic control. In addition, we aim to define barriers of good compliance in diabetic patients who have a HbA1c test of seven percent or more.

Method: A cross sectional analytic study was conducted and included diabetic patients participated in the campaign (Your Health is Your Life II) held in Al-Madina. Data collected by administering a questionnaire and measuring glycosylated haemoglobin (HbA1c), blood pressure, weight and height for all participants.

Results: Among 164 participants, only 24.4% achieved the recommended goal of HbA1c level (<7%). Higher percentage of achieving this goal is observed among type II diabetics (26.2%) than type I (10.5%). Higher educational level, being on diet prescribed by physician or dietitian, duration of DM less than five years and visits of diabetic clinic within the past three months were associated with better HbA1c level while age above 50 and treatment with both (insulin+pills) or insulin alone were associated with lower level of control. Forgetfulness was the barrier in more than the half of patients with HbA1c of seven percent or more while fear of insulin injection is the only factor which showed statistically significant difference between males and females.

Conclusion: High percentage of patients did not attain the recommended target of HbA1c level which is nearly comparable to results reported from many countries. This may indicate the presence of a gap between recommendations of the international guidelines and the actual practices. Regular clinic visits and higher educational level of the patients may contribute to better glycemic control.

FACTORS AFFECTING ALBUMINURIA IN DIABETIC PATIENTS AT KING FAHAD HOSPITAL IN ALMADINAH ALMUNAWWARAH

Al-shehri D; NoorElahi M; Shaheen M; Samman A; Soubhanneyaz A; **Al-beladi M**; Bakkari O
King Fahad Hospital, Almadinah Almunawwarah, Saudi Arabia

Background: Diabetic nephropathy (DN) is the most frequent cause of end stage renal disease. Albuminuria is considered as the early predictor for advancement of diabetic nephropathy.

Objective: To identify factors associated with development of albuminuria in diabetic patients.

Method: A hospital based case–control study. Fifty diabetic nephropathy patients were compared with 100 diabetic patients without nephropathy. Data were collected using an interview questionnaire. Frequencies, percentages and mean were calculated. Chi-square test, Ttest and Univariate logistic regression analysis were used. P <0.05 was considered significant.

Results: An Univariate logistic regression analysis has shown significant associated factors including old age (OR = 8.1) (95%CI = 2.2–30.1), sex (male) (OR = 2.4) (95%CI = 1.18–4.99), the duration of diabetes mellitus above 10 years OR were 4.23 (95%C = 1.6–15.4), associated mild, moderate, and severe hypertension ORs were 5.2 (95%CI = 2.3–11.7), 5.1 (95%CI = 1.5–16.93) and 15.2 (95%CI = 1.4–158.1), respectively, cardiac disease (OR = 3.77) (95%CI = 1.6–8.7), using Angiotensin-Converting Enzyme Inhibitors (ACEIs) and Angiotensin II Receptor Blockers (ARBs) (OR = 8.1) (95% CI = 3.61–18.2), low triglyceride level (OR = 0.38) (95%CI = 0.10–0.81).

Discussion/Conclusion: Six factors showed a significant positive relationship to the progression of albuminuria in diabetic patients, which have been documented in previous several studies as well. Older age and males were found to be predictors of high albuminuria. Also, cardiac disease, poor hypertension control, the use of ACEIs or ARBs were found to be predictors of higher albuminuria. Low triglyceride levels were significantly associated with low albuminuria. Higher levels of HbA1c showed less albuminuria while body mass index, smoking and retinopathy showed no association to the albuminuria. More studies should be performed for early monitoring of albuminuria, especially those with a long duration of diabetes.

TRANS-VAGINAL DUPLEX ULTRASOUND FOR DETECTING PELVIC VEIN INCOMPETENCE IN WOMEN: A PILOT STUDY

Kotecha D; Hansrani V; Norse K; McCollum N C
University of Manchester, United Kingdom

Background: Pelvic vein incompetence (PVI) is usually diagnosed by reflux venography. This is invasive, involves nephrotoxic contrast and ionising radiation in young women of childbearing age. Trans-vaginal duplex ultrasound (TVU) is a non-invasive and entirely safe alternative. We compare TVU with reflux venography for the detection of PVI.

Method: Women with clinical suspicion of PVI who attended for TVU and reflux venography were included in this study (n=20). Sensitivity, specificity, positive and negative predictive value were calculated for TVU with reflux venography as the 'gold standard' for the identification of PVI in the ovarian and internal iliac veins bilaterally.

Results: Forty paired TVU and reflux venography images were analysed from 20 women with a mean (range) age of 45 (25-55). PVI was detected in all 20 images with TVU and 19 of 20 (95%) images with reflux venography. The sensitivity, positive predictive value of TVU to detect PVI (in one of the four veins assessed) was 100% and 95% respectively. TVU identified left ovarian vein incompetence with a sensitivity and specificity of 78.6% and 66.7%; right ovarian vein incompetence with sensitivity and specificity of 71.4% and 100%; left internal iliac vein incompetence with sensitivity and specificity of 91.7% and 100%, and right internal iliac vein incompetence sensitivity and specificity of 70%and 90% respectively, with reflux venography considered the gold standard. TVU specificity was undetermined as no subjects were reported as 'no PVI' on TVU.

Conclusion: TVU is an accurate and safe alternative to reflux venography in the diagnosis of PVI. It is cheaper and quicker to perform and can be used effectively to screen for the presence of PVI before women are subjected to invasive procedures.

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CHARACTERISATION OF GROWTH FACTOR RECEPTOR SIGNALLING UPON LOSS OF ENDOPLASMIC RETICULUM CHAPERONES

Albahri A; Al-Aghil A; Darwish S; Massaeli H; Mesaeli N
Weill Cornell Medical College, Qatar

Background: Calreticulin (CRT) is an endoplasmic reticulum resident chaperone involved in Ca^{2+} regulation and protein folding and maturation. Our research aims to investigate the role of CRT in the regulation of growth factor receptors and their signalling pathways. The data generated will address the relationship between changes in the ER lumen and rate of cell proliferation.

Method: Wild type (wt) and CRT knockout (crt-/-) mouse embryonic fibroblast cells were used to examine changes in VEGF, EGF or PDGF receptors expression using their specific antibodies. Cells were serum starved overnight, then stimulated with serum or EGF. Changes in mRNA of theses receptors were examined using Quantitative PCR (QPCR). Western Blotting with Erk, phospho- Erk and Akt, phospho-Akt antibodies were carried out to examine the signalling pathways of VEGF, PDGF and EFG receptors.

Results: There was a significant increase in the expression of VEGF-receptor 2, EGF and PDGF receptors in crt-/- cells. Re-introduction of CRT in the crt-/- cells was able to decrease expression of VEGFR and PDGFR, but not EGFR. Only PDGFR mRNA was significant increased in the crt-/- cells as compared to the wt cells. In serum starved cells: FBS induced a significant increase in the Akt phosphorylation but not in ERK phosphorylation. Interestingly, serum starvation resulted in a significant decrease in the Phospho-ERK.

Discussion: Studies showed CRT is involved in angiogenesis and cell proliferation. Loss of CRT is lethal in mouse embryos because of CRT's structural, metabolic, and proliferative functions. The increase in VEGF, EGF or PDGF receptors in crt-/- cells illustrates a role for CRT in regulating the above processes in the mouse.

Conclusion: Expression of CRT alters the expression of VEGF, PDGF, and EGF receptors in mouse fibroblasts.

CIRCULATING FIBROCYTES IN LIVER DISEASE

Egerton C; Keating J; Higham A; Wright K
Lancaster University, United Kingdom

Background: Fibrocytes are a bone-marrow derived cell which migrate to sites of injury and contribute to the remodelling process through differentiation into myofibroblasts. Little research is currently available with regard to circulating fibrocytes in fibrotic liver disease. Furthermore, various cytokines and cannabinoids have been shown to mediate or attenuate some of the mechanisms involved in fibrosis, respectively.

Method: Peripheral blood mononuclear cells (PBMCs) from patients with liver disease and healthy controls were dual stained with fibrocyte markers CD45 and collagen-I antibodies before flow cytometric analysis. To study the effects of cytokines and cannabinoids on fibrocyte differentiation, PBMCs were extracted from whole blood samples obtained from healthy volunteers and cultured in the presence of transforming growth factor beta 1 (TGF-β1), anandamide (AEA) or cannabidiol (CBD). Fibrocytes were stained with alpha smooth muscle actin (α-SMA) as a marker of the myofibroblast and immunomicroscopy performed.

Results: Circulating fibrocytes were significantly increased in patients with liver disease (7.1 ± 2.2, $n = 7$) compared to healthy controls (0.3 ± 0.2, $p=0.02$, $n = 3$). Subgroup analysis revealed greater circulating fibrocytes in patients with non-cirrhotic liver disease compared to those with liver cirrhosis. Fibrocytes treated with AEA showed a significant reduction in α-SMA expression (0.69 ± 0.04, $p=0.04$, $n = 4$).

Discussion: The results indicate that fibrocytes are likely involved in fibrotic liver disease, although subgroup analysis would suggest that the inflammatory stage, rather than end stage, promotes greater fibrocyte involvement. The mechanism by which AEA affected fibrocyte differentiation remains unclear, but may be explained by hypothetical interaction at cannabinoid receptors or peroxisome proliferator-activator
receptor γ.

Conclusion: Circulating fibrocytes may have a role in liver disease, with further work needed to determine the nature and extent of fibrocyte involvement. AEA may have potential anti-fibrotic properties in attenuating the differentiation of fibrocytes into a myofibroblast phenotype.

MECHANISMS INVOLVED IN THE PATHOGENESIS OF REACTIVE HYPOGLYCAEMIA IN NON DIABETIC OBESE SUBJECTS: ROLE OF GLP-1 ANDGLUCAGON

Succurro E; **Mea P**; Ruffo M; Pelle MC; Palmieri C; Arturi F
University "Magna Graecia" of Catanzaro, Italy

Background: Several factors play a role in the pathogenesis of reactive hypoglycaemia in non-diabetic subjects but are not clear what is the role of the entero-hormonal axis in this condition.

Aim: To evaluate the glucose, insulin, glucagon and GLP-1 levels in non diabetic obese subjects, with or without hypoglycaemia during oral glucose tolerance test (OGTT).

Method: We examined 91 non-diabetic obese subjects. On the first day, subjects underwent anthropometrical evaluation and a venous blood sample was drawn for biochemical determinations. After a 12-hour fasting, an OGTT to five hours was performed. The subjects were divided into two groups: obese subjects with hypoglycaemia (n = 54) and without hypoglycaemia (n = 37).

Results: In obese subjects with and without hypoglycaemia, there were not differences in age, sex, BMI, abdominal circumference and metabolic profile. Fasting glucose levels were significantly lower in obese subjects with hypoglycaemia than obese without hypoglycaemia (91+10 vs. 103+26mg/dl, P<0.003). Conversely, there were not differences in the levels of fasting insulin (25+24 vs. 30+39mU/ml, P=NS) and insulin sensitivity (51+29 vs. 45+30, P=NS) in the two groups. However, in obese with hypoglycaemia, the area under the curve (AUC) of insulin during OGTT was significantly higher (P<0.05), while the AUC of glucose during OGTT was significantly lower (P<0.05) than in obese without hypoglycaemia. The two groups showed no differences in basal levels of GLP-1 (11+5 vs. 9.7+6 pmol/l, P=NS), but the AUC of GLP-1 during OGTT was significantly increased in obese subjects with hypoglycaemia (47+21 vs. 23+20, P<0.002). In addition, obese subjects with hypoglycaemia had significantly lower values of basal glucagon (43.2+12 vs. 59+16 pmol/l, P<0.006) and a greater decrease in glucagon during OGTT (115+54 vs. 51+46 pmol/l ^2h, P = 0.006) than the obese subjects without hypoglycaemia.

Conclusion: Our data suggest that both an inappropriate increase in the GLP-1 and insulin levels and an increased suppression of glucagon levels could contribute to reactive hypoglycaemia in obese non-diabetic subjects.

THE NEED FOR EDUCATION ON NOVEL PSYCHOACTIVE SUBSTANCES (LEGAL HIGHS) AMONGST UNDERGRADUATE HEALTH CARE PROFESSIONALS

Akhtar S; Goodair C
St George's, University of London, United Kingdom

Background: Novel Psychoactive Substances (NPS) aka “legal highs” have emerged into our drug markets recently. There are increasingly being recognised as a problem because of the health harms they pose. Healthcare professionals (HCPs) deal with the consequences of individuals taking these drugs, as patients. Therefore it is essential that they have sufficient knowledge on NPS, knowledge they should obtain from their undergraduate degree courses.

Aims: This study aims to collect data on students’ attitudes, awareness and knowledge on NPS. The data collected will be used to create an educational resource that could be implemented to educate students on NPS.

Hypothesis: There is a need for education on novel psychoactive substances (legal highs) amongst undergraduate healthcare professionals.

Methods: Primary data was collected via an anonymous online survey provided by SurveyMonkey and distributed amongst the University mailing list to students enrolled on undergraduate HCP courses at St George’s, University of London. An ongoing EU- MADNESS survey, which was being carried out at the same time, investigating academic lecturers opinions on the level of, and mode of delivering education to students, was used to compare data.

Results: A total of 284 students responded from a variety of undergraduate HCP courses, but the majority being medical students. 54.1% of students “agreed” that there is a need for education on NPS, with 31.1% “strongly agreeing”.

Conclusions: The results showed that there is clearly a need for education on NPS for undergraduate HCPs. Students and academic lecturers agreed that a PowerPoint/ Lecture was the preferred method of teaching hence this was created as an educational resource.

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THE MECHANISMS CONTRIBUTING TO NEURODEGENERATION IN PATIENTS WITH ALPERS' DISEASE

Hayhurst H; Turnbull D; Lax N
Wellcome Trust Centre for Mitochondrial Research, Newcastle University, United Kingdom

Background: Alpers' disease is an early-onset neurodegenerative disorder caused by autosomal recessive mutations in the nuclear-encoded mitochondrial polymerase-gamma (POLG) responsible for replication of mitochondrial DNA (mtDNA). Alpers' disease, characterised by a clinical triad of developmental delay, intractable epilepsy and liver failure, commonly affects infants aged 2-4 years, but has a second peak of onset between ages 17-24. The disorder is progressive and often leads to death from hepatic failure or status epilepticus before age three years. Although the neuropathology underlying Alpers' disease remains largely unknown, a recent study described neuronal respiratory chain deficiencies and lowered mtDNA content correlating with the severity of degeneration.

Method: This study performs a detailed neuropathological characterisation of twelve patients with clinically defined Alpers' disease, with an age range of neonatal to late-teens. We used neurohistopathological and immunofluorescent techniques on post mortem cerebellum, occipital lobe and parietal lobe tissues to determine neuronal and axonal loss, glial cell involvement and respiratory chain deficiency.

Results: Preliminary data shows significant neuronal loss in the cerebellum of patients with Alpers' disease, in conjunction with reduced mitochondrial respiratory chain expression relative to controls in remaining neurons.

Discussion: POLG defects have been shown to cause depletion and deletion of mtDNA resulting in mitochondrial respiratory chain impairment, lowered ATP generation and consequent cellular dysfunction and death. These findings support this by demonstrating significant neuronal loss and respiratory chain deficiency in the cerebellum of patients with Alpers' disease.

Conclusion: Quantification of neuronal loss and mitochondrial pathology in the cerebellum will help elucidate the mechanisms through which POLG defects cause neurodegeneration in this devastating disease. Further work is currently ongoing into the neuropathology of the parietal lobe, occipital lobe and basal ganglia.

WHOLE EXOME SEQUENCING TO IDENTIFY CASUAL GENES IN NEUROMUSCULAR DISEASE

Porter ALR; Ana Topf; Laval S; Lockmüller H; Straub V; Bushby K
The John Walton Muscular Dystrophy Centre, United Kingdom

Background: Inherited neuromuscular diseases (NMD) are a genetic group of severe, life-limiting disorders, which present in infancy, childhood or early adulthood. NMDs affect the muscles, nerves and neuromuscular junctions and lead to muscle wasting and weakness. Two hundred monogenic causes of NMDs have been described; however, approximately half of patients have not had a genetic diagnosis. Next generation sequencing (NGS) has allowed many causative genes to be identified, and it is expected that there is still a significant number to be found.

Aim: We identified novel causal genes in genetically undiagnosed patients using whole exome sequencing (WES).

Method: The patients are part of a local cohort seen by clinicians at the John Walton Muscular Dystrophy Centre. DNA was sequenced at the Broad Institute using Illumina exome capture. Alignment and variant calling were completed using the BWA aligner and the GATK HaplotypeCaller package. Data was analysed using xBrowse platform, applying standard filtering criteria. Segregation of likely candidates was carried out in the patient's relatives. Functional studies will be carried out using cell cultures and zebra fish.

Results: Analysis of WES and manual inspection of the variants led to candidate genes being segregated in the patient's relative DNA. The strongest candidates have been taken into functional studies.

Discussion: Examining WES for patients with NMD allowed us to short list possible causative genes. We could then study the strongest candidate genes functionally and assess their role in NMD. A genetic diagnosis for patients allows us to understand the inheritance of the disease, predict the progression and enter patients into appropriate clinical trials.

Conclusion: This study demonstrates the application of NGS in the search of novel genes, and highlights the importance of a genetic diagnosis for affected patients. The clinical application of NGS would allow rapid screening and fast identification of mutations causing NMD.

