



The Welsh Orthopaedic Society Annual Meeting

18th May 2018

**Llechwen Hall Hotel,
Llanfabon**

WELSH ORTHOPAEDIC SOCIETY MEETING 2018

Llechwen Hall Hotel, Llanfabon, Abercynon, CF37 4HP

Friday 18th May 2018

08 30 – 09 15	Registration & Coffee
09 15 – 09 45	Presidential welcome N Price
	Housekeeping O Ennis
	“Welcome to Merthyr” G Clewer
09 45 – 10 45	Papers Chair: R Williams

Horizontal femoral offset can be accurately assessed pre-operatively through measurement of femoral head diameter

Mr T Richards, Mr M Chawda

Ysbyty Gwynedd, Bangor.

Clinical and radiological outcomes of total knee arthroplasties performed using lateral parapatellar approach for valgus osteoarthritic knees

S Dalal, A Ragab, V Ghanate, K Singhal, A Chandratreya, R Kotwal

Princess of Wales Hospital, Bridgend.

Dislocation following primary THA: national level data in contemporary practice.

D.S. Neogi, S.A. Jones, G. John

University Hospital Llandough, Cardiff.

Euthermia during arthroplasty. Can a passive device keep patients warm?

JM Clutton, SH Burnell, JG Andrew

Ysbyty Gwynedd, Bangor.

Combined intravenous and topical tranexamic acid administration is effective protocol reducing post operative haemoglobin drop in TKR surgeries.

A.Ragab, V.Ghanate, H.Cochin, S.Dalal, A.Chandratreya, R.Kotwal.

Princess of Wales Hospital, Bridgend.

10 45 – 11 00 **Break**

11 00 – 11 15 **Professor Robert Owen: an extraordinary life.**

Mr David Jones

11 15 – 11 45 **Robert Owen Memorial Lecture**

“How we fail the frail-why the NHS struggles with the frailty explosion.”

Dr Andy Haden, Prince Phillip Hospital, Llanelli

11 45 – 12-30 **Papers**
Chair: S Sarasin

Hip fractures: time to surgery and haematological considerations

O. Ayeko, S. Rais, S.J. Phillips

Wrexham Maelor Hospital, Wrexham.

How Often Do Eligible Neck of Femur Fracture Patients Get Totally Correct Surgical Treatment?

K. Dayananda, G. Handley, Mr H. Mumtaz

Ysbyty Gwynedd, Bangor.

Age and Nottingham Hip Fracture Scores are significant predictors of Total Joint Arthroplasty in intracapsular neck of femur patients eligible for Total Hip Replacement according to NICE.

A Bhattacharjee, O Richards, I Wilson, S Phillips, I Starks

Wrexham Maelor Hospital, Wrexham.

Outcomes following fixation of Vancouver B2/3 periprosthetic femoral fractures at a single orthopaedic centre

M Horner, J Pearce, T Okoro, M Mullins, M Dodd

Morriston Hospital, Swansea.

12 30 – 13 45 **Lunch / Trade / Posters**

12 45 – 13 45 **Workshop-Femoral Nailing**

13 45 – 14 20 **Papers**
Chair: M Day

Septic arthritis management in a district general hospital

Y Tsui, M Bayley, M Lewis

Royal Gwent Hospital, Newport.

A re-audit into the management of soft tissue knee injuries in the emergency department after the addition of an extended scope physiotherapist

K. Cole and S. Roy.

Royal Glamorgan Hospital, Llantrisant.

Tibial tubercle position: a novel parameter to measure coronal alignment in symptomatic patellofemoral instability

A Bhattacharjee, M Fahmy, A P Davies

Morriston Hospital, Swansea.

Artificial vs Grass Rugby Pitches: Is there an increase in injury rate among professional rugby union players?

A Miller , M Vazquez , C Marusza , A Poacher , J Miles , D Vaughan , D O'Doherty, C Carpenter.

University Hospital of Wales. Cardiff

14 20 – 14 30 **The AAOS**
Owen Lawrence
President Prize Winner 2017

14 30 – 15 00 **“The Inside track”**
Mrs Allison Williams, Chief Executive Officer, Cwm Taf UHB

15 00 – 15 20 **Break**

15 20 – 16 15

Papers

Chair: L Williams

A retrospective single-centre case series of anatomic total shoulder replacement evaluating functional outcome and significance of prosthesis radiolucency.

A Assaf, T Key, H Pullen.

Royal Gwent Hospital, Newport.

Teaching in fracture clinics – just do it?

J.M. Clutton, T. Hossain, O. Davies, R. Gwyn, M.W. Jones

Ysbyty Gwynedd, Ysbyty Glan Clwyd.

Non operative management of achilles tendon ruptures by a podiatry service in a district general hospital.

A. Tong, G. Morgan, A. Singhal, M. Day, L. Williams

Prince Charles Hospital, Merthyr Tydfil.

