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ABSTRACTS

1. INJURIES AND OUTCOMES: UK MILITARY CASUALTIES FROM IRAQ & AFGHANISATN 2003-2012

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No benefits in any form have been received or will be received from a commercial party related directly or indirectly to the subject of this article. None of the authors have any conflicts of interest with the subject of this study.

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2. ACUTE BILATERAL LEG AMPUTATION FOLLOWING COMBAT INJURY THE UK EXPERIENCE 2004-2010

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3. CASE SUITABILITY FOR DEFINITIVE THROUGH KNEE AMPUTATION FOLLOWING LOWER EXTREMITY BLAST TRAUMA: ANALYSIS OF 146 COMBAT CASUALTIES, 2008-2010

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Traumatic amputations (TAs) are amongst the most significant orthopaedic sequelae following IED strikes. It is widely accepted that more proximal lower limb amputations are more debilitating. However, through knee amputation (TKA) has conflicting published evidence regarding suitability as a definitive amputation level post-trauma.

The UK JTTR and post mortem CT (PM-CT) databases were used to identify all UK military casualties sustaining a major extremity TA, August 2008 to August 2010. Through knee and all below knee TAs were termed 'peri-genicular TAs' (PGTAs) – hypothetical candidates for definitive TKA. We hypothesised firstly that traumatic TKAs were more common than previously reported (3.5%) and secondly that there was a significant cohort of lower limb injuries that could be managed with definitive TKA.

146 cases (75 survivors and 71 fatalities) sustaining 271 TAs were identified. The through-joint TA rate was 47/271 (17.3%) of which 34 (72.3%) were TKAs. 63/130 survivor TAs and 66/140 fatality TAs merited analysis as the PGTA group. Detailed pathoanatomical data were only consistently available for fatalities. Definitive TKA in this PGTA group would have been proximal to the zone of injury (ZOI) in only 3/66 cases.

Traumatic TKAs following explosive blast are significantly more common than previously reported (p=0.0049). The majority of lower limb TAs are skeletally amenable to definitive TKA. Maximising residual stump length carries the risks of definitive amputation level within the original ZOI (including infection and heterotopic ossification) but proximal extent of the soft tissue injury may frequently make this unavoidable.

4. THE EPIDEMIOLOGY OF TRAUMATIC AMPUTATIONS

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ABSTRACT

The accepted mechanism of traumatic limb amputation following blast is initial bone disruption due to the shock wave, with amputation completed by the blast wind; survival is considered unlikely. The high survival rate of traumatic amputees following explosion, from the current conflict in Afghanistan, is at odds with previous work.

We reviewed extremity injuries, sustained in Afghanistan by UK military personnel, over a 2 year period. 774 British servicemen and women sustained AIS >1 injuries, 72.6% of whom survived. No significant difference was found in the survival rates following explosive blast or gunshot ($p>0.05$).

169 casualties (21.8%) sustained 263 lower limb and 74 upper limb traumatic amputations. Amputations were more common in the lower than the upper limbs and more common in the extremity proximal bone. Bilateral lower limb amputations were more common than a unilateral lower limb amputation. The majority (99%) of major amputations were sustained as a result of explosion. 46.3% (74) of those who sustained a major amputation following explosion survived.

Rates of fatalities caused by explosion, or by small-arms are not statistically different. Blast-mediated amputations are not universally fatal, and a significant number were through-joint, calling into question previously proposed mechanisms.

5. THE CHANGING PATTERN OF AMPUTATIONS

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Abstract

Conflict in the Middle East over the past 10 years has seen a change in warfare tactics from the use of ballistic missiles to blast weapons. This has resulted in a change in wounding patterns, which have been previously documented. Due to the severity of the injuries, there have been large numbers of amputations, both as life and limb saving procedures. The purpose of this paper was to retrospectively review all the amputated limbs over the past 10 years of conflict and compare those from the early years to the more recent ones. In particular, the aim was to examine whether there were differences in the mechanisms of injury, number of limbs injured, associated injuries, method of amputation, microbiology of contaminating organisms and outcome. There were significantly more amputations, injured limbs and soft tissue perineal wounds as well as a significantly higher ISS in the later group. There were also significant differences in the surgical techniques, with more guillotine amputations in the early group, and mechanism of injury, with more blast injuries in the late group. This study has confirmed the clinical impression that there has been a significant change in the limb trauma from the Iraq conflict to Afghanistan. These injury patterns have significantly different logistic implications and this must be considered when planning the required medical assets in future conflicts.