ALTERED EXPRESSION OF LAMIN A\C TRANSCRIPT VARIANTS AS A POSSIBLE TUMOUR MARKER FOR BREAST CANCER

Ahmad A; **Shahad A**; Al-Gabbani S; Altayeb A
King Saud Bin Abdulaziz University for Health Sciences, Saudi Arabia

Objectives: To investigate Lamin A/C transcript variants mRNA differential expression in breast cancer biopsies. To verify the correlation between Lamin A/C transcript variant mRNA expression and metastasis in breast cancer.

Method: Differential mRNA expression levels of Lamin A, Lamin C, Lamin A $\Delta 10$ and Lamin A $\Delta 50$ were measured in 47 normal tissues/organs with newly designed TaqMan qRT-PCR assays. We also measured Lamin A/C alternative splice variants mRNA expression and Lamin C: Lamin A ratio in 128 primary breast cancers and 16 normal breast tissues. Similarly, Lamin A/C alternative splice variants mRNA were also analysed in other sevendifferent cancers.

Results: The mRNA expression levels of Lamin C increased significantly in breast tumours while the mRNA levels of Lamin A and Lamin A $\Delta 50$ were significantly decreased in tumours. There was no significant change in Lamin A$\Delta 10$. The study demonstrated for the first time that Lamin C: Lamin A mRNA ratio is increased in all clinical stages of breast cancer tissues (Stage I to IV). Increased Lamin C: Lamin A ratio was also observed in adenocarcinoma of colon, ovary, and prostate and carcinoma of liver, lung and thyroid

Conclusion: Lamin C: Lamin A ratio may have biomarker utility in breast cancer and possibly in liver, lung and thyroid carcinomas and colon, ovary, and prostate adenocarcinomas. Further studies are required to examine Lamin C: Lamin A ratio as diagnostic and/or prognostic marker.

ACUTE SURGICAL ADMISSIONS: A 2013 PROSPECTIVE REVIEW

Chim Y; **Lennox-Warburton H**
Scarborough General Hospital, United Kingdom

Aims: To establish which acute surgical admissions undergo emergency surgery during their acute admission and the impact on core surgical training.

Method: Acute admissions and ward referrals in September and October 2013 were prospectively collected for General Surgery (GS), Urology (Ur) and Trauma & Orthopaedics (T&O) departments The core surgical trainee cross covers all three specialities on acute oncall. The data including discharge dates, presenting complaints, and operation dates was analysed using Microsoft Excel.

Results: Of the 423 admissions and referrals assessed over a 31 day period, which equated to 14 patients being reviewed per day, 63% (266) were General Surgical, 17% (73) Urological and 20% (84) Trauma and Orthopaedics. Of the total acute patients admitted, 19.2% had an operation during their acute admission. (Respectively GS 11.3%, Ur 3.6% and T&O 54%).

Conclusion: Thirty years ago, about 31% of General Surgical patients were acutely operated on, in compared to 11.3% in this study. A 64% reduction in acute operative cases over 30 years, along with decreased hours of training secondary to the European Working Time Directive is a detrimental hit to surgical training, especially when a component of assessing a surgical trainees progression is measured on the number of operative cases performed.

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Category: Clinical Audit

A SYSTEMATIC REVIEW OF THE STANDARDS OF CLINICAL AUDITS IN UK HOSPITALS

Lee E; Lee C; George M
Brighton and Sussex Medical School, Brighton, United Kingdom

Background: Clinical audits were introduced into the NHS to monitor and improve healthcare quality. Participation in clinical audits is mandatory for healthcare professionals. Re-auditing has been reported as a key element for the completion of audit cycles and its success in creating improvement in practice.

The aim of this systematic review is to analyse published reports of clinical audit assessments in UK hospitals within the past two decades, to assess their overall quality and audit cycle completion rates, and to identify key elements that facilitated the production of a successful audit.

Methodology: A literature search was conducted on EMBASE, MEDLINE, CINAHL, HMIC, TRIP database, Evidence Search, Cochrane Library and Google Scholar using keywords "audits", "audit of audits", "completion rate" and "hospitals" for years between 1994 and 2014. An additional handsearch of the indexes from relevant publications was done for additional key papers. Only UK studies relevant to the research question were included for further review.

Results: Of the 1029 search results, 12 relevant publications were reviewed. A total of 877 clinical audits were analysed. Only 147 audit projects (17%) have been completed with an audit cycle. 138 out of 283 audit projects (49%) led to implementation of action plan. A number of recommendations have been made to improve the clinical audit programmes such as: audit training, careful planning of audit projects, involvement of the local audit department and senior staff, multidisciplinary approach, adequate handing over of projects to junior staff, and periodical audit reviews.

Discussion: Low completion rate is a major concern for the effectiveness of clinical audits across NHS hospitals. Not only does this lead to valuable time and resources being wasted in these economically austere times, the educational and core value of clinical audits are also jeopardised.

Conclusion
Evaluation of local clinical audit practice is therefore highly recommended in consideration of improving healthcare practice in UK hospitals.

REDUCING PATIENT AND VISITOR DISORIENTATION USING A MULTI-COLOURED DIRECTIONAL APPROACH

Goh EL; Leese JO; Rasiah MG; Rossiter AFJ
Imperial College London, London, UK

Background: Navigating through a seemingly maze-like hospital can be challenging to patients and visitors. We therefore proposed the use of multi-coloured floor signage to further enhance their experience during their visit to our Trust.

Methodology: Patients and visitors waiting at various outpatient departments of the hospital were asked to complete a patient survey pre- (pre-I) and post-implementation (post-I) of the signage. The survey addressed the ease of reaching the desired destination, effectiveness of the signs, adequacy of current signage, need for improvement and usefulness of multi-coloured floor signage.

Results: A total of 400 surveys were collected, 200 surveys pre-I and 200 surveys post-I of signage. Following implementation of the signage, there was a 58% (106 pre-I vs 168 post-I), 67% (84 pre-I vs 140 post-I), 79% (66 pre-I vs 118 post-I) and 44% (86 pre-I vs 124 post-I) increase in the number of patients who found it easier to reach their desired destination, found the signs effective, felt the current signage was adequate and were satisfied with the provision of signs in place respectively. Sixty percent of patients agreed that the colour-coded floor dots were effective. Cost analysis to implement the signage was estimated at £5,500 while the actual cost was £5,880.

Conclusion: The implementation of multi-coloured floor signage to aid navigation around the hospital was effective in enhancing the experience of patients and visitors within the Trust.

COMPLICATIONS AFTER ILEOSTOMY REVERSAL

Von Heimendahl S; **Scholfield D;** Hammond T
Broomfield Hospital, Chelmsford

Background: Loop ileostomies are used to reduce the complications associated with anastomotic leak after colonic resection. Recent studies have shown high morbidity rates following their reversal. The audit aim was to assess complication rates at our institution and compare them to the literature.

Methodology: All case notes for patients undergoing ileostomy reversal between January 2013-March 2015 were retrospectively assessed. Data extracted were patient demographics; co-morbidities; indication for ileostomy; anastomosis and wound closure technique; time to oral intake and passage of stool/flatus; complications and mortality. Complications were graded according to Clavien-Dindo Classification.

Results: Fifty six case notes were reviewed (33 male, 23 female; average age 59). Seven percent of patients required a laparotomy. The mean length of stay (LOS) was seven (range 1-20) days. The overall complication rate was 30.4%. Complications included: wound infection (24%), incisional hernia (14%), and anastomotic leak (3.5%). Average time to oral intake was 1.7 days (range 1-9) and passing stool/ flatus was 2.4 days (range 1-6). This was longer in those patients who suffered complications. There was no difference in complications between hand-sewn and stapled anastomoses or wound closure techniques.

Discussion: Our overall complication rate was 30%, compared to 17.3% in the published literature. The average time to stool/flatus passage was 2.4 days and LOS 7 days. A recent study has shown these can be reduced by stimulation of the efferent limb prior to ileostomy closure. We plan to introduce this change of practice and then complete the audit cycle.

Conclusion: Closure of ileostomy is a morbid operation, which can lead to prolonged ileus and extended hospital stay. We have identified a simple measure to improve this, which will be prospectively re-audited after its implementation.

VENOUS THROMBO-EMBOLISM PROPHYLAXIS; IMPACT OF TEACHING ON KNOWLEDGE AND CLINICAL PRACTICE. AN AUDIT CYCLE

Zaidi A; Breen- Turner D; Bowman C; Williams DT
Ysbyty Gwynedd, Bangor

Background: Venous thromboembolism accounts for approximately 25000 preventable deaths/ year in United Kingdom according to the NICE. These are exhaustive guidelines and may not be easily retained by an average junior doctor on a busy acute take. The aim of our audit was to assess the knowledge of our junior doctors(foundation/ core trainees) on VTE and to further assess if focused teaching improves the outcomes in three domains, a)knowledge, b)documentation and c)prescription of VTE prophylaxis.

Methodology: The prospective audit cycle was completed in three steps, pre-teaching questionnaire/ observation of clerking, teaching session on VTE and a focused questionnaire/ observation of clerking by those who attended the teaching after four weeks. A total of 25 pre and 10 post teaching questionnaires were filled. Teaching was attended by 23. Sixty one and 30 clerking proformas were reviewed pre and post teaching.

Results/Knowledge: Thirty to eighty percent improvement in answers of 16 questions and a 10-50% wrong response was observed whereas the individual overall results were not very different.

Clinical Outcomes: Nineteen percent pre and 33% post teaching patients had documented contraindication to prophylaxis. 49% and 53.3%of the patients had documented risk of VTE. Thromboprophylaxis was prescribed in 77% and 70% respectively. Twenty six percent patients were informed about the prophylaxis before teaching whereas 33.3% patients were aware it after teaching. In 75% patients, prophylaxis was prescribed within 24 hours of admission at correct dose and was adhered to before teaching, the corresponding figures post teaching were 63%, 63% and 70% respectively.

Discussion: Teaching did not seem to generally improve the knowledge and clinical practice. While majority of the juniors think that teaching is important and improved their knowledge, it did not have much impact in both areas.

Conclusion: VTE is an important cause of morbidity and mortality. Knowledge may improve with teaching but may not effect practice for various reasons.

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MEDICAL STUDENTS AND HAND HYGIENE TRAINING: A REVIEW OF HAND HYGIENE AUDITS AT CENTRAL MANCHESTER FOUNDATION TRUST AND UNIVERSITY HOSPITAL OF SOUTH MANCHESTER.

Haq I
Central Manchester Foundation Trust and University Hospital of South Manchester

Background: Health care associated infections (HACI) are a major problem for the NHS and there have been recent outbreaks in hospitals. Hand hygiene is known to be the most important step in reducing HCAI and it is the shared responsibility of all health care professionals.

Methodology: Is medical training sufficient to prevent poor hand hygiene within the healthcare setting. In order to answer this we looked at the results of hand hygiene audits completed in Central Manchester Foundation Trust (CMFT) and University Hospital Of South Manchester (UHSM). We also evaluated hand hygiene training received by medical students, nursing students , and other healthcare professionals.

Results: The results from the hand hygiene audits of UHSM completed between 2009-2010 show the percentage of compliance was: nursing staff (71%), medical staff (27%), allied healthcare professional (51%), and other professionals (41%).

The results from the hand hygiene audits from CMFT were collected over the month October 2013 show the percentage of compliance was: nursing staff (92%), medical staff (84%), allied healthcare professionals (80%), and other professionals (76%).

Overall, the results show that none of the staff managed to get the audit target of 90-100%. This shows that there is a urgent need for more training of all the healthcare professionals on correct and hygiene.

Discussion: Hand hygiene is imperative to prevent HCAI and therefore, it is important to train all healthcare professionals on how to do this correctly and the moments it should be carried out. And assess their competency in order to acknowledge any deficiencies and give more training to address these.

Conclusion: I believe that the answer to the question raised in this report, is that medical training is not sufficient to prevent poor hand hygiene. I have discovered that individual professional groups are performing poorly in hand hygiene audits and that this can be related to the training that they receive.

ANALGESIA IN HIP FRACTURES. DO FASCIA-ILIAC BLOCKS MAKE ANY DIFFERENCE?

Callear J; Shah K
John Radcliffe Hospital, United Kingdom

Introduction: Despite recent national advances in the care for the hip fracture patient, significant morbidity and mortality persists. Some of this morbidity is attributable to the analgesia provided in the hospital setting. The National Institute of Clinical Excellence recommends the use of simple oral analgesia including opioids, with fascia-iliac blocks used as an adjunct. Literature review reveals a paucity of evidence on this topic. The aim of this study was to evaluate the efficacy of fascia iliac blocks through analysis of pre and post-operative opioid usage, post-operative delirium, time to bowel opening and naloxone use.

Methodology: A retrospective study was performed between September-December 2013. Inclusion criteria were determined. Forty one patients who received spinal anaesthesia alone and 41 patients who received spinal anaesthesia and a fascia-iliac block were included.

Results: Patients who received a fascia-iliac block received significantly less post-operative and total analgesia ($p=0.04$, $p=0.03$), had lower rates of delirium ($p=0.03$) and those patients which were discharged directly home had a shorter inpatient stay ($p=0.03$). No patients who received a fascia-iliac block (FIB) needed naloxone to reverse opioid toxicity, whilst two non fascia iliac block patients did.

Conclusions: Fascia iliac blocks either given in A&E or at the time of spinal anaesthesia are a useful adjunct to provide analgesia in the hip fracture patient. The John Radcliffe hospital aims to encorporate fascia-iliac blocks into the care pathway for the hip fracture patient.

ULTRASOUND ASSESSMENT OF THYROID NODULES BASED ON NEW BRITISH THYROID ASSOCIATION GUIDELINES (2014)

Harris C; Advani R; Ranganathan B; Stobbs N; Killick N; Kumar BN
Royal Albert Edward Infirmary, Wigan

Background: Differentiating between benign and malignant thyroid nodules, and then subsequentially the need for Fine Needle Aspiration Cytology (FNAC) is helped by ultrasound (US) evaluation. in 2014, the British Thyroid Association (BTA) produced new guidelines, introducing a new classification system (U-classification) to help clinicians if thyroid nodules require FNAC. The aim of the audit was to improve clinical decsion making, thereby inproving patient care.

Methodology
Cycle 1 - Retrospective audit, US Thyroid reports (August 2014).
Standard - BTA's Thyroid Ultrasound Reporting Criteria.
A 13-item reporting proforma from the BTA guidelines (including U-classification) was introduced to assit thyroid ultrasound reporting.

Cycle 2 - Prospective audit of US Thyroid reports in Decemeber 2014, using proforma.
Cycle 3 - Prospective audit of US Thyroid reports in January 2015, using proforma.

Results
Cycle 1 - Poor compliance with BTA guidelines.
Zero percent recorded U-Classification.
Forty one percent recorded nodule composition.
Thirty two percent underwent FNAC.
Poor adherence to all other BTA guidance.
Cycle 2 - Improved compliance with guidelines.
Fifty seven percent recorded U-Classification.
Nodule composition (77%).

Improvements in the other BTA guidance.
Forty seven percent of US Thyroid reports stating U-Classification underwent FNAC.
Sixty seven percent of nodules reported as ≥U3 underwent FNAC.
Cycle 3 - Continuing complicance with guidelines
Sixty three percent recorded U-Classification.
Nodule composition (65%).
Improvements in the other BTA guidance.
Twenty eight percent of US Thyroid reports stating U-Classification underwent FNAC.
Twenty nine percent of nodules reported as ≥U3 underwent FNAC.

Discussion: Introducing a reporting proforma has helped guide US Thyroid reporting by assessing nodules for characteristic features. Depending on features found, the nodule then falls into a U-Classification (U1-U5). The U-Classification has helped clinicians decide if FNAC is required.

Conclusion
Ultrasound is valuable and effective in differentiating between benign and malignant thyroid nodules.
Introducing a proforma has improved the quality of reports, reduced FNAC, and hopefully improved patient care.

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TOO MUCH FOR TOO LITTLE? A RETROSPECTIVE AUDIT ON TEMPORAL ARTERY BIOPSIES

Okonkwo M
Withybush General Hospital, Haverfordwest, United Kingdom

Background: Temporal artery biopsies (TAB) are often performed in suspected cases of sight-threatening arteritis.The results of which often do little change clinical management. While the American College of Rheumatology (ACR) formed a clinical classification criteria in 1990 for diagnosing GCA to ensure early steroid therapy was commenced, they acknowledge TAB should aid in establishing a definitive diagnosis.

Aims: The audit aimed to assess if TABs were performed in accordance with the national and ACR guidelines and whether their results altered course of treatment in suspected GCA.

Method: A retrospective audit of all patients undergoing TAB at a single DGH between 2010 and 2014, identified from the histopathology database. Main outcome measures included clinical profile and biochemical criteria associated with positive histology; Proportion of negative histology patients who were commenced on steroid therapy; Length of TAB, relationship between ACR score and TAB result.

Results: Forty TABs were performed (male:female 1:2, mean age = 70.23 years, modal age range: 49-75). Three (7.5%) biopsies were histologically positive and 37 (92.5%) were negative. One biopsy was non arterial. 62.5% of TABs were performed within one week of suspected diagnosis. Only 46% of TABs were >1cm. Preoperative steroid therapy were commenced in 80% of patients and a negative histology changed management in 32%. 67.5% had sufficient clinical features to classify GCA and not warrant TAB. Histologically positive TAB patients had higher average age, higher ESR, longer biopsy lengths and shorter time interval between diagnosis and procedure compared to histologically negative TABs.

Conclusion: Raised ESR and higher age may be the most useful indicators of GCA. Many histologically negative individuals were nevertheless clinically diagnosed and managed as GCA. Sub-optimal specimen length may be contributing to lack of diagnostic accuracy.