Is social deprivation associated with amputation risk secondary to diabetic foot disease?

J Hayes, C Topliss, R Thomas, J Stephens, S Bain.

Morrison Hospital, Swansea, UK

The difference between gene expression in Ankle and Knee Chondrocytes may have provided a target for the prevention of OA.

A Miller, A Abdullah, C Hague, P Hodgson, E Blain

University Hospital of Wales, Cardiff.

16 15 - 16 30

Tea – Judging papers /Posters/ Workshops

16 30 – 16 45

Presentation of Prizes

16 45 – 17 15

Rowland Hughes Memorial Lecture

“Of fossils and feet: an anthropological story of the human foot”

Mr Kartik Hariharan

Royal Gwent Hospital, Newport

17 15

Vote of thanks

AGM

19 30 for 20 00

Dinner at Llechwen Hall



Abstracts Selected for Podium Presentation

HORIZONTAL FEMORAL OFFSET CAN BE ACCURATELY ASSESSED PRE-OPERATIVELY THROUGH MEASUREMENT OF FEMORAL HEAD DIAMETER

Mr T Richards, Mr M Chawda, Ysbyty Gwynedd, Bangor, LL57 2PU

Background: Templating before arthroplasty is vital to ensure restoration of length and offset of the hip. Plain radiographs provide a 2-dimensional representation of the anatomy and are therefore prone to inaccuracies due to variation in hip rotation during acquisition. We have found that horizontal offset can be accurately estimated by measurement of the femoral head on a calibrated radiograph.

Methods: Radiographic measurements taken from calibrated hip radiographs and CT scan multiplanar reconstructions in the femoral neck axis of 50 patients were analysed.

Results: Femoral head size as measured on calibrated hip radiograph correlated well with hip offset (Pearson correlation 0.753, $p < 0.01$). Its measurement differed from horizontal offset measured on CT by a mean of 1.51mm. Offset measurement on plain radiograph differed by mean -2.70mm (standard deviation 2.70 vs 3.99) (95%CI [0.75,2.28] vs [-3.83,-1.57]). Greater neck shaft angle and lesser trochanter height on plain radiograph correlated significantly with a discrepancy between apparent offset on radiograph to that measured on CT (Pearson correlation 0.411 and 0.346).

Conclusions: The femoral head is a spherical structure making its measurement accurate throughout the rotational profile of the femur. Its value correlates better to true horizontal offset of the femur than offset measurement on plain film due to the confounding effect of variable hip rotation on measurements. We find it a simple, reproducible and relatively accurate method of estimating horizontal femoral offset pre-operatively. It can be used without the need of any specialised software to aid pre-operative planning.

CLINICAL AND RADIOLOGICAL OUTCOMES OF TOTAL KNEE ARTHROPLASTIES PERFORMED USING LATERAL PARAPATELLAR APPROACH FOR VALGUS OSTEOARTHROTIC KNEES

S. Dalal, A.Ragab, V. Ghanate, K. Singhal, A.Chandratreya, R. Kotwal

Department of Trauma and Orthopedics, Princess of Wales Hospital, Bridgend.

Introduction- Valgus deformity in total knee arthroplasty has posed technical challenges and produced variable clinical results in terms of correction of deformity, instability and longevity. The lateral parapatellar approach, despite providing direct access to the pathological area has not been widely accepted because of lack of familiarity and concerns about complications related to skin and soft-tissue coverage.

Objective- To analyse the incidence of additional soft tissue releases with the lateral approach, and the clinical and radiological outcomes of total knee arthroplasties performed using lateral parapatellar approach for valgus osteoarthrotic knees.

Methods- Retrospective study of cases from a prospectively collected database. Operation and clinical records were assessed to determine the number and sequence of soft tissue releases. Functional outcome was measured using Oxford Knee Score. Radiological assessment included measurement of alignment and implant positioning.

Results- 25 patients. Mean follow-up of 2.1 years. Additional lateral releases were performed in 5(20%) cases. Mean valgus alignment corrected from 13.1 degrees pre-operatively to 5.7 degrees post-operatively. Oxford Knee Score improved from a mean pre-operative score of 11.9 to the mean 6-week and 1 year score of 33.3 and 38.3 respectively. Radiographs revealed lateralisation of the tibial component in 4 patients. No immediate or late post-operative wound complications, late instabilities or revisions were observed.

Conclusion- Lateral parapatellar approach is highly effective in correcting the valgus deformity with a low incidence of additional soft tissue releases. Short term results indicate an excellent functional outcome with no complications.

DISLOCATION FOLLOWING PRIMARY THA: NATIONAL LEVEL DATA IN CONTEMPORARY PRACTICE.