6. SEVERE OPEN FEMORAL FRACTURES IN COMBAT TRAUMA – MANAGEMENT AND PRELIMINARY OUTCOMES

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7. INFECTION AFTER COMBAT-RELATED LIMB TRAUMA

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Abstract

Published infection rates following wounds sustained in combat vary dramatically. We reviewed UK military extremity trauma, sustained in Afghanistan over a two year period, to evaluate early infection rates and causative organisms. Data on wound site, time to onset of infection, organisms detected and method of presentation were collected.

351 patients had full datasets for clinical wound surveillance and microbiological data.
58 (16.5%) patients were diagnosed with wound infections. Median time to diagnosis was 17 days (range = 749, Interquartile range =31.75 days). Limb infection was detected in 53 (15.1%) patients. Infection was statistically significantly more likely to be incurred in the lower extremity (p=0.0220). Multiple organisms were identified in 34 (64.2%) of the 53 patients with a limb infection. Fungi were significantly more common in early presenters (<30 days after injury) (p=0.0024). *Staphylococcus aureus* was significantly more likely in late presentation (p=0.002). Infection was more likely in those injured by an improvised explosive device (IED) (p=0.0019).

The overall infection rates recorded are low when compared to historical data. Organisms isolated from infected wounds are frequently multiple. The microbial spectrum and the number of organisms present on diagnosis change with time from wounding.

8. THE EVALUATION OF AN ABDOMINAL AORTIC TOURNIQUET FOR THE CONTROL OF PELVIC & LOWER LIMB HAEMORRHAGE

Taylor DM, Coleman M, Parker PJ.

Despite improved body armour haemorrhage remains the leading cause of preventable death on the battlefield. Trauma to the junctional areas such as pelvis, goin and axilla can be life threatening and difficult to manage. The Abdominal Aortic Tourniquet (AAT) is a pre-hospital device capable of preventing pelvic and proximal lower limb haemorrhage by means of external aortic compression. The aim of the study was to evaluate the efficacy of the AAT.

Serving soldiers under 25 years old were recruited. Basic demographic data, height, weight, blood pressure and abdominal girth were recorded. Doppler Ultrasound was used to identify blood flow in the Common Femoral Artery (CFA). The AAT was applied whilst the CFA flow was continuously monitored. The balloon was inflated until flow in the CFA ceased or the maximum pressure of the device was reached.

16 soldiers were recruited. All participants tolerated the device. No complications were reported. Blood flow in the CFA was eliminated in 15 out of 16 participants. The one unsuccessful subject was above average height, weight, BMI & abdominal girth.

This study shows the Abdominal Aortic Tourniquet to be effective in the control of blood flow in the pelvis and proximal lower limb and potentially lifesaving.

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9. SURGICAL TRAINING PLANNING FOR FUTURE OPERATIONS

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With the drawdown from Afghanistan focus turns towards future operations, and their demands on the DMS. Training for surgeons deploying to military operations will have to take into account the decreased opportunities and experience gained by current conflicts. The aim is to focus on current UK surgical training for military operations specifically. A comparison is made with US surgical training.
A questionnaire was distributed to UK military surgical consultants in General Surgery, Trauma and Orthopaedics and Plastic Surgery. A similar questionnaire was sent to deployed US surgeons in SE Afghanistan. Response rates of 55% were achieved. Respondents were questioned on their confidence to perform several key procedures.
Most UK consultants were satisfied with their overall training for deployment. Satisfaction rates were high for the MOST course and Danish Surgery. US satisfaction with pre-deployment training was poor. The majority of respondents felt confident to perform all haemorrhage and contamination control procedures in an emergency. However, most felt training for military personnel should be lengthened by a year or more to include greater exposure to other specialties.
Whilst satisfaction with surgical training is high, many UK surgeons appear to suggest an increase in specialty exposure in preparation for future deployments.