GENERAL SURGEONS AS ENDOSCOPISTS IN A REMOTE AND RURAL SETTING. IS IT FEASIBLE?

Kong KW; Lim P J; McFarlane G
Gilbert Bain Hospital, NHS Shetland, United Kingdom

Background: Remote and rural surgery is a field that is increasing being recognised in the UK, particularly in Scotland. The geographical factor makes it difficult for many remote regions to be included in the catchment area where large hospitals are based. As an elective student in the Shetlands I was keen to find out if the remote nature has an impact on the quality and safety of colonoscopy service delivery.

Method: An annual audit was performed on all colonoscopies carried out at the Gilbert Bain Hospital from January 2013 to December 2013 using standards published by the BSG and JAG.

Results: Three hundred and five colonoscopies were carried out in 2013 with a completion and adenoma detection rates of 94.7% and 32% respectively. Polyp retrieval rate was 85% (90%), cancer detection rate seven percent (11%) and biopsy rates in cases of persistent diarrhoea was 93% (100%). There was one case of perforation following polypectomy. To give a better sample size, the 2012 audit was also included (total of 644 cases) which meant the perforation rate at polypectomy was within the national standard of 1:500. There were no deaths over the two year period. A subgroup analysis revealed that the highest cancer detection rate was among patients who presented with iron deficiency anaemia followed by bowel screening colonoscopies.

Conclusion: The provision of of colonoscopy service appears feasible in a remote and rural hospital. Despite a small sample size, it would suggest that quality and safety parameters are being met.

CARDIAC EVENT RATE AFTER NEGATIVE MYOCARDIAL PERFUSION IMAGING - THREE YEAR FOLLOW UP

Camilleri R; Catania R; Ceci Bonello E; Cassar A
Mater Dei Hospital, Malta

Background: Stress myocardial perfusion imaging (MPI) provides useful prognostic information in patients with known or suspected coronary artery disease (CAD). Annualised cardiac event rate after negative MPI has been reported to be less than one percent.

Method: Patients who underwent MPI in 2011 were selected and classified into patients with or without known CAD. Each MPI result was classified into normal, reversible and irreversible filling defects. Patients had three year follow-up for all-cause and cardiac mortality and coronary revascularisation.

Results: Three thousand one hundred patients had an MPI study performed in 2011. Eighteen percent of females and 26% of males had negative MPI. All-cause mortality during three year follow-up was two percent (0.6% annual mortality). Of these, 26% had cardiac death. Six percent of patients with negative MPI had positive angiography during three year follow-up. Kaplan-Maier survival analysis showed that following negative MPI studies, there is no difference in i) all-cause and cardiovascular mortality between genders and ii) mortality in patients with known or unknown IHD.

Discussion: MPI test is an excellent, non-invasive tool which has been shown to have good specificity and sensitivity in the diagnosis of CAD. Comparing the outcomes to published data ensures that we are offering a good quality service.

Conclusion: Negative MPI studies are associated with a low annual all-cause and cardiac mortality, in both genders. Negative MPI studies in patients with known IHD are as reassuring as those in patients with unknown IHD.

ADHERENCE TO HEPATOCELLULAR CARCINOMA SCREENING PROGRAMME IN PATIENTS WITH LIVER CIRRHOSIS

Camilleri R; Gerada J; Pocock J
Mater Dei Hospital, Malta

Background: International guidelines recommend that patients with liver cirrhosis, of any cause, undergo six monthly abdominal ultrasounds as a screening method to detect early hepatocellular carcinoma (HCC), which would be amenable to curative treatment. The objective of this audit was to evaluate if cirrhotic patients were being screened for HCC as per such guidelines.

Method: Patients diagnosed with liver cirrhosis before 2011 were enrolled in the audit. Adherence to HCC screening, using abdominal imaging (ultrasound, CT scan or MRI) and alphafetoprotein every six months (± two months), was studied from January 2011 to July 2014 at Mater Dei Hospital. Patients older than 70 years were excluded as would not be a candidate for liver transplantation.

Results: Forty two patients (79% males, mean age 60, range 31 – 70) were enrolled. HCC screening guidelines using abdominal imaging were adhered to in 17% of cases. Eighty percent non-adherence rate comprised patients lost to follow-up (38%), patients not referred from primary care (14%) and patients followed up by non-GI physicians (19%) or gastroenterologists (12%). Excluding the first two groups, adherence increased to 35%. The mean time interval between abdominal imaging in all non-adherent patients under the care of either a gastroenterologist or a non-GI physician was >one year. Likewise, HCC screening using alphafetoprotein was performed in 17%.

Discussion: HCC screening in cirrhotic patients was poor. Audit limitations included patients who were lost to follow-up, patients under care of non-GI physicians and a small sample size. Nonetheless awareness needs to be raised amongst physicians in order to improve compliance to HCC surveillance in these patients.

Conclusion: Stricter adherence is strongly recommended as small HCCs would be amenable to curative treatment.

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WHAT IS INFORMED CONSENT – THE ASSESSMENT OF MORBIDITY AND MORTALITY IN ELECTIVE COLORECTAL CANCER RESECTIONS: A TWO YEAR RETROSPECTIVE COHORT STUDY

Olivier J; Cole S; Batt J
Royal United Hospital Bath NHS Foundation Trust, United Kingdom

Background: Guidance from The General Medical Council states that informed consent can only be reached when patients have a clear appreciation and understanding of the facts, implications and consequences of an action. However, recent findings by the UK Supreme Court have significant ramifications on how this is achieved, ruling that the significance of a risk is fact-sensitive and that simply stating statistical and thus population based risk is not adequate. The risk must be specific to the patient. P-Possum is a physiological and operative scoring system used to calculate patient specific morbidity and mortality risk and has been validated for use in general surgery. We audit its use in patients undergoing elective colorectal cancer resection.

Method: Two years of consecutive data was collected on all patients undergoing primary resection of colorectal cancer on an elective basis. Only colorectal consultants with uninterrupted employment across the two years were included. Notes were pulled retrospectively and the consent forms were assessed for the presence of a P-Possum Score or "death" documented on the risks/complications section.

Results: One hundred and forty four patients were identified using the cancer register. Twenty four percent of patients had death documented as a major complication of surgery. Only 12% had a calculated and documented P-Possum score.

Discussion: In our study only a small proportion of patients had P-Possum scores and death documented on their consent forms. Whilst mortality figures for elective general surgical operations are low, many would understand how death, however unlikely, would be considered as a significant consequence worthy of discussion.

Conclusion: P-Possum is a validated tool able to generate patient specific risk data. In order to achieve informed consent in line with GMC and Supreme Court guidance we advocate the use of P-Possum scoring in elective colorectal operations and suggest this be documented clearly on patients consent forms.

AN OVERVIEW OF DELAYED DISCHARGE AT A DGH; REASONS BEHIND AND AREAS FOR IMPROVEMENT IN ORDER TO DEVELOP CARE PROVISION AND QUALITY

Edwards K; Hughes L; Leong KS
Arrowe Park Hospital, United Kingdom

Background: Delays in discharge means that beds are not made available in a timely manner leading to a bed crisis; this means that patients are left waiting in triage areas and has a back log affect to A&E.

Method: A prospective audit over one week in June 2014, using a tick box system via access to patient's notes for reasons for delay in discharge. Also distribution of questionnaires to staff regarding the organisation of ward MDTs. Findings were compared to local trust policies.

Results: One hundred and eighteen planned discharges were recorded, of these 54 were delayed (45.8%). The most recurring reasons for delay were 'awaiting medication' 25.8% and 'pending review' 25.8%. The majority of patients 66.7% were reviewed during a morning ward round. However, 33.3% were not identified until the afternoon. Most TTHs were prescribed on the ward round however required amendments. Only 3/9 wards had pharmacists able to make amendments. Only a third had adequate TTHs prescribed in the morning and 26.2% did not have TTHs prescribed by 4 pm.

Re-Audit: In September 2014 the start time of the PTWR changed to 8 am with the idea of identifying discharges earlier. We under took a reaudit following the same method. There were 64 planned discharges, of these 27 (42.2%) were delayed. 'Awaiting medication' accounted for 50.0% of delays, 70.4% did not have adequate TTHs prescribed until the afternoon. Of all the potential discharges only one was seen by the PTWR.

Conclusion: Major factors for delay include tardy patient review and delay in take home prescriptions being prescribed. The change to start time of PTWR did not make a difference to discharges in non-acute medical wards. A recommendation would be to promote senior lead ward rounds on speciality wards with a pharmacist and junior staff as part of the round.

RETROSPECTIVE STUDY OF THE EFFICACY OF DAPAGLIFLOZIN IN THE MANAGEMENT OF TYPE 2 DIABETIC PATIENTS

Cheang WB; McCrimmon R
Ninewells hospital, Dundee, United Kingdom

Background: About 387 million people worldwide currently live with type II diabetes mellitus (T2DM). If untreated, T2DM results in major micro- and macrovascular complications. Current therapeutic options are limited and novel therapies are urgently needed. Sodium-glucose cotransporter type II (SGLT-2) inhibitors are newly developed compounds that selectively and reversibly block reabsorption of glucose by SGLT-2 in the renal proximal tubule to induce glucosuria thus decreasing plasma glucose levels. These compounds have only been licensed for use in the treatment of T2DM in the UK from June 2013. Their efficacy outwith highly selective clinical trials remain uncertain.

Method: A retrospective study of patients currently prescribed the SGLT-2 inhibitor Dapagliflozin in Tayside, Scotland. Drug effects were evaluated using: HbA1c, creatinine, body weight, systolic and diastolic blood pressure. The data was retrieved from the Scottish Care Information – Diabetes Collaboration (SCI-DC) system, which collects routine phenotypic information on all diabetic patients in Scotland, and compared against data from published randomised controlled trials.

Results: Data from 146 patients (mean (range) 58 (32-83) years, 85 males and 61 females, with mean seven (3-22) months of therapy, was obtained. By six months of therapy, we found mean reductions in HbA1c [-8.02% (-6.26 mmol/mol)], body weight [-2.55kg (-2.52%)], systolic blood pressure [-1.66 mmHg (-1.23%] and diastolic blood pressure [-1.97 (-2.52%) mmHg]. In contrast, mean creatinine increased at six months (+0.28 umol/l; +0.42%).

Discussion: In the 'real-life' setting, Dapagliflozin appears as effective in improving glucose control, body weight and blood pressure as has been reported in the published literature. Of interest, we found a small but consistent increase in creatinine over time.

Conclusion: SGLT-2 inhibition with Dapagliflozin appears an effective means of improving glycemic control in the routine clinical care of unselected patients.

VENOUS THROMBOEMBOLISM PREVENTION IN ACUTE MEDICAL PATIENTS: A ROLE FOR WEIGHT-STRATIFIED THROMBOPROPHYLAXIS?

Balaji A; Mercer R
Royal Bournemouth Hospital, United Kingdom

Background: Venous thromboembolism (VTE) is associated with significant mortality and resource expenditure. Without thromboprophylaxis, the incidence of hospital-acquired VTE is approximately 10 - 40%. Obesity is an independent risk factor, and needs to be considered when choosing appropriate thromboprophylaxis. In the UK, fixed doses of enoxaparin, dalteparin and tinzaparin are used for thromboprophylaxis regardless of patient weight, but there is increasing evidence that fixed doses are inappropriate for patients at the extremes of body weight. Studies have suggested no benefit of standard dose dalteparin over placebo in the morbidly obese, and found significantly higher bleeding risk in patients weighing <50kg. The decision was made to revise the local VTE guidelines in Royal Bournemouth Hospital with prophylactic dalteparin dosage stratified according to patient weight.

Method: Retrospective audit of data collected from admission drug charts of patients clerked on take over a 48 hour period supplemented by a questionnaire sent out to doctors regarding awareness and knowledge of the revised VTE guidelines.

Results: Data from 74 patients revealed suboptimal adherence to the standards: only 86.5% had completed VTE assessments, 83.05% had prescribed prophylaxis, and 72.72% had the correct dose of LMWH for patient weight prescribed. The questionnaire suggested awareness and knowledge of the revised guidelines was globally low, with 70.59% incorrect doses selected for patients weighing 100-150kg, 82.35% incorrect for those >150kg, and 17.65% incorrect for those <50kg.

Discussion/Conclusion: The issues raised in this audit will need both local and national change. In this trust, awareness of guidelines needs to be increased via education sessions for doctors and the MDT, as well as increasing their accessibility. Finally, more large RCTs are needed involving thromboprophylaxis in populations at the extremes of body weight, to provide evidence behind the impetus for change and aid in the development of clear national guidelines.

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IS THE EMERGENCY SURGICAL AMBULATORY CARE (ESAC) SETTING APPROPRIATE FOR USE AS AN ADMISSION AVOIDANCE SERVICE IN THE OLDER PEOPLE'S UNIT (OPU) POPULATION?

Batt J; Kynaston J; Gayner R; Richards S
Royal United Hospital, Bath, United Kingdom

Background: Surgical ambulatory care is an expanding service in many NHS trusts. There is good evidence to support its use as an admission avoidance service by offering stable patients an urgent outpatient clinic appointment with a consultant surgeon who has immediate access to required investigations, enabling informed clinical decisions to be made at the point of presentation. What is less clear is whether its use is transferable to the elderly care setting where patients often have greater and more complex social needs. We therefore audited our practice to evaluate the outcomes of ESAC appointments in this cohort.

Method: We looked at all ESAC clinic attendances over a six-month time period between November-May. We recorded patient's age, whether patients had a procedure performed (under local anaesthetic in the clinic, on the NCEOPD list, on the "Cat C&D list" or booked for an elective procedure), and outcome of the clinic appointment (discharged or admitted).

Results: Six hundred and thirty five patients were seen over a six-month period (10% aged >75years, 10% aged 65-75years, 80% aged <65years). In patients aged >75 years, only 7% required hospital admission (10% in ages 65-75 years, 5% aged <65 years). Fewer elderly patients were admitted for NCEPOD operations compared to those aged 65-75 and aged <65 counter parts (3.5% vs. 5.9% vs. 7.7% respectively). Additionally, fewer underwent expedited operations on the Cat C&D list (8.8% vs. 7.4% vs. 12.5% respectively).

Discussion: Elderly patients made up the minority of attendances to the ESAC clinic. Despite a higher proportion needing admission for treatment, over 90% were still successfully treated on an outpatient basis. Elderly patients required fewer emergency or expedited operations implying that conservative medical treatment was appropriate.

Conclusion: Our data shows that ESAC clinics are appropriate in an elderly care setting and that stable elderly patients can be successfully treated with conservative measures in an outpatient setting.

AN ACUTE LAPAROSCOPIC CHOLECYSTECTOMY SERVICE TO SUPPORT EMERGENCY BILIARY DISEASE

Moustafa AE; Rupasinghe SN; Shabbi A
Wirral University Teaching Hospital NHS Foundation Trust, United Kingdom

Introduction: Early cholecystectomy has been shown to be safe and prevents repeated hospital admissions. However performing laparoscopic cholecystectomies (LC) on an emergency list can be difficult due to the unpredictability of emergency surgical admissions. A 'hot list' for LC was set up and an initial audit found high extended day case rates and low complications. We re-audited our practice a year later to review our progress.

Method: All patients having LC for the six month period starting on the 1st of January 2014 in hot lists were included in the audit. Demographics, inpatient stay (IPS), re-admissions and complications were noted. The complications were graded according to the claviendindo classification (CD). The data was then analysed using Microsoft Excel and Graphpad Prism 6.04.

Results: Eighty seven patients underwent LC (70% Female), the most common diagnosis was biliary colic and cholecystitis. The Median IPS was one day [0-2 interquartile range] with 42(48%) discharged on the same day and 64 (74%) discharged within 24 hours, this was comparable to the last audit (p=0.6 Mann-Whitney-U test). There was a significant reduction in complications from eight (10%) to two (2.3%) (p=0.04, fisher's exact test). There was also a reduction in re-admissions 15.8% to eight percent which did not reach statistical significance (p=0.14). There was zero percent mortality in both audits.

Discussion: There appears to have been an improvement in all areas including same day discharges, 24 hour stay, re-admission rate and complications. There is potential to also utilise these lists for other urgent procedures such as painful non obstructed hernias and lymph node biopsies.

Conclusion: A LC hot list is safe and continued experience has reduced the incidence of complications and re-admissions while maintaining a high day case rate.

Category: Clinical and Patient Related Work Category

CONSERVATIVE TREATMENT OF AN INFECTED AORTIC GRAFT WITH ANTIBIOTIC IRRIGATION

Talukdar SS; Akhtar M; Meecham L; Birkett R; Pherwani AD; Fairhead J
University Hospital of North Staffordshire, United Kingdom

Background: Conservative management of an aortic graft infection is defined as 'the non-resectional treatment of an aortic graft that has an established infection.' Incidence of aortic graft infections are 0.5-5% and the estimated mortality rate from aortic graft infections ranges from 8-27%.

Case Study: We present the case of a 73 year old male with an infected abdominal aortic graft following an emergency ruptured abdominal aortic aneurysm (AAA) repair. Post emergency repair he developed ischaemic colitis with sigmoid colon perforation leading to faecal peritonitis and secondary sepsis. He developed a large infective collection within the aortic sac growing vancomycin resistant enterococcus sensitive to Linezolid. A percutaenous drain was placed in the aortic sac and this was irrigated with Linezolid for a total of 28 days. The patient clinically improved. Seven months later, follow-up scan shows complete resolution of infection and the patient remains clinically stable.