D.S. Neogi, S.A. Jones, G. John

CAVOC, University Hospital Llandough, Penlan Road, Penarth

Registry data from around the world demonstrates instability following primary THA is a leading indication for revision. However, the burden of THA dislocation is poorly documented and is not routinely recorded or reported at a national level. Our aim was to determine the rate of dislocation following primary THA in contemporary practice and in doing so determining the burden of THA dislocation to the NHS in Wales.

Method:We considered all Welsh residents who underwent primary THA from 2011-2016. Via clinical coding linkage using Patient Episode Database for Wales (PEDW), the equivalent of HES data in England, we were able determine re-admission for dislocation, revision THA following dislocation and all cause revision at 1 to 5 years follow-up.

Results:In a cohort of 20,816 primary THA the dislocation rate at 1 year following was 1.1% (95%CI 0.97-1.25%). At 1 year the overall revision rate was 1.3% of which 0.3% was following instability. This increased incrementally to 2.2% (95%CI 1.78-2.72%) at 5 years. The median time to dislocation was 46 days and 67.8% of first time dislocations occurred within 6 months of index surgery. We undertook a clinical coding data validation for a sub-group of 2,677 THA procedures, cross-referencing hospital records and theatre logbooks with PEDW data and demonstrated a correlation of 90.6% (95%CI 75.8-96.8). We observed 229 first time dislocation events, but during the total study period there were 1179 emergency admissions for dislocated THA with a mean hospital length of stay of 5.5 days.

Discussion & Conclusions: This study provides benchmarking data at a national level regarding the risk of dislocation for patients undergoing primary THA. Importantly it demonstrates the significant accumulative burden of dislocation following THA for both patients and impact on NHS resources.

EUTHERMIA DURING ARTHROPLASTY. CAN A PASSIVE DEVICE KEEP PATIENTS WARM?

JM Clutton, SH Burnell, JG Andrew

Ysbyty Gwynedd Hospital, Betsi Cadwaladr University Health Board, Bangor, Gwynedd, UK

Introduction: Euthermia during surgery is essential to minimising infection rates. This is often achieved by using a forced air warming (FAW) blanket during surgery. There is concern about a link between FAW and wound infection. We investigated whether a passive device could maintain patient temperature during elective lower limb arthroplasty.

Methodology: We conducted a randomised controlled non-inferiority trial comparing the BlizzardOR™ passive warming device (Blizzard Systems) to the 3M™ Bair Hugger™ FAW device. Patients were recruited preoperatively and randomised by envelope. Patient temperature was recorded every 15 minutes from anaesthetic start until the patient left recovery. The principal outcome measure was a temperature of 36.0 or greater on arrival in recovery.

Results: Sixty eight patients were included. All had a temperature of at least 36.0 on arrival in recovery. There was no significant difference in the number of hypothermic incidents in each group (both n=3). No patient had a recorded temperature below 35.9. There was no significant difference in temperature drop between the two groups (t-test p= 0.522). In the BlizzardOR™ group (n=31) the temperature, on average, dropped by 0.55 degrees (range +0.3 to -1.3) compared to an average drop of 0.42 degrees in the FAW group (range +0.3 to -1.4).

Conclusions and Implications: The adverse effects of perioperative hypothermia are well documented. However, there is concern that the current use of FAW may disturb laminar flow, and increase infection risk. We have demonstrated that this passive device can maintain patient temperature during arthroplasty surgery. There is scope for further research in determining the difference in airflow and in contamination or infection rates.

COMBINED INTRAVENOUS AND TOPICAL TRANEXAMIC ACID ADMINISTRATION IS EFFECTIVE PROTOCOL REDUCING POST OPERATIVE HAEMOGLOBIN DROP IN TKR SURGERIES.

A.Ragab, V.Ghanate, H.Cochin, S.Dalal, A.Chandratreya, R.Kotwal.
Princess of Wales Hospital, Bridgend, Wales, UK, CF31 1RQ.

Introduction: Tranexamic acid plays a central role in reducing perioperative blood loss in TKR.

Literature shows no optimal regimen for tranexamic acid in TKR.

Aim: To compare differing practices of four surgeons to determine the most effective dose and mode of use of tranexamic acid administration to reduce blood loss during TKR.

Methods: Prospective cohort study. 4 groups of patients who underwent primary TKR for osteoarthritis with 4 surgeons. Group 1 (n=22) received 1gm intravenous tranexamic acid at induction. Group 2 (n=22) received 1gm intravenous at induction and 1 gram intravenous before skin closure. Group 3 (n=22) received 1gm intravenous at induction and 1gm intra-articular topically during closure and a drain was used, clamped for 30 minutes. Group 4 (n=11) same as group 3 but without a drain. Drop in haemoglobin level post-operatively and the need for blood transfusion was assessed.

Results: None of the patients needed blood transfusion post operatively. Groups 1 & 2 showed significant drop of haemoglobin (mean Hb drop 23.78, 22.14 respectively) in relation to the other two groups, p value 0.013. Group 3 (mean Hb drop 13.32) showed significant less drop of haemoglobin than group 4 (mean Hb drop 17.5) with p value 0.047.