10. COMPARISON OF IN VIVO CORONAL PLANE PATELLA TRACKING FOLLOWING KNEE ARTHROPLASTY USING THE MAUS TECHNIQUE

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Previous attempts to measure coronal plane patellofemoral kinematics following knee replacement have suffered from methodological drawbacks; the patella being obscured by the components, metal artefact and technical inaccuracies. The aim of this study was to assess whether there was any significant difference in the patellofemoral kinematics between normal, TKR and PFJR patients using the validated MAUS™ technique (combining Motion Analysis with UltraSound).

60 patients were recruited into three groups; normal healthy volunteers (Normal), TKR, and PFJR patients. The MAUS technique incorporates a 12 camera motion analysis system (providing gross alignment data for tibial and femoral segments) and an ultrasound probe (providing coordinates of bony landmarks on patella femur and tibia) during a squat exercise. 6 DOF kinematics were described between 0 and 90° flexion.

The validated accuracy of the MAUS technique registering the ultrasound images within the motion capture system is 1.84 mm (2 x SD).

Movements of the Normal group were significantly different from the TKR group ($p=0.03$) and the PFJR group ($p<0.01$), whilst there was no significant difference between the TKR and PFJR groups ($p=0.27$).

Our data suggest that many aspects of patellofemoral kinematics are absent following TKR and PFJR, which could be addressed in future designs of knee TKR and PFJR.

11. ROBOT ASSISTED JOINT PRESERVING RECONSTRUCTION OF OSTEOARTICULAR BATTLEFIELD DAMAGE: 3 CASES

Introduction

Osteoarticular loss in a major weightbearing joint is one of the many consequences of military conflict. While minor in terms of life and limb salvage, when rehabilitation is being planned, a small amount of joint damage can make a large impact on the level of long term disability. Reconstruction methods include allograft, massive replacement, arthrodesis and amputation.

Method

In Imperial we have been developing a suite of technologies that contribute to the reconstruction of such injuries.
Assessment of disability in a fully instrumented gait lab
Modeling of the injury using low dose CT, analysis of the extent of loss and creation of stereolithograph files of the bones
Planning of the surgical procedure including implants as needed
Custom manufacture of osteotomy guides, and prostheses if required
Technology assisted surgery, including active constraint robots.

Results

We report 3 cases of soldiers who have suffered osteoarticular loss to part of the knee, two from high velocity rounds and one from an IED. All 3 have received custom partial knee replacements preserving their cruciates, the other compartment and the patella-femoral joint.
No major technical issues have been encountered. The surgery is quick and recovery simple, with the prospect of normal painfree pedestrian life. Exchange of the bearing will be necessary. It is expected and planned for once a decade as a day case procedure.

Discussion

While the surgery is expensive, it is highly cost-effective, as it restores near normal gait. It does not appear to be particularly risky, as the volume of tissue being excised is small, and highly constrained. The same approach is now being developed for deployment in civilian life for post traumatic oa.

12. ANTIBIOTIC PROPHYLAXIS IN OPEN FRACTURES OF THE LOWER LIMB

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St Mary's hospital, the major trauma centre for West London, treated 168 patients with lower limb open fractures in 2011 & 2012. This audit compared antibiotic administration in the emergency department against the current BOAST IV guidelines. The choice, timing, dose, and documentation of antibiotic administration was collected from the casualty cards and the transfer documentation for any patient initially seen at another hospital. The severity of the injury (as the Gusitollo-Anderson classification) after the initial debridement and any infectious complications that presented before discharge were also recorded. The results showed a higher compliance with the BOAST IV guidelines for those patients directly admitted rather than transferred to the major trauma centre. In direct admissions the recommended antibiotics were either not given or not adequately documented in 7% of cases. In those patients transferred from another emergency department the documentation was inadequate in 27% of cases and a non-BOAST IV recommended antibiotic given in 6% of cases. The likely causes of these results are discussed alongside the unit's bone infection rates.