Discussion: Conventional treatment of aortic graft infections involves an extra-anatomical bypass. Percutaneous drainage and antibiotic use may be used as bridging therapy for surgery or as definitive therapy when surgical treatment is impractical. Most aortic graft infections grow gram positive cocci, the organisms form a biofilm which is protected from the external environment. Percutaneous drainage and antibiotic irrigation could possibly penetrate the biofilm and eradicated infection. Morris *et al* conducted a study on ten patients having irrigation therapy and systemic antibiotic treatment and found a one year survival rate of 80%.

Conclusion: In conclusion, conservative aortic graft treatment may be an effective alternative where surgical intervention is not suitable.

RECTAL HYPOSENSITIVITY AND ITS ROLE IN MOTILITY DISORDERS

Eugenicos MP; **Chia WL**
Western General Hospital, Edinburgh, United Kingdom

Background: The prevalence and clinical relevance of Rectal Hyposensitivity (RH) in IBS is unclear. No such study has been conducted in the Scottish population. Thus, we aim to evaluate the prevalence of RH among Scottish patients and in those with IBS.

Method: The Rome-III criteria were used to classify 76 patients into IBS subtypes (IBS-C, IBS-D, IBS-M for constipation, diarrhoea and mixedtype respectively). Anorectal manometry (ARM) was performed to identify RH in IBS-subtypes and Non-IBS patients. The RH was identified as the volume of the 1st rectal sensory threshold (RST) greater than 10ml.

Results: Ninety five percent of patients who attended ARM had RH; of those 98% had IBS. IBS patients are younger than Non-IBS patients ($p<0.05$). RST is higher in IBS patients ($p<0.05$). The anal resting pressure was lower in the IBS-C+Faecal-incontinence (IBS-C+FI) patients ($p<0.05$). The RST correlated with the rectal capacity in IBS-C ($p<0.01$) and IBS-M ($p<0.05$) and with rectal compliance ($p<0.05$) in non-IBS patients.

Discussion: The high prevalence of RH especially among patients with IBS-Constipation suggests an association, albeit unclear whether RH is itself causative or an epiphenomenon. The association between faecal incontinence (FI) and weakness of anal sphincter in patients with constipation-predominant and IBS-mixed type suggests the multifactorial aetiopathogenesis of FI that depends on sphincter competency and rectal motility (stool consistency).

Conclusion: This was a retrospective study looking at the association between the RH in IBS subtypes and non-IBS patients. The group of patients, however, who attended for ARM was very selective; i.e., patients who have failed primary medical treatment or patients with faecal incontinence who were to be considered for surgical treatment. Allowing for this, we may conclude that, RH is common among Scottish patients and in those with IBS. The RST was higher in the IBS patients, and directly related to the rectal capacity. Further, prospective, randomised studies to look into these findings in IBS patients may need to be considered.

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LONG TERM OESTROGEN THERAPY IN MALE-TO-FEMALE (MTF) TRANSGENDER PATIENTS: DOES IT INCREASE THE RISK OF BREAST CANCER?

Teoh ZH; Archampong D; Gate T
Wrexham Maelor Hospital, United Kingdom

Background: Male-to-Female (MtF) transgender patients regularly received oestrogen therapy as part of gender reassignment treatment. It is still unknown whether long term administration of such oestrogen therapy can increase the risk of hormone-dependent cancer. Relatively few cases (only fifteen) of breast cancer cancer in MtF transgender patients have been reported in the current medical literature.

Case Report: A 41-year-old MtF transgender presented to breast clinic with a tender lump in the upper pole of the left breast. She had undergone gender reassignment surgery and subsequently received oral oestrogen and anti-androgen therapy for 14 years. There was no family history of breast cancer. Clinical examination revealed a 13mm hard, tender mass in the upper inner quadrant of the left breast with no palpable lymph nodes. Triple assessment confirmed a triple-negative invasive ductal carcinoma. The patient underwent a wide-local excision and sentinel lymph node biopsy (SLNB), which was negative for metastases. She was referred to the oncologist for adjuvant chemotherapy and radiotherapy but continues to take oestrogen therapy.

Discussion: In females, the use of oestrogen-only therapy has been shown to increase the risk of breast cancer. Moreover, there is some evidence from the case reports, albeit weak, to infer that breast cancers in MtF transgender patients differ from male breast cancers. MtF breast cancers (vs. male) appear to have an earlier age of onset (49 years vs. 71 years) and tend to be oestrogen receptor (ER) negative (54% vs. 10%). These biological differences could potentially impact upon clinical prognosis.

Conclusion: This case highlights the frequent occurrence of hormone receptor negative breast cancers in the few reported cases of MtF transgender patients and the implicit.

CARDIOBACTERIUM HOMINIS: A RARE CAUSE OF INFECTIVE ENDOCARDITIS

Naik A; Gunawardena T
The Essex Cardiothoracic Centre, Basildon University Hospital, United Kingdom

Background: We report a case of a 25-year-old man who presented to A&E with a three-month history of cough and chest tightness. He did not have any constitutional symptoms classically attributed to Infective Endocarditis (IE) and all microbiological investigations were negative. Following discovery of severe aortic regurgitation on echocardiogram, he underwent valve replacement. *Cardiobacterium hominis*, a member of the HACEK group of organisms, was grown on the valve tissue.

Case Study: A 25-year-old man, with no past medical history, presented to A&E with a three-month history of cough and chest tightness, following treatment with multiple courses of antibiotics for a presumed lower respiratory tract infection by his GP. Unusually, he did not report any constitutional symptoms. Initial clinical examination detected a mixed diastolic and systolic murmur, however blood tests revealed normal inflammatory markers. Subsequent transthoracic echocardiogram showed left ventricular dilatation with severe aortic regurgitation. Transoesophageal echocardiogram at a tertiary centre revealed large aortic valve vegetations. Interestingly, all microbiology investigations were negative, including cultures and serology for atypical organisms. Following empiric treatment with IV Meropenem and Vancomycin, the patient underwent mechanical aortic valve replacement eight days after presentation. His post-operative course was complicated by ventricular fibrillation secondary to hypokalaemia, causing a cardiac arrest on day two post surgery. He was resuscitated promptly and the remainder of his hospital stay was uneventful. The definitive diagnosis was made post operatively when 16sPCR genomic assays detected *Cardiobacteriumhominis*in the valve tissue. The antibiotic regime was changed to IV Ceftriaxone with oral Ciprofloxacin for two weeks post discharge, totalling five weeks of antimicrobial therapy.

Discussion: *Cardiobacterium hominis*, initially described in 1964, is anoxidase-positive, Gram-negativerod and a member of the HACEK group of organisms. These are the causative organisms in less than three percent of infective endocarditis cases, as shown by a recent multinational cohort study. A literature study in 2006 documented fewer than 80 reported cases worldwide, illustrating the infrequency of this disease. The national database of blood culture reports was interrogated to look for rates of HACEK endocarditis in England. *C. hominis* is a commensal of the normal oropharynx and is characterised by its slow growing and fastidious nature, as demonstrated in our case.

Conclusion: We discuss this patient's atypical presentation, the diagnostic difficulty in patients who have received prior antibiotics, the increased use of 16sDNA PCR to aid diagnosis and the role of prompt surgical intervention in endocarditis.

ACUTE COLONIC PSEUDO-OBSTRUCTION (THE OGILVIE SYNDROME) WITH CAECUM PERFORATION AND LEFT-SIDED NEPHRECTOMY IN PAST

Kulikova N; Sagin A; Nechay T
Department of General Surgery, Faculty of Paediatrics

Background: Ogilvie's syndrome is a rare disorder comprising acute colonic pseudo obstruction with dilation of the caecum and right hemicolon (occasionally extending to the rectum) without an anatomic blockade.

Case report: An 71-year-old man with history of hypertension, parkinson disease, and left-sided nephrectomy hospitalised with complaints of severe abdominal pain, delayed stool and gas. Pain began three days ago and increased. Abdomen was swollen; palpation was painful in the left and right iliac region. Abdomen auscultation has founded sluggish peristalsis. There was no evidence of any rigidity and rebound tenderness. Laboratory and serum electrolytes were normal. Abdominal x-ray revealed massive dilatation of cecum (diameter 12 cm), diffuse dilatation of ascending colon, transverse colon, and sigmoid colon. There was no radiological evidence of any free air in the peritoneal cavity. Abdominal ultrasound revealed the formation of the right adrenal gland. CT scan showed tumour of rectosigmoid colon. Rigidity and rebound tenderness appeared after 16 hours. Hypokalaemia was in serum. Videolaparoscopy has shown some diastatic ruptures of cecum. Revision of the colon at laparotomy and intra-operative sigmoidoscopy found no tumour. Decompression carried out gas discharging tube. Diastatic ruptures were sutured. Laparostomy was made. This patient recovered and was discharged after 13 days.

Discussion: Ogilvie's syndrome factors include male gender, age over 60 years, the presence of injuries or operations retroperitoneum, spine, general anaesthesia, opium analgesics. The patient retains satisfactory condition for a long time, abdominal x-ray revealed dilatation of colon without liquid levels. Hypokalaemia, hypocalcaemia, hypomagnesaemia. Perforation of the intestine occurs in 3-15%, mortality rate in this case is more than 50%. Treatment should be conservative - Neostigmine, perforation case needs operation.

Conclusion: ACPO is a rare and difficult to diagnose disease occurs in 0.09% all acute surgical conditions. Diagnosis requires careful medical history and exclusion of other causes of colonic obstruction.

MAGNETIC EXPANSION CONTROL (MAGEC) FOR TREATING JUVENILE SCOLIOSIS

Zahra S, Mifsud D
University of Malta - Mater Dei Hospital, Malta

Background: One in 350 children with scoliosis require surgery to correct the curvature of their spine. Current methods include casting, bracing, inserting growth rods and spinal fusion – depending on factors such as age and curvature. The MAGEC system created by Ellipse Technologies, Inc. maybe be an alternative method for surgical spinal distraction.

Description of Innovation/Development: MAGEC system targets scoliosis in children between 2-11 years. Materials used include sterile implantable rods, size dependent on body weight - 4.5mm for children weighing ≤27kg, 5.5mm for ≤36kg and 6.35mm for 36kg, external remote controller (erm) with a manual distractor (to ensure function) and a wand locator to locate the internal magnet. The process of implantation is similar to conventional surgical growth rod system insertion. The implant has a distraction element – 'actuator' containing an internal cylindrical rare earth magnet 9–10.5 mm in diameter and 90mm long. Rotating non-invasively via the erm which in turn causes the rod to increase in length and cause distraction of spine. The amount of distraction/retraction is visible on the controller's display module.

Discussion: Advantages provided by these rods - avoidance of repeating surgery to lengthen the rods, hence reducing anaesthetic, operative and post-operative risks. With the MAGEC system, repeated lengthening can be carried in an outpatient setting without need of sedation or pain relief and can be repeated every three months unlike traditional methods which are every six months. Other advantages include decreased psychosocial impact from recurrent surgery. Still to be considered such as cost-effectiveness, contraindications ex problems with future MRI scans or pacemaker implants, recovery time and impact on quality of life (QUALY).

Conclusion: Magnetic growth rods for juvenile scoliosis is a very interesting concept. But since still in its prime deems it necessary that we explore more the short term and long term outcomes as well as impact on QUALY and cost-effectiveness.

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THE STICKY SUTURE – A COMPLICATION OF SMALL BOWEL VOLVULUS SECONDARY TO THE INTRAPERITONEAL USE OF V-LOC SUTURES

Gayner R; Batt J
Royal United Hospital, Bath, United Kingdom

Background: A 29-year-old man presented to surgical admissions with intermittent, severe pain in his central lower abdomen and failure to open his bowels 11 days after an elective ventral mesh rectopexy. The operation was reported to be uncomplicated with mesh secured using maxon sutures and protack staples. The peritoneum was closed with a V-Loc monocryl suture. Blood tests and abdominal radiographs were unremarkable and Gastrografin enema identified no abnormalities, though assisted the patient in evacuating his bowels, providing a shortterm reduction in symptoms. PCA intravenous morphine failed to control his symptoms. After much consideration, the decision was made to perform a relook laparoscopy which identified free fluid in the pelvis and an intermittent small bowel volvulus around a 10cm loop of V-Loc suture that was proud of the wound. The bowel was released from catching on the barbs of the V-Loc suture, with the suture being subsequently removed. The small bowel was carefully replaced and the abdomen washed out. The patient made a good recovery and was discharged four days later, pain free with regular analgesia.

Discussion: The V-Loc wound closure device is a unidirectional, circumferentially barbed suture designed to ease closure of many types of incision. It's design eliminates the need to tie knots which can be of benefit during laparoscopic operations such as laparoscopic repair of inguinal hernia. As such, its recent increase in popularity is somewhat unsurprising though not without risk.

Conclusion: This case represents an unusual mechanism of intermittent mechanical small bowel volvulus resulting in unexplained pain following a relatively benign rectal operation. Following this experience we encourage others to be aware of this potential complication of using barbed sutures to close peritoneal defects during laparoscopic operations.

Category: Case Reports and Clinical Audits Category

HENOCH SCHOENLEIN PURPURA COMPLICATED BY BOWEL ISCHAEMIA

Herbert A; Gawthrope A
Royal Preston Hospital, United Kingdom

Background: Henoch Schoenlein Purpura (HSP) is an IGA mediated systemic autoimmune vasculitis affecting small vessels. It is typically selflimiting, characterised by palpable purpuric rash, abdominal pain, arthralgia and renal disease. Occasionally the condition can affect a myriad of other regions, resulting in severe systemic disease.

Case study: A 52-year-old male was admitted with a four week history of worsening abdominal pain and diarrhoea. Two weeks prior to this he presented with a bilateral pedal purpuric rash and arthralgia. At the time biochemical, inflammatory, autoimmune and connective tissue blood tests were within normal range, leading to a diagnosis of post-viral rash.

On this admission he had clinical and biochemical evidence of sepsis and acute kidney injury. Blood and urine cultures and a vasculitis screen were negative. CT imaging of the abdomen revealed HSP enteropathy, without perforation, ischaemia or collections. Further deterioration of the patient led to an exploratory laparotomy, revealing a small bowel perforation, an area of infarcted small bowel requiring resection and multiple other patches of ischaemia. Within 24 hours these patches had become gangrenous, requiring a limited ileocecectomy. Postoperatively he required multi-organ support in intensive care, with prolonged mechanical ventilation, vasopressor support and dialysis. Bowel histology showed focal ischaemic changes and leukocytoclastic vasculitis. The patient is now TPN dependent for short bowel syndrome and is on maintenance steroid therapy. There was no evidence of HSP nephropathy and long term dialysis was not required.

Discussion/Conclusion: This is an important case highlighting the potential manifestations of HSP in uncommon sites, despite the absence of renal involvement and normal autoimmune parameters. Whilst abdominal pain is a common manifestation of HSP, the case serves as a reminder to maintain a high index of suspicion in those with clinically progressive severe abdominal pain, which may suggest gastrointestinal complication necessitating surgical management.

MANAGEMENT OF A LARGE HEPATIC ANEURYSM PRESENTING AS LOWER ABDOMINAL AND BACK PAIN: A CASE REPORT

Goonoo MS; Goel RR; Husnoo N; Rawshdeh B; Salaman RA
Royal Blackburn Hospital, United Kingdom

Background: Hepatic artery aneurysms (HAAs) are rare (incidence 0.002-0.4%). Diagnosis of HAAs is of important because of the high mortality rate associated with rupture.

Case report: A 74-year-old man with lower abdominal and back pain of three months' duration, put down to osteoarthritis of the spine, had a CT scan to exclude intra-abdominal causes. A partly calcified and partially thrombosed aneurysm of the common hepatic artery measuring 40x47x41mm was found. He was referred to the hepato-biliary and vascular teams at our centre. He had an open repair of aneurysm with vascular reconstruction using vein interposition graft harvested from a long saphenous vein. Post-operatively his recovery was complicated by anaemia, thrombocytopaenia, and a vein-harvest site haematoma. He was safely discharged six weeks later with no evidence of deranged liver function.

Discussion: HAAs are difficult to diagnose being mostly asymptomatic. The most common aetiological factor in their development is atherosclerosis. Ultrasound Doppler and CT are the main investigative modalities but angiography remains the gold standard. Treatment strategies depend on the patient's health, morphology of the lesion and its anatomical location relative to the gastroduodenal artery. Lack of evidence on optimal management often means that management decision is based on local preference. Percutaneous embolisation is the most commonly used technique for predominantly intrahepatic aneurysms. Endovascular therapy (using different types of stents) is the emerging treatment modality for visceral aneurysms, used in emergencies and anatomically difficult cases. Surgical treatment involves ligation or revascularisation of the hepatic artery. Follow-up post-intervention is by ultrasound Doppler and CT angiogram.

Conclusion: Our patient was treated with aneurysmectomy and revascularisation due to close proximity of the lesion to the celiac axis, its size and fusiform shape. More reports are required in the literature on current and new techniques (*e.g.* surgical robotics) to inform management of this rare phenomenon.

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PREGNANT WOMAN WITH SUBARACHNOID HAEMORRHAGE AND MULTIPLE INTRACRANIAL ANEURYSMS - A CASE REPORT

Bali T; Elangovan V
Royal Preston Hospital, United Kingdom

Background: This case report is about the management of a pregnant woman diagnosed with subarachnoid haemorrhage. This happens in one in a 1000 pregnancies and is responsible for five to 12% of all maternal deaths and hence timely diagnosis and appropriate treatment is crucial for mother and baby.