Conclusion: Combined intravenous and intra-articular tranexamic acid with a drain clamped for 30 minutes was the most effective regimen in reducing perioperative blood loss in our cohort of patients undergoing TKR.

HIP FRACTURES: TIME TO SURGERY AND HAEMATOLOGICAL CONSIDERATIONS

O. Ayeko, S. Rais, S.J. Phillips

Orthopaedic Department, Wrexham Maelor Hospital, Croesnewydd Road, Wrexham

Introduction: Approximately 70,00 hip fractures occur annually in the UK. In 2016 almost 65,000 of these were aged 60 or older. The increased prevalence of cardiovascular disease in this cohort and medications such as anticoagulants can impact surgical care. Direct oral anticoagulants (DOACs) do not require monitoring but are complicated by their reversibility. NICE recommends that one should "perform surgery on the day of, or the day after, admission" on hip fracture patients. The purpose of this audit is to evaluate if surgery is within 48 hours and to review certain haematological aspects of their management.

Method: Population limited to patients referred to the Orthopaedic Department at Wrexham Maelor Hospital in 2017. All patients should have surgery within 48 hours. Primary end point is Time to Surgery (TTS). Secondary end points include 'anticoagulant medication' and 'Peri-operative RBC Transfusion'.

Results: 179 patients included with 10 of these not undergoing surgery. TTS < 48 hours in 144 patients. 29 were on oral anticoagulants: 13 on warfarin, 14 on apixaban, 1 on dabigatran and 1 on rivaroxaban.

Conclusion: 80% of patients achieved a TTS < 48 hours, greater than the highest national rate. 69% of patients on anticoagulants had a TTS < 48 hours, below the national average in 2016. Other factors may cause delay such as reversible medical comorbidities. Although the causative nature of delayed TTS cannot be completely attributed to anticoagulation, it is clear that uniformity of practice and clearer guidance is required.

HOW OFTEN DO ELIGIBLE NECK OF FEMUR FRACTURE PATIENTS GET TOTALLY CORRECT SURGICAL TREATMENT?

Miss K. Dayananda, G. Handley, Mr H. Mumtaz
Ysbyty Gwynedd (Bangor Hospital), North Wales

Introduction: NICE states “offer THA rather than hemiarthroplasty to patients with a displaced intra-capsular hip fracture who: were able to walk independently out of doors with no more than the use of a stick **and**, are not cognitively impaired **and**, are medically fit for anaesthesia and the procedure.”⁽¹⁾ NICE recommends that surgery be performed “on the day of, or the day after, admission”⁽¹⁾

We review the number of eligible patients receiving THA across our department, the timeliness of their surgery and the inappropriate use of THA.

Method: A 12-month retrospective review of our hospital’s hip fracture database from 01/12/2016 to 31/12/2017 identified all neck of femur fracture (NOF) patients treated. We consider eligible patients to have an ASA ≤ 2 and normal mental state, quantified as AMT $\geq 8/10$.^(2,3)

Results: 278 patients were treated for a NOF fracture. Forty-seven percent had a displaced intra-capsular sub-type, of which a quarter were eligible for THA. Of these 48% received the recommended treatment, on average within 24 hours 25 mins. THA patients waited on average nearly 6 hours longer than hemiarthroplasty. Fifty-six percent of all delays occurred over the weekend. Ninety-nine patients did not meet criteria for THA. Of these 12% underwent THA.

Discussion: Our DGH achieves provision rates for THA 17.6% above national average. The majority (70%) receives timely surgery. There is a tendency to deliver THA to patients considered medically higher risk (ASA ≤ 3).

Conclusion: Attempts should be made to minimize inappropriate use of THA alongside promoting timely use in eligible candidates.

AGE AND NOTTINGHAM HIP FRACTURE SCORES ARE SIGNIFICANT PREDICTORS OF TOTAL JOINT ARTHROPLASTY IN INTRACAPSULAR NECK OF FEMUR PATIENTS ELIGIBLE FOR TOTAL HIP REPLACEMENT ACCORDING TO NICE.

A Bhattacharjee, O Richards, I Wilson, S Phillips, I Starks
Wrexham Maelor Hospital