13. CEMENTING WITH A HEATSINK: A BOVINE MODEL

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Abstract

Bone cement reaches high temperatures while polymerising. Bone has been shown to be sensitive to thermal injury with osteonecrosis reported after one minute at 47˚C. Necrosis during cementing might compromise the bone-cement interface. Some surgeons fill the joint cavity with irrigation fluid to provide a heatsink during cementing, but this has not been supported by research.

We used a model acetabulum in a bovine humerus to allow measurement of bone temperatures in cementing. Models were prepared with a 50mm diameter acetabulum and three temperature probe holes. Four warmed models were cemented with Palacos RG using a standard mixing system and a 10mm UMHWPE disc to represent an acetabular component. Two of the acetabular models were filled with room temperature water to provide a heatsink. An electronic probe measured temperature at 5 second intervals from the moment of cementing.

In the models with no heatsink, peak temperature was 40.3˚C. The highest temperature rise was 7.5˚C. In the models with a heatsink, there was a mean fall of 4.4˚C.

These results suggest that using a heatsink while cementing prostheses may reduce the peak bone temperature.

14. VIABILITY OF CHONDROCYTES SEEDED ONTO A COLLAGEN I/III MEMBRANE FOR MATRIX-ASSISTED AUTOLOGOUS CHONDROCYTE IMPLANTATION

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Abstract

This study investigated confocal laser scanning microscopy (CLSM) as a novel method of imaging of chondrocytes on a collagen membrane used for articular cartilage repair. Cell viability and the effects of surgery on the cells were assessed.

Cell images were acquired under four conditions: 1, Pre-operative 2, After handling 3, Heavily grasped with forceps 4, Cut around the edge. Live and dead cell stains were used. Images were obtained for cell counting and morphology.

Mean cell density was 1.12-1.68±0.22x10^6 cells/cm^2 in specimens without significant trauma (n=25 images), this decreased to 0.253x10^6 cells/cm^2 in the specimens that had been grasped with forceps ($p < 0.001$) (5 images). Cell viability on delivery grade membrane was 86.8±2.1%. The viability dropped to 76.3±1.6% after handling and 35.1±1.7% after crushing with forceps. Where the membrane was cut with scissors, there was a band of cell death where the viability dropped to 17.3±2.0% compared to 73.4±1.9% in the adjacent area ($p < 0.001$). Higher magnification revealed cells did not have the rounded appearance of chondrocytes.

CLSM can quantify and image the fine morphology of cells on a MACI membrane. Careful handling of the membrane is essential to minimise chondrocyte death during surgery.

16. RATE-DEPENDENT MATERIAL PROPERTIES OF THE PORCINE STIFLE JOINT LCL

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Introduction

Characterising material properties of ligaments is essential in the analysis of human morbidity and mortality of low-speed sporting accidents, high-speed road traffic accidents, and very high-speed battlefield injuries. At lower strain rates the elastic modulus and ultimate stress increase relative to strain rate, although very high strain rate testing has not been performed to date.

Method

A porcine stifle joint lateral collateral ligament experiment was conducted that simulated the strain rates that occur during across a full range of different human knee ligament injuries. Tensile testing was performed at five strain rates, each an order of magnitude apart, in the range 10^0-10^4%/s. Seven specimens were tested at each rate. Three loading techniques were used: 1) screw-driven, 2) servo-hydraulic, 3) drop weight rig with tensile impact adaptor. Cross sectional area was measured by counting pixels on a standardized digital photograph of an alginate-paste cast of the mid-substance of each sample. Strain was measured directly from the mid-substance of each ligament by high-speed video extensometry. Stress-strain curves were produced and used to quantify the elastic modulus, failure strain and ultimate stress at each strain rate.

Results

Across the range of strain rates, elastic modulus increased from 288 to 905 MPa ($p< 0.05$), and ultimate stress increased from 39.9 to 77.3 MPa ($p< 0.05$). A relationship between strain rate and both, elastic modulus and ultimate stress was identified. Strain rate sensitivity was not observed at very fast strain rates.