Case study: A 34-year-old female was admitted to ICU following a diagnosis of Grade 1 Subarachnoid haemorrhage. Her symptoms on admission were a sudden onset of headache, acute neck pain and vomiting. CT scan revealed an extensive haemorrhage. She had left cytosis and it was presumed that it was a left PCOM artery aneurysm, which had bled. She was pregnant at 38+6 weeks. She also developed a third nerve palsy. An obstetric consultant on call delivered the patient's third baby via an emergency C-section procedure. After which, coiling of her left PCOM artery aneurysm was done under general anaesthetic at the neuro angiography suite.

Discussion: As pregnancy advances, there is an increased frequency of aneurysms developing and a higher tendency for such lesions to form and grow. CT scanning for diagnosing lesions exposes the foetus to radiation but its benefits greatly outweigh the risks of the situation.

Conclusion: Pregnant patients with a ruptured aneurysm should be treated following the same protocol as if they were not pregnant unless she was in active labour when obstetric issues take priority. This can be precipitated prematurely by the haemorrhage, eclampsia or foetal distress. Delivery should be performed promptly by C-section followed by neurosurgical treatment.

OVARIAN HYPERSTIMULATION SYNDROME: A UNIQUE PRESENTATION OF AN IATROGENIC CONDITION

Ahluwalia N; Seth J; Sahai A
Guy's Hospital, Guy's & St Thomas' NHS Foundation Trust, London, United Kingdom

Background: Ovarian hyperstimulation syndrome (OHSS) is an iatrogenic complication of ovarian induction; a procedural step in in-vitro fertilisation. Due to a systemic extravasation and resultant extravascular fluid shift it has a broad spectrum of clinical manifestations ranging from gastro-intestinal disturbance, thromboembolism and ARDS. Here we present an original report of a life-threatening complication of OHSS due to a physical compression of surrounding structures by the marked ovarian enlargement.

Case Report: A 36-year-old female presented to the Emergency Department with abdominal distention. Her history was complicated by a history of severe fistulating Crohn's disease requiring ileocaecal resection and proctosigmoidectomy in 2006 and 2009 respectively. However, 24 hours before presentation she underwent ovarian induction as part of her IVF treatment and thus was admitted under the gynaecologists with a presumptive diagnosis of OHSS. Over the next 24 hours she developed septic shock, acute kidney injury (AKI) and anuria. Ultrasound delineated bilateral hydronephrosis and hydroureter and subsequent CT scan attributed the bilateral distal ureteric obstruction to external compression by large, multi-loculated pelvic masses representing the enlarged ovaries. Her kidneys were urgently decompressed with bilateral nephrostomies and pus aspirated from the right kidney for which she was treated with appropriate antibiotics with good response. Complete recovery of renal function was seen and nephrostomies were replaced with ureteric stents. Subsequent outpatient scans demonstrated resolution of the ovarian enlargement and the patient has re-engaged with IVF.

Discussion: AKI is a severe complication of OHSS, secondary to renal hypoperfusion. Here we present a post-renal indictment of OHSS that required urgent surgical intervention that has not been previously described in the literature. This lady's complex surgical history and resultant scarring and adhesions may present a predisposing factor for physical obstruction.

Conclusion: There should be a low threshold for radiological investigation to ascertain atypical pathophysiological processes in patients with complex abdominal pathology.

MANAGEMENT OF COPD EXACERBATIONS IN THE COMMUNITY - ARE WE DOING IT WELL ENOUGH?

Wu D; Nugent J
North Western Deanery, United Kingdom

Background: Early identification and treatment for exacerbations of COPD in the community could reduce non-elective admissions of patients.

Method: A systematic search on EMIS based on "emergency admissions", "FEV/FVC", "exacerbation of COPD" and "shortness of breath" was performed (1/6/2014 - 1/2/2015) within a general practice.

Audit Aims:

1. Whether patients in COPD exacerbations were seen by a doctor or community matron prior to their acute admissions;
2. Whether patients at risk of exacerbations were being reviewed regularly by trained practitioners in the community.

Results: Four hundred and twenty six patients were registered to suffer COPD. Over eight months, 13 morbidly unfit patients (median age = 79 years; median courses of steroids per year = three) were attributable to 14 acute admissions to the local medical assessment unit due to COPD exacerbations (12 infective and two non-infective). Their median length-of-stay was four days. Retrospective analyses showed that 64% of all COPD exacerbations were admitted through self-presentation to the emergency department. Of those 56% who had already been assessed and commenced on steroids and/or antibiotics by at least one primary care practitioners, the median time between their last physical/ telephone encounter and acute attendances were seven days. This audit identified that 42% of all patients with cumulative episodes of 19 COPD exacerbations treated in primary (10/19) and secondary care (9/19) had not had their COPD reviewed within twelve months prior to their non-elective admissions. It was also noted ad-hoc that five eighths of those patients who required three or more courses of steroids per year were not offered prophylaxis against osteoporosis and fragility fractures.

Discussion/Conclusion: The lack of clinical review post-diagnosis of COPD exacerbations has been raised locally. Future re-audit should aim for 100% compliance in annual COPD review. Osteoporosis prophylaxis should also be considered for patients requiring three of more courses of steroids per year for COPD.

CASE REPORT: SINONASAL ACTINOMYCOSIS IN PATIENT WITH LEUKEMIA LYMPHOCYTIC ACUTE

Rahmawati IA; **Shahab SN**; Kirana IA; Kusumawardhani RS
Cipto Mangunkusumo Hospital, Jakarta, Indonesia

Background: There were some cases of actinomycosis reported in patient with leukaemia in different sites of infections, but any report of sinonasal actinomycosis is hard to find. Due to its ability to mimic other diseases, there is a chance of missing diagnosis leading to mistreatment causing substantial morbidity and mortality. These maltreated patients are having high risk of developing life threatening complications.

Case report: A 15-years-old girl with acute lymphocytic leukemia (ALL) in remission post chemotherapy was admitted to Oto-Rhino-Laryngology department for purulent nasal discharge and foul odour since three weeks before admission. She also complained nasal congestion and facial pain. Local examination of oral cavity revealed multiple carious teeth. Local examination of nasal cavity revealed whiteeasily bleed-mass in medial concha and medial meatus of the right nasal cavity with purulent discharge in nasopharynx. Histopathological examination showed granulation tissue and branching filamentous bacilli indicating Actinomyces sp. colony. Paranasal CT Scan without contrast showed mucosal thickening of bilateral maxillary sinuses, right ethmoid sinus, and left sphenoid sinus. Intracranial calcification with diffused hypodense lesion in left frontal lobe also found. Patient was currently treated with nasal washing, oral antibiotic, and analgesic. We considered administrating amphotericin B intravenously as further treatment. Culture from blood and nasal discharge specimens were indicated for evaluation of the treatment.

Discussion: The patient had history of repeated nasal discharge and cough two years back. At that time, the patient was misdiagnosed as acute airway infection. Recently, the patient came with more severe symptoms and we suspected space occupying lesion of left frontal lobe which was likely an intracranial complication of actinomycosis.

Conclusion: Following the misdiagnosed of actinomycosis, the patient currently showed more severe symptoms and suspected having intracranial complication. Early recognition of actinomycosis and right treatment choice may lessen the morbidity and mortality of the patient.

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REVIEW OF MANAGEMENT OF INCIDENTALLY DETECTED ABDOMINAL AORTIC ANEURYSMS (AAA)

Berry B; Hasan AFSA; Pherwani A; Asquith J
Keele Medical School, Royal Stoke University Hospital (UHNM), United Kingdom

Background: Review the management of incidentally detected AAA at our tertiary vascular unit. In particular, to identify whether patients who presented with ruptured AAA had a 'missed opportunity' for elective treatment, due to failure to enter an AAA surveillance programme after the incidental diagnosis.

Method: Patients were retrospectively identified by keyword search using our Radiology Information System, January 2005 - April 2014. The patients were those who presented with ruptured AAA on CT, but had a previous incidental radiological diagnosis of AAA, however were not entered into AAA surveillance. Patient's hospital records were reviewed for confirmation.

Relevance/Impact: To ensure all patients with incidental AAA are enrolled into a surveillance programme and appropriately managed.

Results: One thousand eight hundred and thirty potential patients were identified using the keyword search. Analysis of these revealed 20 patients had prior incidental AAA detected on CT (40%), ultrasound (55%) or radiographs (5%), but had not received surveillance. At incidental AAA diagnosis, mean patient age was 77.2 years and mean size of AAA was 4.7cm. Mean duration between incidental diagnosis and rupture was 48 months. Seven patients had surgical repair and two endovascular repair. Overall mortality for these patients presenting with ruptured AAA was 60%.

Discussion: Not all patients with an incidental diagnosis of AAA at our hospital were entering a surveillance programme, consequently some of these patients progressed to AAA rupture.

Conclusion: This demonstrates the requirement to red flag incidentally diagnosed AAA and highlights the need to follow -up such patients.

DETERMINING THE MOST COMMON EMERGENCY PRESENTATIONS IN EARLY PREGNANCY

Tanti C
Mater Dei Hospital, Malta

Background: Early pregnancy emergencies are varied and include hyperemesis gravidarum, miscarriage and ectopic pregnancy. This can be a threat to both the mother and the foetus. The most common presentations include vaginal bleeding, abdominal pain, nausea and vomiting.

Aim: To determine the most common emergency presentations in early pregnancy.

Method: This audit was carried out at the Obstetrics and Gynaecology Department at Mater Dei General Hospital, Malta. A retrospective study was carried out to analyse the early pregnancy emergency admissions for the period covering January 2014 - December 2014. A total of 318 patients were admitted. The most common presentation was vaginal bleeding with a total of 142 cases (44.7%), 29 of which had miscarriage (9.1%). A total of 119 patients (37.4 %) presented with abdominal pain, 44 of which had pain localised to the iliac fossae. However, only six of them were diagnosed with ectopic pregnancy (1.88%) by transvaginal ultrasound. Twenty five patients (7.86 %) were admitted for hyperemesis gravidarum requiring observation and hydration. The remaining 10 % of cases were benign and were only admitted for monitoring.

Discussion: Vaginal bleeding and abdominal pain in early pregnancy are common presentations at the emergency department. About 40% of women experience vaginal bleeding. The causes may be varied including the more common benign conditions such as implantation bleeding or extrauterine pathology. However, early diagnosis and management of the less common life threatening cases is vital.

Conclusion: This audit showed that the incidence of severe causes of bleeding, pain and nausea are low compared to other benign causes. However, one needs to analyse the risk factors for developing these conditions, such that they can be prevented and treated as early as possible.

THE OUTCOME OF PREGNANCIES WHERE THE NUCHAL TRANSLUCENCY EXCEEDS 3.5MM

Malcolm FL; Loughna P
Nottingham University Hospitals, United Kingdom

Background: Risk of adverse pregnancy outcome is increased when foetal nuchal translucency measures 3.5mm or greater. NT≥3.5mm is a marker of aneuploidy, structural defects and miscarriage. Our aim was to examine outcomes of women presenting with NT≥3.5mm at Nottingham City Hospital and compare foetal outcome with previous reports of elevated foetal risk. Our retrospective study aimed to improve counselling for women with NT≥3.5mm by providing outcome data relevant to their population and to highlight strengths and weaknesses in our NT screening service.

Method: Pregnancies presenting with NT≥3.5mm at NCH over four years (2010 - 2014) were identified from patient notes and outcomes were analysed. Normal outcome was defined as live birth with no abnormalities. Aneuploidy, structural and genetic defects and miscarriage were classified as adverse outcomes.

Results: One hundred and nine pregnancies with NT≥3.5mm were analysed. Adverse outcome was recorded in 55; 54 had a normal outcome. Mean NT 6.3mm in adverse and 4.3mm in normal outcome. Parametric comparison of the means reported difference between the groups to be statistically significant ($P<0.001$). NT was significantly larger in adverse outcome. Genetic abnormality was seen in 37 pregnancies; including 26 trisomies, eight 45,XO and three other defects. Adverse outcome occurred in 18 euploid pregnancies. Fourteen structural defects were reported prenatally or at birth in five foetuses with abnormal karyotype and nine euploid foetuses. Cardiac defects were most common. Fourteen foetuses were diagnosed with cystic hygroma; adverse outcome occurred in 85.7% compared with 45.3% presenting without CH.

Conclusion: Pregnancies presenting with NT≥3.5mm at NCH have a high risk of adverse outcome. This is in line with expected results providing reassurance that outcomes in our local population are typical findings. There is confusion in the differentiation between CH and increased NT. This issue needs to be addressed as we found that CH in addition to NT≥3.5mm presented higher risk of adverse outcome than NT≥3.5mm alone.

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Poster Presentations

LOW CONCENTRATION CIGARETTE SMOKE MODULATES IL-6 AND IL-8 RESPONSES IN AIRWAY EPITHELIAL CELLS

Edwin C; Rose K; McNamara P
Alder Hey Children's hospital, Liverpool, United Kingdom

Background: Passive Cigarette has been implicated in various viral infections causing hospital admission in children, including bronchiolitis caused by Respiratory Syncytial Virus. Research carried out has shown how cigarette smoke influences inflammatory responses in epithelial cells and how this modulates viral infection.

Methods: This study investigated the effect of cigarette smoke extract (CSE) in steroid-free media on cultured BEAS-2B respiratory epithelial cells. Very low concentrations of CSE were used to potentially mimic the levels of passive exposure experienced by children. Concentrations of CSE (0.001% to One percent) were added to the cells in culture medium. A cell viability assay was performed with a range of concentrations added to the cells (0-100%) with exposure times of two hours and 24 hours. CSE was added to the cells for two hours before a change in media. Media supernatant was removed and analysed by enzyme-linked immuno-absorbent assay (ELISA) for Interleukin-6 (IL-6) and Interleukin-8 (IL-8). Normally distributed data was analysed with the one-way ANOVA test, followed by *post-hoc* analysis using the Bonferroni method.

Results: Cell viability decreased at highest CSE concentrations. ELISA results (n=5) showed significant differences using one-way ANOVA (IL-6 ($p=0.006$) and IL-8 ($p=0.022$)). Bonferroni analysis showed significant differences between 0.001% CSE and control media exposure (IL-6 ($p=0.01$) and IL-8 ($p=0.014$)). IL-6 also showed a significant difference between control media exposure and 0.1% CSE ($p=0.025$).

Discussion: Il-6 and Il-8 are important cytokines produced by respiratory epithelium as part of the inflammatory response. Inflammatory responses to second-hand cigarette smoke could help to explain why children passively exposed to cigarette smoke tend to have worse respiratory disease with viral infections.

Conclusion: Our results illustrate that cells exposed to low CSE concentrations produce significant inflammatory cytokine and chemokine release (IL-6 and Il-8).

COMPARISON OF DETERMINANTS ASSOCIATED WITH METABOLIC SYNDROME (METS) IN TWO DIFFERENT MEXICAN RURAL COMMUNITIES

Wilson E; Sainz B; Bernal A; Villaseñor A; Mera N; Viruete S
Centro Universitario de la Costa, Universidad de Guadalajara, Mexico

Background: The prevalence of overweight and obese adults in Mexico as of 2013 was 71.3% of the adult population (38.8% overweight and 32.4% obese). The objective of this study was to analyze and compare determinants associated with MetS in previously diagnosed adults with MetS from two different Mexican rural communities.

Materials and Methods: Descriptive statistical analysis was used to compare the above mentioned determinants from two previous studies. The data of these two studies was collected from surveys of previously diagnosed adults with MetS in the rural communities of Mirandillas (M) and El Chante (C), in 2012 and 2013 respectively.

Results: More than 50% of the total subjects from both communities were ≥ 61 years of age. The proportion of females was 82.36% in C and 66% in M. Systolic Blood Pressure (SBP) and Diastolic Blood Pressure (DBP) was higher in M with mean values of 140 mm Hg (± 19.2) and 85.2 mm Hg (± 8.7), respectively; while in C the mean values were 131.8 mm Hg (± 11.3) and 77.6 mm Hg (± 5.6). Mean Body Mass Index (BMI) values revealed mild obesity in both communities but BMI was higher in C with 32.5 (± 1.7) than in M with 30.4 (± 3.6).

Discussion: MetS is more prevalent in the elderly and female population. Many determinants associated with MetS such as waist circumference, body mass index, fasting serum glucose and blood pressure are not properly managed in either of these communities.

Conclusion: Two Mexican rural communities have similar patterns of socio-demographic and health-related determinants associated with Metabolic Syndrome. The disease patterns that were revealed may be representative of Mexican rural communities and justify specific future public health interventions.

HYDROGEN SULFIDE, A PROTECTIVE FACTOR AGAINST HOMOCYSTEINE-INDUCED DAMAGE IN PORCINE CORONARY ARTERIES

Siew Yen W
University of Nottingham, United Kingdom

Background: Hyperhomocysteinemia, an independent risk factor for cardiovascular diseases is known to disrupt normal vascular endothelial function. Some studies have shown that hydrogen sulfide (H_2S) may be able to prevent this. This study investigated the effect of hyperhomocysteinemia *in vitro* on the endothelium and whether administration of exogenous H_2S could protect against any changes.

Methods: Porcine coronary arteries were incubated overnight (14 hours) in Krebs-Henseleit solution only (controls), or with homocysteine (100μM) or homocysteine plus GYY4137 (100μM, H_2S donor). Isometric tension analysis was used to examine cumulative endothelium-dependent and endothelium-independent vasorelaxation of artery rings (5mm, precontracted with U46619) to bradykinin and sodium nitroprusside (SNP) respectively. Bradykinin and SNP concentrations used were between $1x10^{-9}$M to $3x10^{-6}$M. Experiments for controls and homocysteine treated arteries were repeated in the presence and absence of L-NAME (300μM) and indometacin (10μM). Results are shown as mean±standard error.