Objective: To investigate the predictors for THA in patients with IC NOF eligible for total joint arthroplasty by NICE guidelines. Methods: A retrospective review of our hip fracture database from 2011 to 2015 was undertaken. Patients eligible for THA according to NICE guidelines were identified. Patient demographics, Nottingham Hip Fracture scores (NHFS), type of surgery (Hemiarthroplasty of the hip (HA) or THA), surgical complications and difference in mortality related to surgery recorded. A logistic regression analysis model with significant independent variables was used to predict the type of surgery (i.e. dependent variable) in these patients. Results: A total of 114 patients eligible for THA were identified. 50 (44%) patients underwent THA; the remaining 64 (66%) patients underwent HA. The two groups had no difference in AMTS, ASA and pre-operative mobility. A significant difference was noted in the age (mean age for THA 73 \pm 8 years; mean age for HA 80 \pm 7.4 years) ($p=0.001$) and NHFS (median for THA-3 IQR-3-4, median for HA-4, IQR-4-5, $p=0.001$) between two groups. A logistic regression model showed age, and NHFS significantly predicted the type of surgery (Nagelkerke’s $R^2=0.5$). One patient had an intra-operative peri-prosthetic fracture, and one had immediate postoperative dislocation after receiving THA. However, no post-operative complication recorded in patients receiving HA. A log-rank test showed significantly longer survival in patients treated with THR (mean 5.8 years) in comparison to hip hemiarthroplasty (mean 4.9 years) ($p=0.018$). Conclusions: There is a significant association between age and NHFS in predicting THA for patients with fracture NOF. Patients treated with THA also had longer survival in comparison to the group of patients receiving hemiarthroplasty. The NHFS and age should be used as an adjunct to NICE guidelines in selecting suitable patients for THR after fracture NOF.

OUTCOMES FOLLOWING FIXATION OF VANCOUVER B2/3 PERIPROSTHETIC FEMORAL FRACTURES AT A SINGLE ORTHOPAEDIC CENTRE

M. Horner, J. Pearce, T. Okoro, M. Mullins, M. Dodd

Department of Trauma & Orthopaedic Surgery, Morriston Hospital, Swansea.

Background: Periprosthetic femoral fractures are sustained by increasingly elderly patients with multiple co-morbidities. Traditionally the accepted management for Vancouver B2 and B3 fractures is revision arthroplasty. However, there is increasing recognition of the role for open reduction and internal fixation (ORIF), particularly in patients who may not tolerate extensive revision surgery. This study aimed to evaluate outcomes in patients sustaining these fracture patterns. **Methods:** A retrospective analysis of patients who underwent operative management for a periprosthetic fracture in a single institution was performed from May 2009 to October 2017. Theatre records, as well as a search of all radiology reports with the search terms 'prosthesis' and 'periprosthetic' were interrogated. Demographic information as well as clinical outcome (evidence of fracture union, and need for revision surgery) was recorded for this cohort. **Results:** Of a total of 1165 patients, 33 patients (n=20 Females, with a median age= 79.5yrs (53-93yrs)) sustained B2/3 fractures which were surgically managed in the specified time period. There were on average 2.4 (_ & ▼) significant comorbidities per patient. There was evidence of radiological union at an average of 28.3 weeks (4-76) from injury in n=17 patients; giving a union rate of 51.5%. Revision surgery was necessary in 3 patients (10%; two for metalwork failure and the other for infection). **Conclusion:** The results of this small cohort suggest a significant proportion of these fractures progress to radiological union with a low revision rate. There is relative merit in continued consideration of ORIF for Vancouver B2/3 fractures in this population.

SEPTIC ARTHRITIS MANAGEMENT IN A DISTRICT GENERAL HOSPITAL

Y.C.A.Tsui, M. Bayley, M. Lewi

Department of Trauma and Orthopaedics, Royal Gwent Hospital.

Background: Septic arthritis carries significant morbidity and mortality. Prompt diagnosis and treatment is vital for patient outcome. The BOA recommends joint aspiration prior to commencing antibiotics. NICE advocate initiating the "sepsis six bundle" for all septic patients within 1 hour of presentation.

Method: We retrospectively reviewed patients with septic arthritis who were treated surgically over a one-year period. Penetrating injuries, chronic infections, medically treated and paediatric patients were excluded.

Compliance with the BOA guidance and "sepsis six bundle" were recorded. Time from referral to, aspiration, administration of antibiotics and surgery were all recorded.

Results: Twenty-two patients were identified. Fifteen were in native joints and 7 prosthetic joints. The knee was the most common joint (16). Mean hospital stay was 14 days for native and 23 days for prosthetic joint infections. There were 4 deaths, all in prosthetic joint infections. Antibiotics were given before aspiration in 5/15 native joint and 3/7 prosthetic joint infections. Only 10/22 patients had blood cultures taken. 19/22 patients were clinically septic on presentation, and none received antibiotics within 1 hour.

Patients who survived waited on average 19 hours for antibiotics and 29 hours for surgery, compared to 54 hours for antibiotics and 170 hours for surgery in those who died.

Conclusion: We demonstrated universally poor compliance with guidelines. Mortality and outcomes were worse with prosthetic joint infections and delays in treatment. We have instigated measures to improve care, aiming to reduce time to aspiration, antibiotic administration and surgical washout.