Conclusion

Ligament strength increases when strain rates are high. This data provides an explanation for very high strain rate failure of ligaments under extreme loading conditions, that can be considered protective of bone fracture, such as can be seen in traumatic through knee amputations in blast injuries.

17. THE LATARJET PROCEDURE FOR ANTERIOR SHOULDER INSTABILITY: A PROSPECTIVE SERIES OF 50 CONSECUTIVE PATIENTS.

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The Latarjet procedure is a successful primary and revision option for anterior shoulder instability; however recent reports have highlighted varying complication rates. Our aim was to prospectively study clinical, functional and radiological outcomes of patients undergoing this procedure.

50 consecutive patients underwent a Latarjet coracoid transfer between 2006 and 2012. Mean age was 27years(17-63), 48 were male. Pre-/post-operative imaging, Oxford Shoulder Instability Score(OISS), American Shoulder&Elbow Surgeons score(ASES), Subjective Shoulder Value score(SSV) and clinical evaluation were documented. Mean follow up was 32 months(6–74).

There were no dislocations or revision procedures. Subluxation occurred in one patient only. 95% of shoulders were subjectively graded "excellent" or "good"; 5% "fair"; and none as "poor". The mean pre-op ASES was 58(50-66) and 95(92-98) post-operatively($p < 0.001$). The mean pre-operative OISS was 19(18-22) and 43(41-45) post-operatively($p<0.001$). The mean SSV increased from 46% to 89%($p < 0.001$). 98% of patients considered their surgery to be "successful" and 95% would recommend the procedure to a friend. 82% returned to sport at their previous level. There were no infective or metalwork-related complications. 5 experienced transient neurological symptoms all of which resolved within 3 months.

These results suggest that the Latarjet procedure is safe and reliable with low complication rates.

18. FEMORAL ACETABULAR IMPINGEMENT: THE SEX AND AGE LINKED DISTRIBUTION OF ALPHA ANGLES IN 400 PRE-OSTEOARTHRITIC ASYMPTOMATIC HIPS

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Some military personnel are having Femoral Acetabular Impingement (FAI) surgery. The use of the alpha angle (AA) to help assess the diagnosis is common. Currently there are no standardised values available across a asymptomatic pre-arthritic population.

Retrospective analysis of 200 consecutive individuals (400 hip joints) with ages 20 to 50, who had a CT performed between 1 Apr 2011 and 29 Nov 2011 due to abdominal pathology. The AA of Notzli was measured on the axial view.

400 hips/200 patients. The mean AA value was 53.5 (95%CI 1.30) for Right hips and 53.4 (95% CI 1.31) for the left. In age 20-30 Right 52.6 (95%CI 3.5) the Left 52.0 (95%CI 2.9), 31-40 Right 53.9 (95%CI 2.5) Left 53.4 (95%CI 3.1), 41-50 Right 53.8 (95% CI 1.9) Left 53.2 (95% CI 1.8). Mean male Right 52.9 (95% CI 1.5) Left 53.2 (95%CI 1.9) Female Right 52.5 (95% CI 1.5) Left 49.9 (95% CI 1.6). 144/400 (37%) of patients had angle >55 degrees.

Previous literature suggests an AA >55 degrees is diagnostic of FAI, we suggest that the AA is highly variable across age and sex and that >1/3rd of asymptomatic patients will have an AA that was previously regarded as abnormal.

19. DECORTICATION AND OSTEOTOMY FOR THE CORRECTION OF MULTIPLANAR DEFORMITY IN ADULT FEMORAL DIAPHYSEAL FRACTURE MALUNION. A CASE SERIES AND TECHNIQUE DESCRIPTION.

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Aim: To review the patients that have undergone correction of a symptomatic femoral malunion using osteotomy combined with decortication.

Methods: A retrospective review of all patients who have undergone the procedure, looking at the pre-operative deformity, correction achieved, time to union and complications.

Results: Seven patients underwent correction under the senior author from 2003 to today. Average age was 46 years (range 32- 60 years). All had femoral shortening, average 2.7cm (range 2-4cm). Each also had at least one other plane of deformity with rotation being the next most commonly encountered in 5 out of the 7 (average 33 degrees). 2 had tri-planar deformity with the 5 having bi-planar deformity. Average time to union was 18.4 months (range 7 to 39 months) with an average of 1.6 operations (range 1 to 3 operations) to union. Two patients are awaiting union, 1 has required repeat plating and one is a primary fixation and correction awaiting union.