Results: Endothelium-dependent vasorelaxation was virtually abolished in endothelium-denuded arteries (R_{max}=1.8±0.6%, n=6, damaged during experiment) compared to endothelium-intact arteries (R_{max}=55.5±3.3%, n=6) (R_{max} being the concentration of bradykinin causing maximum relaxation). Bradykinin-induced vasorelaxation was significantly less with L-NAME and indometacin (R_{max}=29.5±3.1%, n=6) compared to controls (R_{max}=69.9±5.0%, n=6) ($P<0.05$). At $3x10^{-6}$M bradykinin, vasorelaxation for homocysteine (55.0±6.6%, n=6) versus control (86.7±6.2%, n=6) was significantly attenuated ($P<0.01$) but control (94.4±5.8%, n=6) versus homocysteine plus GYY4137 (99.2±6.0%, n=6) was not significantly different ($P>0.05$).

Discussion: Homocysteine-induced damage may involve oxidative stress and proinflammatory effects on the endothelium. It is not clear how H_2S protects against this, but a role in the reduction of reactive oxygen species as a result of hyperhomocysteinemia has been suggested.

Conclusion: Exogenous H_2S could potentially be used therapeutically to slow homocysteine-induced damage on the endothelium.

BIOCOMPATIBILITY OF FE_3O_4 NANOPARTICLES EVALUATED IN VIVO.

Dan C; Laura P; Victor P
University of Medicine and Pharmacy of Craiova, Romania

Introduction: The chick embryo chorioallantoic membrane (CAM) is an extraembryonic membrane that is commonly used in vivo with a wide use due to the inexpensive costs, manageability and fast development. It offers an optimal access of the vascular system. Ferromagnetic nanoparticles represent an attractive option when it comes to targeted antitumor therapy, the essential characteristics of nanoparticles are the biocompatibility and bioavailability.

Material & methods: The aim of our study was to find out whether the CAM is suitable as a model for testing biological properties of nanoparticles. A number of ten Eggs of White Leghorn chickens were incubated at 37.8°C for 13 days, in order to proceed to one or two daily intravascular injection of 0.2 mL of FN for two consecutive days. Three embryos have been harvested a day after injections but the other ones were left until the hatching stage. The harvested embryos had been sent for further histopathological studies using H&E and PERLS stains.

Results: Injected embryos underwent a normal evolution and as a result a proper hatching, without showing any morphological abnormalities. Histological studies have shown nanoparticles deposits in the liver, lung, heart as well as free nanoparticles in the blood stream. Nanoparticle deposits from the liver were dose-dependent.

Conclusions: The uninfluenced development of the injected embryos can be considered as a proof of biocompatibility and an open door for further studies. Nanoparticle deposits in viscera can also be considered as a feasible biocompatibility.

Keywords: biocompatility, nanoparticle, embryo, CAM.

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PREVALENCE COMPONENTS AND FACTORS ASSOCIATED WITH METABOLIC SYNDROME WITH GENDER EMPHASIS IN TWO DIFFERENT MEXICAN RURAL COMMUNITIES.

Mera V; Meneses A; Villaseñor A; Bernal A; Wilson E; Viruete S
Universidad de Guadalajara, Mexico

Background and objective: The objective was determinate the prevalence components and factors associated with metabolic syndrom with gender emphasis from epidemiology studies in two different Mexican rural communities at Jalisco, Mx.

Methods: Comparative analysis was performed to determine the prevalence by gender of the components of metabolic syndrome. This was realized in two Mexican rural communities: "El Chante, Jalisco" and "Rincón de Mirandillas, Jalisco". Subsequently, the possible related factors were analyzed.

Results: Participated 67 patients, 67% were female and 33% were male. The mean age was 65 years. The proportion of females was: diabetes(DM) 60%, hypertension(HTA) 31%, dyslipidemia(DS) 46.67% and obesity(OB) 95.56%. About males: DM 77.3 %, HTA 86.4 %, DS 50% and OB 100%. Getting a total prevalence: DM 65.67%, HTA 74.63%, DS 47.76 % and OB 97.01%.

Discussion: Associated factors in both communities related to metabolic syndrome were: be older than 65 years of age, presence of inactivity and family history. The main economic activities in these communities were: maize agriculture and cattle farming season, held mainly for men. The women dedicate to attend the home and children. Perhaps this is the reason of the prevalence of DS and OB in women. The women have a sedentary life if we compare with countryside activity of men.

Conclusions: We were able to analyze the prevalence of metabolic syndrome components by gender. We obtained from highest to lowest proportion: obesity, diabetes, dyslipidemia and hypertension in women. About men: obesity, hypertension, diabetes and dyslipidemia. We foundd a great difference observed in the prevalence of hypertension among men and women, women were 55.4 % less.

THE PREVALENCE OF RESTLESS LEG SYNDROME AMONG PREGNANT SAUDI WOMEN

Mobeireek N; Al-Jahdali S; Al-Dubyan N; Khan M; AL-Jahdali H
King Abdulaziz Medical City, Saudi Arabia

Introduction: Restless leg syndrome is (RLS) a sensorimotor sleep disorder that causes discomfort in the legs at rest and is relieved by activity. The prevalence of RLS in pregnancy is reported to be more common in pregnancy especially the third trimester and the symptoms tend to improve after delivery.

Objectives: To determine the prevalence of RLS among pregnant Saudi women and To identify the associated factors

Methods: A cross-sectional study conducted among pregnant women visiting obstetric clinic at KAMC-Riyadh from June to November 2014. We used a data collection form to gather all pertaining information regarding demographic data, number of pregnancies, and duration of pregnancy, comorbidities and symptoms of RLS.

Results: Total number of participants enrolled was 517, mean age was 30.11±5.42 years. The most common comorbidity was anemia 19%. The prevalence of RLS was 21.3%. When we compared the risk factors and clinical characteristics of participants with RLS to those without, there was no significant difference regarding age, number of pregnancies or educational level. RLS symptoms were more common among women in the third trimester (24.1%) compared to the second trimester (14.3%) and first trimester (13.6%), p-value = 0.043. RLS was significantly associated with EDS as measured by ESS >10 (p=0.046) and poor quality of sleep as measured by PSQI (p=0.002). The stepwise multivariate logistic model identified anemia (OR: 1.850, CI: 1.027-3.332, p- value = 0.040) and poor sleep quality (OR: 4.982, CI: 1.491-16.644, p-value=0.009) were associated with RLS

Discussion: Our study showed a prevalence of 21.3% which is in the range of other previously reported studies. The prevalence has varied between 1-30% depending on the methodology, criteria of diagnosis of RLS, gestational age and population (1, 2). Anemia was quite common in our patients (19%) and appeared to be a risk factor for RLS on the multivariate logistic regression. In addition, poor sleep quality and Excessive daytime sleepiness were associated with RLS. Finally, risk of RLS is increased with advancing pregnancy.

Conclusion: RLS is common among pregnant women, and is associated with other sleep disorders such as EDS and PSQ. Anemia and third trimester was specifically associated with RLS.

TAVI: COMPARISON OF APPROACH THROUGH CADAVERIC DISSECTION

Dynes K
University of Aberdeen, United Kingdom

Background: Transcatheter aortic valve replacement is an alternative to open heart surgery in the treatment of severe aortic stenosis in patients with multiple co-morbidities. The aim of this study was to use surgical dissection of a cadaver to determine which of the two most common routes, via the femoral artery or the subclavian artery, is safest.

Method: Surgical dissection of the cadaver was undergone using a sternotomy, and all the internal organs and major veins in the thorax were removed. The heart and the two arteries which were to be studied were left in situ. The most commonly used replacement valve, Cribier-Edwardas valve, was used as a guide and measurements were taken using a ruler and a protractor.

Results: The femoral artery was found to have a diameter of 15m, compared to the subclavian which had a diameter of 9mm. Normal anatomy allows us to see that the femoral artery has a longer approach to the heart in comparison to the subclavian artery, however it is a more gentle approach as the subclavian artery bends at a sharp 90 degree angle before reaching the heart.

Discussion: Approach via subclavian artery allows for a shorter procedure reducing the patient's exposure to radiation and radio contrast however it is narrower and any damage caused could risk brain injury via the vertebral artery. The transfemoral approach reduces the risk of damage to the brain and allows for easier passage of the 8mm replacement valve.

Conclusion: Dissection of the cadaver determines that a transfemoral approach is safer.

ASSESSMENT OF FACTORS DETERMINING NON DAY-CASE LAPAROSCOPIC CHOLECYSTECTOMY

Ali F; Zaidi A; Sabanathan S; Lala A
Ysbyty Gwynedd, Bangor, United Kingdom

Background: Laparoscopic cholecystectomy is a commonly performed procedure with most cases done as a day case procedure. Still a few patients will require overnight stay and others are done as an elective planned admission requiring an inpatient bed. This audit was done to identify the risk factors for patients for non day case laparoscopic cholecystectomy as there are no protocols or guidelines for the clinicians. We looked into various factors which could determine the difficulty of the procedure and those which would determine inpatient stay.

Methodology: A retrospective review of the case notes of 20 patients who stayed overnight after a planned elective day case laparoscopic cholecystectomy between January 2014 and August 2014 was done. Factors such as ultrasound information on thickness and contractility of gallbladder wall, age, BMI, time and duration of surgery etc. were taken into consideration.

Results: A total of 159 case notes were reviewed. Seventeen were emergency surgery and 20 patients required overnight hospital stay. Seventy five percent were male and over 60 years age. Nine patients had documented thick walled gallbladder on USS and a further six had thin walled GB. Ten percent patients had previous acute pancreatitis.

Discussion: The major risk factors involved for a patient to have a non day case procedure are thick walled gall bladder, age >60 yrs and male gender. Contractility of the gallbladder was not found to be a risk factor for non day case surgery. Similarly previous pancreatitis and high BMI were not identified as risk factors for non day case surgery.

Conclusion: This audit can guide us to pick up patients who cannot have surgery as a day case and therefore be planned for a non day case surgery in our DGH. So it will help in better patient education before surgery and it will help clinicians in patient selection.

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COMPLIANCE WITH GUIDELINES FOR PHARMACOLOGICAL THROMBOPROPHYLAXIS (LMWH) FOLLOWING VAGINAL DELIVERY

Chau H
St. Mary's Hospital, Manchester, United Kingdom

Background: Venous thromboembolism (VTE) is a leading direct cause of maternal death. The risk of VTE is highest in the postpartum period. According to the Royal College of Obstetricians and Gynaecologists (RCOG), early administration of thromboprophylaxis may reduce the incidence of VTE in obstetric patients by up to two thirds. Therefore, risk stratification to identify women who warrant pharmacological thromboprophylaxis i.e. LMWH (low molecular weight heparin) is needed. Local Trust guidelines suggest that seven days LMWH should be offered to all obstetric patients after vaginal deliveries, which have either at least one major or at least two minor risk factors for VTE. This audit is aiming to determine the level of compliance against Trust guidelines.

Methodology: Women in the postnatal wards of St Mary's Hospital, who underwent vaginal deliveries were identified from the handover sheets (3rd-7th March 2014). Patient's handheld notes, delivery notes, prescription charts and K2 data base were read through carefully to obtain the relevant information.

Results: Out of 78 patients who had vaginal deliveries: Seventy one percent-normal deliveries; 19-by forceps; 10%-by vacuum. Postnatal assessment was done and recorded in 62% (49). Twenty one percent (16) met the criteria of postnatal LMWH, in which 75% (12) were prescribed with LMWH.

Discussion: The standards were not met. There was a possibility of overlooking of the inclusion criteria since the inclusion criteria for BMI and parity in antenatal booking pro forma and postnatal assessment on K2 are slightly different. However, the antenatal and postnatal inclusion criteria in the RCOG and the Trust Guidelines are the same. It would be better if the antenatal booking pro forma can be standardised.

Conclusion: It is necessary to promote the needs for postnatal VTE assessment and its documentation. A re-audit with a larger sample size is recommended.

THE VERIFICATION OF DEATH AT HILLINGDON HOSPITAL: A COMPLETE AUDIT CYCLE

Alisha A; Julie V
Hillingdon Hospital, Uxbridge, United Kingdom

Background: Verification of death is standard practice for doctors, and documentation is a core part of this process. Doctors, however, do not commonly document every section, a key aspect to prevent legal complications and further distress for the family of the deceased. There exist local and national guidelines that outline the appropriate steps required to correctly verify death.

Method: This audit investigated how well doctors at a district general hospital conduct and document verification of death. Documentation was reviewed for all patient deaths in the hospital over a period of two weeks. This was a prospective study and data was collected from patient notes on the day of or day after death. Both local and national guidelines were used as audit standards to produce the pre-designed table with 11 criteria to audit. The data was analysed and presented at an education session for doctors. A proforma was subsequently developed for doctors to use as an aid to conduct the verification of death, and trialled on three wards. A re-audit was subsequently performed.

Results: Thirty four sets of notes were initially audited: Three percent of notes achieved all 11 criteria, and compliance ranged from three percent to 97% for each of the criteria, with poor documentation of corneal reflex, pulse, heart and breath sounds. Forty sets of notes were re-audited with 100% compliance for all criteria in the nine cases where the proforma was used. 55-100% compliance was noted in cases where the proforma was not used, and improvement was seen in each of the 11 criteria.

Conclusion: The re-audit showed a drastic overall increase in compliance with both local and national guidelines for the verification of in-hospital patient deaths following both an education session and the implementation of a proforma. The completion of an audit cycle has led to a positive, significant change in clinical practice.

NOVEL ORAL ANTICOAGULANTS: PATIENT SATISFACTION, COMMON AND SEVERE SIDE-EFFECTS IN A DISTRICT GENERAL HOSPITAL

Subhani M; Morgan L; Raybould A
West Wales General Hospital, United Kingdom

Aim: Dabigatran and Rivaroxaban, two novel oral anticoagulants (NOACs), have recently been approved for use in a small district general hospital. We constructed a quality improvement study to ascertain patient satisfaction and to identify common or life-threatening side-effects experienced in our elderly population.

Methods: Patients on NOACs for non-valvular atrial fibrillation were obtained using the pharmacy dispensary list. A satisfaction questionnaire was designed and posted to each patient with a pre-paid return envelope. The patient list was cross-referenced with blood-bank records to identify any patients who had required blood products since NOAC approval. Hospital coding services were also consulted to identify any patient's admitted with acute bleeds.

Results:

- One hundred and thirty five patients identified
- Questionnaire response rate of 75% (n=101)
- Mean age= 71.87
- Sixty three percent female.
- Mean eGFR = 69.38

Twenty six percent reported general side-effects including GI upset and skin rash. Twenty two percent had minor bleeding or bruising. Of these, 59% did not seek medical attention. Eighty five percent were satisfied or very satisfied. Nine percent stopped taking the medication due to side-effects.

Four patients were admitted with acute bleeding. Three presented with rectal bleeding/ melaena whilst one presented with gum bleeding. Two had an abnormal clotting profile. Only one required blood products which were for an upper GI bleed in an intensive care setting.

Conclusions: In an elderly population in west Wales, patient satisfaction and tolerance to NOACs was high. Only one percent had severe bleeding requiring blood products. These finding supports the use of NOACs in our elderly population with good tolerability for the majority

YOU ARE MEDICALLY FIT...BUT YOU CAN'T BE DISCHARGED

Engall N; Gow K
Fairfield General Hospital, Bury, United Kingdom

Introduction: Discharge from hospital can only take place when a senior clinician has decided a person is 'medically fit for discharge' (MFFD). An unnecessary hospital stay puts patients at higher iatrogenic risk, including contracting hospital-acquired infections (HAIs). Recent literature has estimated hospital-wide prevalence of HAIs in high-income countries at 7.6% and that 20% of hospital bed use is inappropriate.

Method: Patients staying on an acute medical ward on two different days were selected. We recorded the dates of their admission, the date they were deemed 'MFFD' and their date of discharge. The second day fell within a social work initiative where staff actively sought out patients on the ward who needed social work input to aid their discharge - as opposed to waiting to receive referrals from ward staff.

Results: Prior to the intervention, 10 patients collectively stayed in hospital for 62 days. In total, for 46 (74.2%) of these days, patients were classed as 'MFFD'. Hospital stay while 'MFFD', per patient - median 2.5 days, mean 4.6 days.
Post-intervention, 12 patients collectively stayed in hospital for 158 days. In total, 40 (25.3%) of these days were classed as 'MFFD'. Hospital stay while 'MFFD', per patient - median 1.5 days, mean 3.3 days.

Discussion/conclusion: Our results suggest that the social work intervention reduced patients' stay in hospital while they were 'MFFD'. This intervention only ran as a two month trial. The results imply it would be beneficial to patients if this was permanently implemented.

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FEEDBACK FOR SHEFFIELD CHILDREN'S HOSPITAL SEXUAL ASSAULT REFERRAL CENTRE (SARC): ARE WE GETTING IT RIGHT?

Messham L; Peers L; Alison L
Sheffield Children's Hospital, United Kingdom

Background: The SARC at Sheffield Children's Hospital is a relatively new service for children who have been victims of sexual assault or rape. Feedback is essential to improve the services the SARC offers to victims and their families at such a traumatic time.

Aims: To analyse data obtained by feedback surveys from SARC users in order to assess user satisfaction and suggest improvements to the existing service.

Methods: A feedback questionnaire form was given to SARC users which included the patient, parents, police and social workers. Users were asked to enter responses to six key questions about their experience at the SARC by means of a scale of "smiley faces". There were a further two questions with space for free text comments about things that were done well and things that could have been done better. Completed questionnaires were collected over a period of 13 months and the data analysed.