A RE-AUDIT INTO THE MANAGEMENT OF SOFT TISSUE KNEE INJURIES IN THE EMERGENCY DEPARTMENT AFTER THE ADDITION OF AN EXTENDED SCOPE PHYSIOTHERAPIST

K. Cole and S. Roy.
Orthopaedics Department, Royal Glamorgan Hospital.

This study re-audits the management of soft tissue knee injuries in a South Wales hospital after an extended scope physiotherapist (ESP) was introduced into the emergency department (ED) in 2016. The audit focused on the effect that this new model of care had on discharge statistics, waiting times, and the surgical conversion rate (SCR), whilst exploring the possible benefits that this could have on patient outcomes and their pathway from ED to discharge. This was a retrospective cohort study that analysed the patient pathway of 364 patients with soft tissue knee injuries that presented to the ED, and therefore the ESP clinic, between June 2016 and March 2017 (10 months).

The discharge rates from the emergency department increased from 8% to 64%, whilst the percentage of patients referred to orthopaedics dropped from 92% to 12%. The average waiting time for MRI dropped from 35.7 days to 21.5 days, and only 4% waited beyond 8 weeks (19% previously). All patients reviewed by a consultant underwent imaging before their clinic appointment. The SCR increased from 25% to 69%.

The significant reduction in referrals to orthopaedic clinic shows the ESP's ability to manage patients independently, and the dramatic increase in the SCR demonstrates appropriate selection for orthopaedic referral. This study therefore supports the use of ESPs as orthopaedic triage in UK emergency departments as the results suggest an improvement to the pathway of patients with acute musculoskeletal injuries. This model could therefore be used to help alleviate the growing demand on orthopaedic services.

TIBIAL TUBERCLE POSITION: A NOVEL PARAMETER TO MEASURE CORONAL ALIGNMENT IN SYMPTOMATIC PATELLOFEMORAL INSTABILITY

A Bhattacharjee, M Fahmy, A P Davies
Morrison Hospital

Background: The tibial tuberosity - trochlear groove distance is measured to identify the coronal alignment in patellofemoral (PF) instability. However, this can vary due to several factors including knee flexion angle. Alternatively, tibial tuberosity position (TTP) can be measured at the most proximal part of the patellar tendon attachment to ascertain the coronal alignment which also excludes the influence of knee flexion angle.

Aim: Tibial tubercle position (TTP) in patients with symptomatic PF maltracking is compared with patients with no patellofemoral symptoms. **Methods:** MRI scans of 48 knees treated with Tibial Tubercle Osteotomy (TTO) for PF symptoms and 20 knees with acute injuries, but no PF symptoms (control group) are studied to identify the TTP. The two cohorts were age and sex matched. On axial scan image, a perpendicular line is drawn from the midpoint of the most proximal part of the patellar tendon (PT) attachment (also confirmed on sagittal image) to the base of the tibia. The TTP is the ratio of the horizontal distance from the mid-point of PT attachment to the tibia measured from the lateral tibial cortex to the maximum horizontal width of the tibia on the axial image. **Results:** The mean (SD) TTP in patients with PF symptoms was 27(+/-8.6) (95% CI 24.6-29.3), and the control group was 35.4 (+/- 6.3) (95%CI 32.4-38.2) with a significant difference between the two cohorts ($p < 0.001$). In control group, 19 /20 knees (95%) had TTP > 29 however only 19 /48 (29%) had TTP > 29 in the group with PF symptoms implying a high incidence of lateralised tubercle in patients with PF maltracking.

Conclusion: TTP can be used to define lateralisation of tibial tubercle in patients with PF symptoms on MRI scan. This can also be used as an objective measure for PF maltracking and potentially used to guide treatment.

ARTIFICIAL VS GRASS RUGBY PITCHES: IS THERE AN INCREASE IN INJURY RATE AMONG PROFESSIONAL RUGBY UNION PLAYERS?

Miller A, Vazquez M, Marusza C, Poacher A, Miles J, Vaughan D, O' Doherty D, Carpenter C
Trauma and Orthopaedic Dept., Cardiff and Vale University Health Board

Introduction: Modern rugby is a physically demanding game associated with high injury rates. Huge amounts of money have been invested in improving player safety and new laws specifically tailored to prevent acute injury and long-term post traumatic sequelae. Artificial grass has become an extremely attractive option for both professional and amateur rugby clubs as it is felt to encourage "faster, safer and more entertaining play" in addition to fewer concerns over games being postponed due to inclement weather. Existing evidence in support of artificial pitches is extrapolated from American football, where helmets are mandatory. Here, we compare the injury rates and types that occur on natural and artificial grass pitches in a cohort of professional rugby union players.

Methods: A review of the Cardiff Blues Rugby team injury database was undertaken from the start of the 2012/2013 season to the end of the 2016/2017 season. Frequency of injuries occurring during contact and type of injury sustained (soft tissue, bone, or concussion) before and after the installation of a new artificial pitch were compared using One-way ANOVA analysis.