Conclusion: Correction of multiplanar deformity of the femur is challenging. Osteotomy with decortication provides a technique to achieve correction of significant femoral deformity union achieving full multi-planar deformity correction in a single operation. This paper provides guidance and a technical description of the operative technique.

20. RIB FRACTURE FIXATION AND DURATION OF VENTILATORY SUPPORT:- A SINGLE CENTRE EXPERIENCE

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High energy chest trauma resulting in flail chest injury is associated with increased rates of patient morbidity. Operative fixation of acute rib fractures is thought to reduce morbidity by reducing pain and improving chest mechanics enabling earlier ventilator weaning.

A variety of operative techniques have been described and we report on our unit's experience of acute rib fracture fixation. Over 18 months, 10 patients have undergone acute rib fracture fixation. Outcome measures included; patient demographics, time ventilated pre-operatively, time ventilated post-operatively and time spent on ITU/HDU post operatively.

The mean time from presentation to surgery was 5 days (range 2-12 days). The mean time ventilated post operatively was 2 days (range 1-4 days) and the mean number of days spent on ITU/HDU post-operatively was 6 days (range 2-11 days).

Our results appear positive in terms of time spent ventilated post-operatively but no conclusion can be drawn as we have no comparable non-operative group. We have however shown, that rib fracture fixation can be carried out successfully and safely in a trauma centre. Further evidence on rib fracture fixation is required from a large, multi-centre randomised controlled trial.

21. THE EPIDEMIOLOGY, MORBIDTY AND OUTCOME OF FRACTURES IN RUGBY UNION FROM A STANDARD POPULATION

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Rugby Union is the second commonest cause of sporting fracture in the UK.

Yet little is known about patient outcome following such fractures.

We describe the epidemiology of fractures in rugby union, their morbidity and the likelihood of return to rugby post-injury.

All rugby union fractures sustained during 2007-2008 in the Lothian were prospectively recorded. Patients were contacted by telephone in February 2012 to ascertain their progress in return to rugby.

145 fractures in 143 patients. 120 fractures upper limb and 25 lower limb. 117 fractures (81%) were followed at mean 50 months (range 44-56 months). 87% returned to rugby post-injury, with 85% returning to rugby at the same level or higher. In Returners 77% by 3 months 91% by 6 months. In upper limb fractures, 86% by 3 months 94% by 6 months. In lower limb fractures, 42% by 3 months 79% by 6 months. 32% had ongoing fracture related problems, only 9% had impaired rugby ability secondary to fractures.

Most patients sustaining a fracture playing rugby union *will* return to rugby at a similar level. While one third of them will have persisting symptoms four years post-injury, for the majority this will not impair their rugby ability.

22. BOOZING AND BONES: PATIENTS SELF REPORTING EXCESS ALCOHOL CONSUMPTION SUSTAIN MORE SEVERE FRACTURES AT A YOUNGER AGE

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Alcohol remains a significant cause of disease in the UK population. Yet the effect on alcohol and fractures remains conflicting. We present a prospective analysis self reported alcohol consumption and the epidemiology of fractures sustained.

1950 Patients >13 years were prospectively interviewed after sustaining a fracture with basic epidemiological data, fracture data and average alcohol consumption recorded.

1621 (83%) of interviewees provided information on alcohol consumption. 10% admitted to drinking in excess of Scottish Health guidelines. 18.1% of males drank to excess, 4.7% females $P<0.001$. The Five most frequent fractures were Distal Radius 20%, Metacarpals 12%, Ankle Fractures 12%, Neck of Femur 10%, Phallanx 10%. 48% of fractures were falls from standing height. Excess drinkers were more likely to sustain an AO grade C fracture 18.1% cf 11.2% safe drinkers $P<0.05$. 5% of Excess drinkers fractures were open cf 1% in safe drinkers. $P<0.001$. Excess drinkers were on average 5.66 years younger (44.57:50.23) $P<0.05$.