Results and Discussion: Analysis of the data demonstrated that the majority of feedback from users was positive. There were four responses that could be interpreted as neutral; however no negative comments were recorded in the free text boxes elaborating on why this was the chosen response.

There were numerous positive comments in the free text boxes about what the service did well and only six negative comments, one of which related to the examination, one relating to the use of questionnaires and the remaining four relating to the hospital facilities including parking and air conditioning.

Conclusion: Child sexual abuse victims use the service at a difficult time after having been through a traumatic experience; one would expect at least some negative feedback in light of the given circumstances. However, the analysis of the collected feedback demonstrated that the majority of feedback from SARC users is positive or very positive.

ANTIPLATELET AND STATIN USE IN MANAGEMENT OF VASCULAR PATIENTS AT A TERTIARY CENTRE

Baxter L, Hancox J; Ireland P; Reeves N; Bulbulia R
Cheltenham General Hospital, United Kingdom

Background: Many large-scale studies have shown that statin and anti-platelet usage in vascular patients is associated with significantly reduced morbidity and mortality. More recently, it has been identified that for maximum efficacy, higher-dose statins are required, as reflected in the latest NICE guidance.

NICE guidance identifies anti-platelet and high intensity statin therapy as key interventions in secondary prevention of cardiovascular disease in patients with peripheral arterial disease.

Methods: Records of 100 vascular inpatients and 50 outpatients were retrospectively audited against NICE guidance on secondary prevention in those with peripheral arterial disease. To ensure only patients with peripheral arterial disease, criteria for inclusion were determined: outpatients attending a specific claudication clinic and inpatients having had a revascularisation or amputation procedure.

Results: High intensity statin therapy was found in 39% of ward patients compared to 34% of clinic patients. 80% of ward patients were found to receive statin therapy of any intensity, compared to 88% of clinic attenders. Aspirin usage in clinic patients was higher than ward patients, 60% versus 46%, as was the number of patients on any form of antiplatelet therapy, 86% versus 79%.

Discussion and Conclusions: In both groups of patients, less than half were receiving high intensity statin therapy. The percentage of patients receiving statin and antiplatelet therapy was higher in the clinic group. The claudication clinic is nurse led with protocols for management of patients, whereas consultant clinical decision making plays the larger part in the ward management of patients. This suggests a more prescriptive protocol would be beneficial in ward patients. High intensity statins were used more often in ward patients however both groups would benefit from staff education regarding intensity of statin therapy.

THROMBOEMBOLIC DETERRENT STOCKINGS (TEDS): PRESCRIBING IS NOT ENOUGH

Ayesha C; Abu-Serriah M
Manchester Royal Infirmary, United Kingdom

Background: Thromboembolic Deterrent Stockings (TEDSs) are clinically proven to be effective in reducing the risk of hospital patients developing venous thromboembolism (VTE). Although every patient at risk should wear them, not everyone is compliant in doing so. The aim of this audit was to assess patients' attitude to wearing TEDSs and its impact on compliance.

Methodology: All surgical patients prescribed TEDSs on two wards (male and female) at Manchester Royal Infirmary were interviewed twice daily on two days of each week, for a period of three weeks. Prospective data collection was carried out as standardised focal questions were used to assess surgical patients' attitude to wearing TEDSs and the effect of this on compliance.

Results: A total of 130 patients met selection criteria with 3:2 male: female ratio. Patients found TEDs uncomfortable and unsightly. Patients' own ideas, the confusion about patient choice were identified. Lack of and discomfort were among the reasons for lack of compliance. This seemed to have significant impact, as only 35% of those prescribed TEDSs, were fully compliant with them. Men were twice more likely to refuse TEDSs compared to women.

Discussion: Patients' attitude towards wearing TEDSs seems to be hardwired (i.e. if refused once, likely to refuse throughout hospital stay) so education on 'patients' choice' is necessary. Training of juniors and nursing staff regarding accurate prescription, sizing and fitting of TEDSs is also required. Introduction of a signed refusal form should make patients aware they are taking responsibility for their increased risk of developing VTE.

Conclusion: There is Poor compliance with national and trust guidelines regarding TEDSs being prescribed and worn. It is prudent to study ward culture by comparing data with other centres. Following recommendations, a re-audit in June 2015 will be carried out to assess improvement in compliance.

NEGATIVE APPENDICECTOMY AND ITS COMPLICATIONS.

Tursini MS; Hillcoat J; Hammond TM
Broomfield Hospital, United Kingdom

Background: Emergency laparoscopy for management of acute right iliac fossa pain is widespread. In the absence of other causes, a macroscopically 'normal' appendix is removed in case of mucosal inflammation and to prevent re-admission with similar symptoms. However, there is evidence that up to 15% of patients have complications after normal appendicectomy. The objective of this audit is to assess the current policy of removing normal appendixes. It looks at the local diagnostic accuracy at laparoscopy, the rate of negative appendicectomy (NA) and compares their complications to those of histologically confirmed appendicitis.

Methodology: Patients undergoing laparoscopic appendicectomy during 2014 were retrospectively identified from medical records. Intra-operative appearance of the appendix and post-operative histology results were recorded. Complications, identified from electronic discharge summaries, were stratified using the Clavien-Dindo classification. Grade I complications, except wound infections, were excluded.

Results: Two hundred and ninety patients were identified, 11 cases were excluded due to incomplete documentation. 185/222 (83%) appendixes considered macroscopically inflamed were histologically confirmed. 41/57 (72%) appendices considered macroscopically normal had normal histologically. 78/279 (28%) appendixes removed were normal. Surgeons' ability to detect appendicitis at laparoscopy has 92% sensitivity and 53% specificity. A complication rate of four percent (8/185) was seen in confirmed appendicitis, and three percent (1/78) after NA. Readmission rates were six percent for confirmed appendicitis and 15% following NA. Average length of stay for both groups was 2.5 days.

Discussion: There was no statistically significant difference in the rate of complications between the two groups. Macroscopic diagnosis of a normal appendix is highly inaccurate. The study was limited by the low numbers of patients, by the inter-observer variability in record keeping, and the lack of follow-up post-discharge.

Conclusion: The current policy of removing macroscopically normal looking appendixes is justified despite the associated complication rate, owing to the low accuracy in laparoscopic diagnosis of normal appendixes.

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LENGTH OF STAY FOLLOWING BREAST CANCER SURGERY IN A DISTRICT GENERAL HOSPITAL IN 2013-2014

Hamlett K; Koussa F; Elzein S; Cheung A; Deshpande A
Royal Albert Edward Infirmary, Wigan

Background: In Wigan and Leigh Hospitals in 2009, patients post-Mastectomy (MA) or Wide Local Excision (WLE) +/- Lymph node excision (LNE) had a 3-5 night length of stay (LOS) post-operatively. In 2011 the 23-Hour Breast Surgery Program was introduced which demonstrated 85% of patients had a 23-hour stay post-op. In 2013 the Day Case Program was introduced which aimed for over 80% of patients to have day-case surgery.

Methodology: This retrospective re-audit looked at 100 patients in a six-month period across 2013-2014 that underwent either a MA or WLE +/- LNE. Any patients undergoing any form of breast reconstruction were excluded. All patients were females of varying ages undergoing elective, unilateral surgery with ASA grades 1-4. Computerized hospital notes were reviewed including operation notes and discharge letters.

Results: Eighty eight patients were operated in Wigan and 12 patients in Leigh. Thirty four percent of patients were in the 61-70 year age range and 53% of patients were ASA grade 2. 85% of patients were day-case, four percent had an overnight stay and the remaining 11% it was not clear from hospital notes what the LOS was. However, pre-operatively, 12% of patients were expected to stay overnight due to their co-morbidities or age.

Discussion: Shorter LOS is known to be associated with improved health outcomes, more patient satisfaction and has better financial implications for a trust. The positive financial implications include approximately £250 saved per patient/ night. Day-case surgery requires efficient bed utilisation, staff utilisation, operating theatre utilisation and the use of appropriate trust sites.

Conclusion: This re-audit shows we have achieved our target of over 80% for day-case breast cancer surgery. This audit is easily transferable between trusts and shows progressive improvement to patients' care. It also demonstrates changing targets. To further this audit we could audit the readmission rate post-op for breast cancer surgery.

ADEQUACY OF CONSENT FOR INGUINAL HERNIA REPAIR

O'Driscoll P; Melchionda V; Hammond T
Broomfield Hospital, United Kingdom

Background: Published data shows a lack of standardization in consenting patients for inguinal hernia repair. Patients may therefore not be fully informed of the operative risks. This can lead to negligence claims in the event of complications. Our aim was to assess the adequacy of consent for inguinal hernia repair at our institution.

Methodology: Case notes for all adult patients who underwent inguinal hernia repair from September to December 2014 were retrospectively reviewed. Consent forms were inspected for documentation of the following complications: hernia recurrence, chronic pain, wound infection, bleeding, bruising, urine retention, groin numbness, testicle shrinkage/ loss, and, for laparoscopic surgery only, conversion to open procedure and injury to internal structures.

Results: Seventy eight cases were identified, of which nine were excluded because the notes or consent forms were irretrievable. Of the 69 cases reviewed, 65 (94%) were male, 30 (43%) underwent a laparoscopic procedure. The rate of documented complications were: hernia recurrence 90%, chronic pain 67%, wound infection 90%, bleeding 90%, bruising 26%, urine retention 22%, groin numbness 13%, testicle shrinkage or loss 32% (of males), and, for laparoscopic surgery only, conversion to open procedure 30% and injury to internal structures 77%.

Discussion: In our institution, consent for inguinal hernia repair is variable, and serious complications such as chronic pain and testicular atrophy were often not documented. These findings show that the individual completion of consent forms can be insufficient for truly informed consent. This leaves surgeons vulnerable to claims of negligence.

Conclusions: A standardized pre-printed consent form stating the commonest and most serious complications would ensure all patients are appropriately informed of the risks of inguinal hernia repair.

AN AUDIT OF RESPONSE FROM MEDICAL REFERRALS IN VASCULAR SURGERY

Chau HHT
Royal Oldham Hospital, United Kingdom

Background: Vascular inpatients are often complicated with medical conditions which require medical specialists to get involved in their care. From previous experience, it was not uncommon that responses were delayed or responders gave management advice on the phone without seeing the patients. According to the GMC Good Medical Practice, a good standard of practice and care consists of adequetely assessing the patient's condition by taking a history and examining the patient, and all relevant information should be well-documented. The aim of this audit was to provide a snap shot view of the efficiency and quality of response from inpatient medial referrals so as to improve feedback from medical specialists and quality of care to patients in the future.

Methodology: This is a prospective snap-shot study of medical referrals made by the vascular team in the Royal Oldham Hospital. Inpatient medical referrals were identified on surgical wards. Data collection process took six weeks resuitung 25 medical referrals. Relevant information were obtained by speaking to the doctor in charge and reading through patient clinical records.

Results:
Areas of good practice:
- All medical specialists documented clearly after seeing patients on the ward.
- Advice given on the phone was documented by the referrers.

Areas for improvements:
- Only 92% (23/25) of referrals were responded within 24 hours.
- Eighty three percent (19/23) reviewed patients on the ward before giving advice or management plan.

Discussion: Six referrals in this audit did not meet the standards. Although they were not considered as "medical emergency", full assessment by a medical doctor was still required within the day. However, oncall medical team could be busy with seeing other acutely deteriorating patients in the hospital. It would be better if a medical doctor could be assigned to look after surgical patients.

Conclusion: To improve the standard, referrers are advised to confirm written referrals by phoning up the secretary / oncall medical specialist. Employing a permanent vascular medical specialist on the surgical ward could possibly improve quality of care in the future.

TRIAL WITHOUT CATHETER CLINIC: A CLINICAL AUDIT ON APPROPRIATENESS OF REFERRAL AND DOCUMENTATION WITHIN TWOC CLINIC

Flynn S; Parry M
Whittington Hospital, London, United Kingdom

Background: "Trial without catheter" outpatient clinics are commonplace within the Whittington Hospital. They are used primarily to ease the burden of failed "TWOCs" and reduce length of stay. TWOC clinics are also utilised to reduce urinary retention associated admissions. Due to the frequency of referral to TWOC clinic, it was felt to be pertinent to undertake an audit to explore clinic referrals. Primary aims were to examine the indications for referral with the view of reducing inappropriate referrals. Secondary aims were to examine documentation at clinic, ensuring more accurate documentation of outcome and follow-up.

Methodology: A retrospective medical note audit was conducted, from October to December 2014. Inappropriate referrals were defined as >2 previous TWOC clinic appointments. The medical notes of all patients with a TWOC clinic appointment within this time period were trawled, including those deemed inappropriate referrals.

Results: Results were based upon 55 patients. Thirteen of the sample had >2 previous TWOCs, deemed inappropriate referrals. The most common indication of referral to TWOC clinic was shown to be Benign Prostatic Hyperplasia, 28% sample. Of the seven inappropriate referrals, six of these were due to BPH. Documentation of the TWOC clinic was particularly poor, 37% had no documentation of outcome with 63% showing no documentation of follow-up.

Discussion and Conclusion: A significant proportion of the population referred to TWOC clinic are inappropriate referrals, creating time and financial losses. Furthermore documentation at clinic is poor. Proposed outcomes are to create a clinic proforma to ensure more accurate documentation and to prevent further inappropriate referral. Also to create guidelines to ensure appropriate referrals from ward doctors i.e. BPH and >2 previous TWOCs should be referred straight to urology clinic. TWOC clinic proforma as well as guidelines for the wards should go some way to improving efficiency and streamlining TWOC services.

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HOW DO DOCTORS USE PH STUDIES?

Husnoo N; Zamvar V; Puntis J
Leeds Children's Hospital, United Kingdom

Background: The 24-hour oesophageal pH study is considered to be the gold standard for quantifying the severity of gastro-oesophageal reflux. The aim of this study was to establish whether the large number of pH studies performed in our regional children's hospital are appropriate and whether they are influencing management.

Methods: Case notes were retrospectively reviewed for all children undergoing pH studies from January 2012 to December 2013. Data was collected on indications for pH studies, histology and pH study results and subsequent management.

Results: Eighty eight children underwent pH studies over the two-year period (age range 7wk-17y, median 4y 8m). Two-thirds were requested by surgeons, the most common indication being vomiting or regurgitation (52%).

Forty two patients had a normal pH study (DeMeester score <14.7). Twenty two had their anti-reflux treatment stopped &/or were treated for alternative diagnoses. Two had fundoplication surgery; both had histological evidence of reflux oesophagitis. Sixteen continued anti-reflux agents based on clinical response, only three of whom had reflux oesophagitis.

Fort six patients had abnormal DeMeester scores (>14.7). Ten had fundoplication and 15 continued anti-reflux medication. Nineteen had their anti-reflux treatment stopped &/or were treated for alternative diagnoses (nine had alternative histological diagnoses; the rest were so managed based on clinical response).

Data was missing for four patients.

Discussion: Management decisions following pH studies largely reflect the pH study results. There are instances when this is not the case, showing that patients' clinical response and histological results remain important considerations. Possibly, some patients with normal DeMeester scores but ongoing symptoms had non-acid reflux, which is not measured by the pH study.

Conclusion: pH study requests in our centre seem clinically appropriate; they are made mainly by surgeons to guide decisions regarding fundoplication. pH studies are informing management, but as part of a global clinical assessment rather than in isolation.

CARDIOVASCULAR SCREENING - DO PATIENTS KNOW ABOUT IT?

Ul- Haq J
Marple Cottage Surgery, Stockport, United Kingdom

Aims: To assess how effectively cardiovascular screening is currently being performed.

Background : Cardiovascular disease (CVD) is a major challenge faced by NHS, it accounts for the highest numbers of deaths annually. The figures for these as well as the financial burden on the NHS are expected to rise over the next couple of years.

Discussion : Cardiovascular screening has shown through various studies to be an effective way at reducing the incidence of CVD. This has since, been adopted by the NHS as a national screening programme in GP practice. Interviewing patients in general practise has shown a clear lack in patient education on CVD and the screening programme. In addition, after reviewing figures of patients screened between 2013-2014 at a general practice, we saw that the number of patients being screened was below national targets. This is a problem shared by practices across the UK and was influenced by the lack of patient education regarding screening. There must be patient education regarding cardiovascular screening and this will subsequently increase attendance at screening.
Description of Innovation/Development: Recent policy shift in screening has meant that screening has become more of an informed choice for patients this highlighted the need to have a patient information leaflet on cardiovascular screening. Subsequently, we designed a leaflet on CVD screening that can be used to target high risk populations and increase their attendance at screening.

Conclusion: In conclusion, CVD is a growing problem for the NHS and causes an unacceptable number of deaths each year. The CVD screening programme has been shown to be an effective programme in reducing CVD risk factors and mortality in patients. However, there is a need for patient education using patient education leaflets on the screening programme to increase attendance and help reduce mortality from the disease.

AN AUDIT ON PRESCRIBING COMBINED HORMONAL CONTRACEPTION IN OVERWEIGHT WOMEN AND SMOKERS. ARE UK MEDICAL ELIGIBILITY CRITERIA (UKMEC) BEING FOLLOWED?

Mohsin M; Choudry B
University of Manchester, United Kingdom

Aim: Women ≥35 years old that currently smoke or have smoked in the last 12 months, or those with BMI ≥35 are UKMEC category three for CHC and alternatives should be sought. This audit aims to establish if the UKMEC guidelines are being followed.

Methodology: EMIS search performed on all 4432 female patients to identify women on any form of CHC over the past 12 months. The notes were reviewed to identify women ≥34 years old who smoked and those with BMI ≥35.