Results: Across five playing seasons there were 669 injuries. No significant difference was observed between the mean number of injuries per season on grass compared to the artificial surface (144 vs 130; $p=1.00$), percentage of soft tissue injuries (82.06% vs 75.76% ; $p=0.11$) or in the number of contact injuries (90 VS 84; $p=0.98$) between pitch types. However, we have shown a significant increase in the number of concussions reported on the artificial pitch (8.96% vs 19.85%; $p=0.002$), and in the number of bone injuries reported on grass (8.96% vs 4.39%; $p=0.028$).

Conclusion: Contrary to anecdotal evidence, the newer playing surface may in fact confer some protective benefit in reducing bony injuries amongst professional players. However, we have also reported an increased incidence of concussion episodes associated with the artificial surface. This should be interpreted with caution, as the introduction of a head injury assessment protocol in 2015 may have introduced reporting bias.

A RETROSPECTIVE SINGLE-CENTRE CASE SERIES OF ANATOMIC TOTAL SHOULDER REPLACEMENT EVALUATING FUNCTIONAL OUTCOME AND SIGNIFICANCE OF PROSTHESIS RADIOLUCENCY.

A Assaf, T. Key, H. Pullen
Royal Gwent Hospital, Newport Gwent.

Background: Anatomic total shoulder replacement (aTSR) is performed commonly to improve quality of life for patients with disabling shoulder osteoarthritis. However, there is little evidence on functional outcomes or the significance of radiolucency on long term function. **Aim:** This single-centre study aimed to determine the functional outcomes of aTSRs and whether humeral stem radiolucency identified on serial post-operative radiographs of aTSRs correlates with functional outcome. **Methods:** A retrospective data collection was carried out from all primary aTSR over a five year period, from September 2012 to September 2017. Preoperative and Postoperative Oxford Shoulder Scores (OSS) were compared with a minimum of 6 months follow up. The humeral stems of postoperative radiographs were analysed using a modified radiolucency grading system and were used to compare to functional outcome. **Results:** Seventy five aTSR were performed over a 5 year period all using the biomet comprehensive TSR system with one revision to reverse TSR performed due to rotator cuff tear following trauma. Thirty aTSR had documented pre and post operative OSS. The mean preoperative OSS was 19.4 with a median of 19, compared to a mean and median of 40.2 and 42 post-operatively, with a p value < 0.0001 . Radiolucency surrounding the humeral stem, assessed by two observers, produced 5 zone 1 >2 mm areas by the first observer, and 4 zone 1 > 2 mm by the second. In the other cases, all zones were deemed to have no radiolucency by both observes. **Conclusion:** The study produces evidence that TSR have good functional outcomes as reflected by early OSS, with statistical significance $p < 0.0001$. These results are independent of the radiolucency status.

TEACHING IN FRACTURE CLINICS – JUST DO IT?

J.M. Clutton, T. Hossain, O. Davies, R. Gwyn, M.W. Jones
Ysbyty Gwynedd and Ysbyty Glan Clwyd

Introduction: Orthopaedic middle grades frequently run fracture clinics with little consultant supervision. This results in unnecessary follow-up appointments and letters overstocked with superfluous information. Can direct observation by a senior consultant decrease unnecessary follow-up, and gratuitous dictation? Methodology: Fourteen middle grades were directly observed in two fracture clinics, weeks apart. During each clinic, agreements and disagreements on patient management were noted, and a numerical score given based on this. After each clinic, the consultant conducted a precis exercise on the dictated notes, and noted the word reduction. Each registrar also conducted a precis exercise on anonymised dictations. We analysed whether the agreement in management plan improved between the two clinics, and whether the amount of superfluous dictation decreased. Results: During the first clinics, the mean agreement between consultant and middle grade was 82.5% (range 60-93%). This improved at the second clinics to 93.5% (range 75-100%) (paired student t-test $p=0.0033$). Common areas of disagreement included; need for further follow-up, physiotherapy referral, and further investigation. At first, the consultant was able to reduce the dictation of middle grades by 41.21%. At the second clinics the possible word reduction was only 34.64% (paired student t-test $p=0.0328$). Conclusions and implications: Direct observation can improve middle grades' performance in fracture clinic and reduce unnecessary follow-up. A simple precis exercise was effective in reducing unnecessary dictation whilst retaining crucial facts. This not only saves time in the clinic itself, but also decreases the amount of time spent by secretaries typing dictation.