People reporting alcohol excess who have sustained a fracture are more likely to be younger, and suffer more severe fractures than those drinking within current guidelines. Opportune targeting of patients consuming excess alcohol should be targeted at problem drinkers sustaining a fracture.

23. A REVIEW OF A CONSECUTIVE SERIES OF TRAUMA ADMISSIONS TO ITU AND OF THE AMBULANCE SERVICE AND THEIR INITIAL ASSESSMENT OF THESE PATIENTS

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Diagnosis of injuries in pre-hospital setting is vital for decision making regarding stabilisation of patient vs. intervention vs. rapid transit.

We looked at 50 trauma alerts to the QEHB that were transferred to the ICU post ED. We compared injuries diagnosed in hospital to the initial documentation at scene.

Mean age: 43 $\pm$ 5.5 years; Male to Female: 4:1; Transport by air to land: 24:26; Average time from paramedic on scene to hospital: 63 $\pm$ 11 minutes.

A total of 145 injuries were suspected in the pre-hospital assessment. 83 of which went onto have a diagnosis. A total of 133 injuries were diagnosed in hospital with 48 of these not identified by the pre-hospital team. The majority of the injuries diagnosed (*n=34*) and overlooked (*n=17*) were in the chest.

Pre-hospital assessment highlighted the majority of injuries. The overlooked injuries could be due to:

1) Limited diagnostic proficiency/ equipment
2) Clinical importance of injuries in polytrauma setting.
3) Documentation

At the dawn of when QEHB becomes the major trauma centre our results demonstrate how pre-hospital assessment is vital to focus the assessment for the trauma team; however, the accepting team should be mindful of the limitations of the pre-hospital environment.

24. SERVICE IMPACT AND CLINICAL OUTCOMES OF IMPLEMENTATION OF THE 2011 NICE GUIDELINES REGARDING FRACTURED NECK OF FEMUR IN HIGH FUNCTION PATIENTS

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Abstract

The management of patients with displaced intra-capsular hip fractures is usually a hip hemiarthoplasty procedure. NICE guideline 124 published in 2011 suggested that Total Hip Replacement (THR) surgery should be considered in a sub group of patients with no cognitive impairment, who walk independently and are medically fit for a major surgical procedure.

The Royal Devon and Exeter Hospital manages approximately 600 patients every year who have sustained a fracture of neck of femur, of which approximately 90 patients fit the above criteria. Prior to the guideline less than 20% of this sub-group were treated with a THR whereas after the guideline over 50% of patients were treated with THR, performed by sub-specialist Hip surgeons. This change was achieved by active leadership, incorporation of 'Firebreak' lists, looking for cases, flexible use of theatre time and operating lists and the nomination of an individual senior doctor who was tasked with a mission to improve practice.

This practice is financially viable; the Trust makes over £ 1000 per THR for fracture. Complete outcome data at 120 days show significantly fewer patients stepping down a rung in terms of both independent living and independent walking.

25. OUTCOMES FOLLOWING SCARF OSTEOTOMY FOR HALLUX VALGUS CORRECTION

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Hallux valgus is a common condition often leading to significant symptoms.

However, its correction has recently been suggested, to be a procedure of limited clinical value. Scarf osteotomy is one of the most commonly performed operations for hallux valgus correction. Although technically demanding, it is powerful in its capacity to correct the hallux valgus deformity and sufficiently robust with internal fixation to allow early weight bearing.

We prospectively collected data for consecutive scarf osteotomies between 2008 and 2011.

Preoperative and 6 week postoperative assessment was made using radiographic measurements HVA (hallux-valgus angle) and IMA (inter metatarsal angle).

We evaluated 130 scarf osteotomies.

The mean HVA improved from 29.5 pre-operatively to 12.6 post correction. The mean IMA improved from 12.4 pre-operatively to 8.1 post correction.

The AOFAS hallux scores improved from an average of 55 pre op to 79 post operation.

The results suggest that hallux valgus correction does have clinical value and that scarf osteotomy is a reproducible procedure, with a generally good to excellent results in the short term.