Results: One hundred and forty one women were prescribed CHC in past 12 months. Six women had a BMI ≥35 and two were 34-year-old smokers approaching their 35th birthday. No women ≥35 years old that were prescribed the CHC currently smoked.

Conclusions: Although smoking status and BMI were recorded for all patients at some point, these were not being regularly updated. BMI measuring equipment was recalibrated. The CHC EMIS template was amended to include more info on UKMEC criteria and to encourage initial recording and subsequent monitoring of key parameters including smoking status and BMI.

Recommendations: Women who were UKMEC category three due to smoking status or BMI had letters sent requesting them to come in to discuss safer alternative contraception methods and signposting them to weight loss and smoking cessation services. Audit findings were presented to practice staff to update them on best practice. It was agreed when prescribing CHC the template should be used for all patients each time and it was recommended to re-audit in 12 months time.

TIA OR NON-DISABLING STROKE AND CAROTID ENDARTERECTOMY – ARE WE NICE-COMPLIANT?

Goonoo MS; Goel M; Goorah N
Royal Blackburn Hospital, United Kingdom

Background: The greatest benefit from carotid endarterectomy (CEA) in eligible patients with transient ischaemic attack (TIA) or non-disabling stroke is obtained if it is performed quickly after symptom onset. NICE has issued guidelines for the management of these patients. We aimed to audit care received by patients deemed eligible for CEA, and by patients receiving CEA, against NICE standards. In our centre, patients considered eligible are referred by the stroke team to the vascular team, who decide whether to operate.

Methods: All patients undergoing CEA between October 2013 and October 2014 were identified using clinical coding (n=11). Nine additional patients referred for (but not receiving) CEA were randomly selected from referrals made during that period. Thus we retrospectively studied 20 patients referred for CEA consideration.

Results: One TIA patient with ABCD2 score ≥4 did not receive specialist assessment within the recommended 24 hours.

Only 85% received carotid imaging, and were referred to the vascular team, within a week of symptom onset.
While guidelines stipulate that patients with 'significant' stenosis (70-99% as per specific radiological criteria) should be referred for CEA, eight patients with stenosis <70% were referred. CEA was performed on three patients with less than 'significant' stenoses.

Only 64% undergoing CEA had the operation within two weeks of symptom onset.

Discussion: We failed to meet target timelines due to delayed patient presentation, diagnostic uncertainty and theatre delays causing delayed surgeries. Reasons for operating on patients with less that 'significant' stenosis are unclear.

Conclusion: This care pathway had never been audited before at our regional vascular centre. Important gaps in our practice have been highlighted. We aim to create local guidelines to ensure appropriate and timely referrals for CEA. Reasons for deviation from guidelines should be documented. Patients selected for CEA should be allocated to the next available operating list.

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PATIENTS PRESENTING TO EMERGENCY DEPARTMENT WITH SUSPECTED SCAPHOID FRACTURES: EVALUATION OF SERVICE PROVISION AND TREATMENT OUTCOME.

Thomas-Chirnside L; **Otubu O**; Shahid R; Gulati A; Cutler L
University Hospitals Leicester: Leicester Royal Infirmary

Background: Despite normal radiographs many scaphoid fractures are diagnosed in the emergency department (ED) based on clinical findings. As a result patients' wrists are immobised and reviewed in two weeks. This impairs function and inconveniences patients. Typically, no fracture is found at follow-up. This system increases the workload of the already busy ED and fracture clinics. This study aims to analyses service provision and assess patient outcomes.

Method: Information was gathered retrospectively on patients that presented consecutively to ED between 1st March and 1st August 2014. The data included patient details, mechanism of injury, date of admission, primary diagnosis and for each admission/review; symptoms, examination findings, imaging results and outcome.

Results: Two hundred and seventy patients presented to ED. One hundred and ninety four were managed in ED where 97% received removable splints, two percent below elbow back slabs and one percent had no treatment. Ninety two percent of patients had ED review (mean=15.9 days, range= 3-42 days) 40% of the original cohort had a second review in ED (mean= 25.5 days, range= 8-53 days) and three percent (n=6) had a third review (mean=43.1 days, range= 29-90 days). Forty four percent (n=83) of patients had a repeat x-ray at follow-up and 8.5% (n= 7) had another x-ray at second review, only 2.5% received an MRIscan.

Discussion: There was marked inconsistency in patient management. More than 40% of patients underwent multiple ED reviews, some resulting in subsequent referral to fracture clinic. Many (44%) had repeat radiographs and there was sometimes considerable delay in making or refuting a diagnosis (mean = 43.1 days).

Conclusion: Current service provision could be improved by adopting standardised management: a "suspected scaphoid fracture pathway". Better coordination is required between ED and fracture clinics. Early CT scan/MRI could prevent unnecessary repeat-radiographs and wrist immobilisation.

A CLINICAL AUDIT OF THE COMPLIANCE OF VASCULAR AND ORTHOPAEDIC SURGERY OPERATIVE RECORDS WITH THE ROYAL COLLEGE OF SURGEONS (RCS) GUIDELINES ON MEDICAL RECORDS AND NOTES

Quddus A; Yim Y; **Tollitt A**; Sandhu S; Cremin P; Hopkins S
Royal Free Hospital, London, United Kingdom

Background: The 1994 revised RCS guidelines on Medical Records and Notes direct medical record-keeping for clinical care and the auditing of surgical services. An audit was conducted at the RFH to assess compliance of operative records with the RCS guidelines.

Methodology: A retrospective audit of operative notes was carried out at the RFH. A checklist derived from the RCS guidelines was used to assess thirty vascular and thirty orthopaedic records between 30th March and 14th April 2015, including both elective and emergency surgeries.

Results: Of the sixty operative records reviewed, 87% (N=26) of vascular records and 97% (N=29) of orthopaedic records had the side of surgery written. Forty percent (N=12) of vascular records had the side of surgery written fully compared with 90% (N=27) of orthopaedic records. Furthermore, 47% (N=14) of vascular records and 57% (N=17) of orthopaedic records included the diagnosis. Forty seven percent (N=14) of vascular records and 83% (N=25) of orthopaedic records detailed complications encountered and how these were overcome. Although 90% (N=54) of both vascular and orthopaedic records noted surgical prophylaxis as given, none indicated if this was to be continued post-surgery. Additionally, variations in handwriting and the use of uncommon abbreviations may have challenged interpretation.

Discussion: Adherence of operative notes to the RCS guidelines is important for safe and accurate record-keeping and to minimise clinical errors. Findings have been discussed at vascular and orthopaedic multidisciplinary team meetings and informative posters are being displayed in theatres. Recommended changes to the operative proformas are the inclusions of diagnosis, side of surgery, complications, and surgical prophylaxis.

Conclusions: Overall, orthopaedic records complied better with the RCS guidelines than vascular records. For both specialties, there needs to be better notation of diagnosis, complications, surgical prophylaxis and side of surgery. Re-auditing will commence in two months to assess if interventions have improved compliance.

AN AUDIT OF MEDICATION MANAGEMENT PRE-OPERATIVELY IN ELECTIVE ORTHOPAEDICS

Hughes E; Hughes R
University Hospital Llandough, Cardiff and Vale Orthopaedic Centre, United Kingdom

Background: Pre-operative drug management is a significant factor in the cancellation of elective operations and patient quality of life. This audit looks at the management of drugs pre-operatively in patients undergoing elective orthopaedic surgery in University Hospital Llandough.

Methods: Medical records of patients were reviewed and patients interviewed on admission. Details of patients' normal pre-operative medications were recorded. It was noted if there was a plan for continuation or omission of medications in the pre-operative period. The data was compared to local guidelines, based on national guidelines.

Results: One hundred and thirty five patients were admitted for elective orthopaedic procedures between Friday 9th May and Wednesday 4th June 2014, with 106 patients fulfilling the audit criteria. This highlighted that 76% of the audit cohort (80 patients) went to theatre with at least one medication error. Fifty eight percent of the audit cohort (61 patients) went to theatre with half or more of their medications incorrect.

Discussion: Serious errors contributed 18% of total errors. These were errors that could have potentially fatal consequences for the patient if managed incorrectly pre-operatively. The most common serious errors were lack of documentation, or lack of information being provided to patients. Low risk errors contributed 82% of the total errors and were those that did not have potentially fatal consequences if managed incorrectly pre-operatively. The most common low risk error was conflicting information being given to patients.

Conclusions: The current process of patients managing their regular daily medication pre-operatively is unsatisfactory. Patient misunderstanding, incorrect information provided at pre-assessment and patients forgetting the information provided are some of the main reasons why pre-operative drug management is poor. It is clear more education of the patients pre-operatively and the staff of the pre-assessment clinics is required, in order to ensure a higher success rate upon completion of the audit cycle with re-audit.

SHORT TIME SURGICAL SUTURING SKILL VARIATION WITH TIME IN INEXPERIENCED LEARNERS

Ozad U; Amuthalingam T; Walji S
Barts and the London, United Kingdom

Aims: To measure the short time skill variation of inexperienced learners in surgical suturing immediately and one week after the first suturing practical lecture; and, to determine the main areas of skill alteration.

Methods: Sixteen sixth form high school students with no prior suturing experience were provided with the same practical lesson. The first group of eight students were assessed immediately after the lesson and the second group of eight students were assessed one week later, both by using standard 10-point OSCE mark schemes filled in by blinded examiners. Overall skill variation and the major areas of skill alteration were determined by the outcomes of the mark schemes.

Results: The overall suturing exercise skill demonstrated improvement with time, increasing from the exercise grade of 5.9/10 to an immediate post-exercise assessment grade of 6.3/10 in the first group and one week later assessment grade of 7/10 in the second group. In both skill reduction and improvement, second group of students demonstrated a greater change compared to the first group.

Discussion: The major areas of skill reduction was in correct handling of the needle holder, inserting the suture symmetrically along the wound edges, tying the suture with correct tension and pulling the two thread ends to correct direction. Confidence, needle handling, appropriate suture insertion distances and cutting of the suture ends to the correct length were the major areas of improvements.

Conclusions: There was an improvement in overall suturing skills by time, both in immediate and one-week later assessments. In both first and second groups, students demonstrated skill reduction in the first stages of suturing whereas students demonstrated skill improvement in final stages of suturing and confidence. Second group, both in skill reduction

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INTRAVENOUS FLUID THERAPY: AUDIT OF INTRAVENOUS FLUID PRESCRIPTION, RESUSCITATION AND ROUTINE MAINTENANCE

Garrett E; Richardson R; Fairman K; Froud H; Maduanusi C; Misky A
The Whittington Hospital, London, United Kingdom

Background

- One fifth of inpatients suffer morbidity and mortality due to inappropriate fluid prescribing.
- Inconsistent fluid guidelines challenge junior doctors who are usually responsible for fluid prescription.
- 2013 NICE guidelines were established to resolve this.

Methodology

- We carried out a full-cycle audit based on NICE clinical guideline 174 to assess emergency and maintenance fluid management of 100 patients prior to and 98 patients following an intervention.
- Our intervention was the provision of a tri-fold pocket-guide, contained in junior doctors' ID badges, outlining fluid-prescription protocols.

Results

- Fifty seven percent of pre-intervention and 69% of post-intervention patients had an IV fluid management plan.
- Nine percent of pre-intervention and 100% of post-intervention patients who received initial fluid resuscitation had an ABCDE assessment.
- Thirty two percent of pre-intervention and 56% of post-intervention patients met NICE standards for maintenance fluid prescription.
- Sixty eight percent of pre-intervention and 49% of post-intervention patients' fluid and electrolyte needs were assessed during every ward review.
- Twenty one percent of pre-intervention and 14% of post-intervention patients had a monitoring plan.

Discussion

- In our hospital we are not meeting NICE recommendations for fluid prescribing.
- IV fluid prescription and monitoring mostly falls under the responsibility of junior doctors.
- Our pocket-guide was distributed during an educational course on fluid management to support junior doctors.
- Following this intervention we found areas of improvement in emergency and overall maintenance IV fluid prescription, but monitoring and assessment of patients' fluid balance and fluid and electrolyte needs remain poor.

Conclusion

- Incorrect fluid management causes morbidity and mortality to one fifth of inpatients.
- Provision of a pocket-guide to aid fluid prescription improved fluid management but not assessment or monitoring of fluid balance.
- Additional improvements are required, *e.g.* additional training programmes or a smartphone app.

KIKUCHI- FUJIMOTO DISEASE, A CASE REPORT

Alam A; **Zaidi A**, Saeed M; Basit A
Shalamar Hospital and Medical College, Lahore, Pakistan

Introduction: Kikuchi-Fujimoto disease (KFD) is an enigmatic, benign and self-limited syndrome characterized by regional lymphadenopathy. Kickuchi disease, or necrotizing histolytic lymphadenitis, is a rare disease that presents predominantly in young women in their 20s and 30s from the Far East.

Case Report: We report a case of 23-year-female presented to the outpatients with history low grade pyrexia, night sweat and malaise for one month. It was associated with tender cervical lymphadenopathy. Clinical examination revealed submandibular, anterior cervical and posterior cervical lymphadenopathy. Abdominal USS was normal but blood count showed neutropenia. Excision biopsy of posterior cervical lymph node demonstrated features consistent with KFD. She was treated with NSAID's and symptoms improved and cervical lymph node regressed. Three weeks later she presented with recurrence of the symptoms.. She clinically responded to oral steroids and is asymptomatic on follow up.

Discussion: KFD is an extremely uncommon, self-limiting idiopathic condition with an excellent prognosis. It was first described in Japan in 1972. It is characterized by a self-limiting lymphadenitis that normally resolves over weeks or months without specific treatment. An autoimmune or infectious etiology has been described in literature. It often presents as painful cervical lymphadenopathy in young females. Posterior cervical lymph nodes are the commonest to be involved. Diagnosis is based on histology of the biopsy specimen. A possible recurrence rate of three to four percent has been reported. Analgesics-antipyretics and NSAID's may be used to alleviate the symptoms. The use of corticosteroids has been recommended in severe cases. In our case prednisolone was given for relapse of symptoms.

Conclusion: Kikuchi-Fujimoto disease or necrotizing lymphadenitis is rare, benign self-limiting disease. Clinical findings, histological diagnosis and immunohistochemistry helps in diagnosis. Steroids should be given to the patients with systemic manifestation. Antibiotic should not be prescribed until unless infective cause identified.

ACUTE KIDNEY INJURY: IMPROVING CURRENT STANDARDS OF CARE

Tarrant K
Salford Royal Hospital, United Kingdom

Background and Aims: Acute kidney injury (AKI) is an important area to focus on in both primary and secondary care as it is a very common condition that can lead to very poor outcomes. This report aimed to investigate whether current practice at Salford Royal Hospital is following the NICE guidelines for AKI and the level of knowledge about AKI amongst patients and health professionals.

Methods: This was achieved by an audit of the patients in the hospital during December 2014 that were either admitted with AKI or developed AKI during their stay in hospital. Also, two patients from Ellenbrook Medical Surgery were interviewed and their views on being in hospital and their knowledge of 'sick day rules' and what had happened were assessed.

Results: In general, many of the investigations and management needed during AKI had room for improvement; their clinical practice was not following NICE guidelines

Discussion: There were many areas in which NICE guidelines weren't being followed. These included finding and recording the cause of AKI, performing urine dipsticks on all patients presenting with AKI, urgent ultrasounds on patients with an unknown cause and referral to a nephrologist within 24 hours of diagnosis of AKI. If these guidelines were followed, there would be a reduction in morbidity and mortality.

Conclusion: Better adherence to the NICE guidelines will improve patient survival and outcomes. This could be achieved by educating staff in all specialties so that they know exactly what to do when a patient has AKI and how to recognise this condition. Also, patients did not have good levels of knowledge about their condition and how to prevent an AKI. They would benefit from education, especially in 'sick day rules'.

World Journal of Medical Education and Research:
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DEMENTIA REFERRALS TO LATER LIFE PSYCHIATRY; ARE WE FOLLOWING NICE GUIDELINES?

Stout RC; Ratcliffe J; Nightingale K
Manchester Mental Health, United Kingdom

Background: Later life psychiatry receives referrals for patients who may have dementia. NICE Guideline CG42 states that a basic dementia screen at time of presentation should be carried out in Primary Care including history, examination, formal cognitive assessment and bloods. The aim of this audit was to examine how many referrals adhered to these guidelines and to identify areas of strength and weakness, with the view of improving patient experience and saving GP and mental health team time.

Methodology: We examined all dementia referrals to our department between November and December 2014. We created a proforma based on NICE Guideline CG42 and compared referrals to this to assess compliance.

Results: In this period there were a total of 38 referrals. A history was included in 33 (87%) of the referrals, a physical examination recorded in four (10.5%), a formal cognitive assessment tool was used in 19 (50%), and all relevant bloods were present in 15 referrals (40%).

Discussion: Most referrals to Later Life Psychiatry provide a history. However physical examination results are rarely included and formal cognitive assessment tools are only being utilised half of the time. Only 40% of referrals included all relevant bloods as suggested by NICE guidelines. This means that over 60% of referrers had to be contacted for further information about patients prior to the referral being accepted and the patient being placed on the waiting list. This costs both mental health services and primary care time and can delay patient treatment.

Conclusions: We have created a referral check-list which is currently being distributed to GP practices in Central Manchester. Members of our team are also delivering educational interventions to practices in order to improve their understanding of what is required on a referral and why. We plan to re-audit in July 2015.

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ISSN 2052-1715

WJMER

World Journal of Medical Education and Research

An Official Publication of the Education and Research Division of Doctors Academy

978-93-80573-56-4