NON OPERATIVE MANAGEMENT OF ACHILLES TENON RUPTURES BY A PODIATRY SERVICE IN A DISTRICT GENERAL HOSPITAL

A. Tong, G. Morgan, A. Singhal, M. Day, L. Williams
Prince Charles Hospital, Merthyr Tydfil.

Aims: It is well documented that nonoperative management of Achilles tendon ruptures is successful. This usually requires a dedicated physiotherapy service. In our unit, our patients are managed by the podiatry unit. They wear a walking boot with 4 wedges for 6 weeks (night and day), then start non weight bearing exercises and remove 1 wedge each week. By 10 weeks, they start full weight bearing exercises and are weaned into normal footwear. The aim of this study is to review our outcomes following non operative management of complete Achilles tendon ruptures treated by our podiatry service. Patients and Methods: All patients treated by the podiatry service are entered into a prospective database that includes demographics, pathology, ATRS scores and Visual Analogue Scores (VAS). Patients with an Achilles tendon rupture were identified, their electronic case notes and imaging reviewed.

Results: There were 50 patients (41 male, 27 left side, mean age 50 years) treated for a full thickness Achilles tendon rupture between February 2014 and July 2017. Three were smokers, 2 were diabetics, 5 taking steroids and 1 was immunosuppressed following a renal transplant. Nineteen injuries occurred during the weekend. The mechanism of injury included a team sport or gym activity (27), running elsewhere (3), walking (4), misstep (8), pushing a car (1), on holiday (4) and unknown (3). Twenty-nine patients were seen in fracture clinic within 7 days of injury, 14 more during the second week post injury, 2 during the first month of injury and 5 more than a month post injury. The initial treatment prior to being seen by our podiatrist was a walking boot with wedges in 30 patients and 11 in an equinus plaster. The mean time from fracture clinic to podiatry review was 12 days (range 0-97 days). 15 patients were seen on the day of fracture clinic. The diagnosis was confirmed on ultrasound scanning on all patients. Fourteen patients had ultrasound evidence of tendinopathy, and 1 of a previous low grade tear. The mode VAS pre-treatment was 10 and post treatment 0. The mean ATRS from 3/12 was 91 (range 61 to 100). This is excluding an outlier of 36 in a female who had an ongoing insurance claim. Upon discharge 47 patients returned to their normal activities of daily living including 8 patients who returned back to regular running related exercises. None of the patients had surgical intervention. Conclusion: Functional rehabilitation in a district general hospital by a podiatry service provides as good an outcome as a physiotherapy service.

IS SOCIAL DEPRIVATION ASSOCIATED WITH AMPUTATION RISK SECONDARY TO DIABETIC FOOT DISEASE?

Dr J Hayes Miss C Topliss, Ms R Thomas, Prof J Stephens, Prof S Bain.
Morrison Hospital, Swansea, UK

Aims - To determine amputation rates and investigate the hypothesised link between social deprivation and amputation in patients with diabetes within a health board in the United Kingdom.

Methods - A population of people with diabetes attending a secondary care clinic (n = 2073) were identified between 2006 and 2010. Hospital data on diabetes care, podiatry care and an amputation database recording amputation type and rate from 2006 – 2016 were linked using a unique patient identifier. All patients undergoing a lower limb amputation secondary to diabetic foot disease were included and postcode was used to calculate social deprivation. Statistical significance was determined using logistic regression.

Results - 5.76% of patients underwent a total of 276 lower limb amputations during the 10-year period (576 per 10 000). Deprivation increased risk of amputation with those in the most deprived quintile having a 2.16-fold risk (95% CI 1.06 – 4.39) compared to those least deprived. Male gender (OR 1.68, 95% CI 1.06–2.60), diabetes length (OR 1.03, 95% CI 1.01–2.05), blood pressure (OR 1.02, 95% CI 1.01–1.03), retinopathy screening nonattendance (OR 3.51, 95% CI 1.3 – 9.7) and cholesterol (OR 1.43, 95% CI 1.13–1.8) all predicted amputation. Age, diabetes type, BMI and smoking status did not.

Conclusions - This study indicates a positive association between social deprivation and rates of lower limb amputation. This study is a pilot study for a larger population based study where this inequity and other risk factors will be investigated further with an aim to create targeted interventions.

THE DIFFERENCE BETWEEN GENE EXPRESSION IN ANKLE AND KNEE CHONDROCYTES MAY HAVE PROVIDED A TARGET FOR THE PREVENTION OF OA.

Andrew Miller, Ali Abdullah, Charlotte Hague, Paul Hodgson, Emma Blain
University Hospital of Wales, Cardiff

Introduction: The prevalence of symptomatic osteoarthritis in the knee is 11-19% compared to 3.4-4.4% in the ankle. In addition to this 70% of ankle arthritis is post-traumatic while the vast majority of knee arthritis is primary OA. Biochemically, ankle cartilage has much higher glycosaminoglycan content and lower water content giving it a much greater ability to resist stress. It is also less susceptible to the catabolic effects of pro-inflammatory cytokines. Here we investigate if there is a difference in ankle and knee chondrocyte gene expression that would account for this variable prevalence and aetiology.

Methods: Human cartilage was taken from the talar domes (n=5) and the femoral condyles (n=5) following surgical amputation. RNA was extracted using the RNeasy system (Qiagen, Sussex, UK) and gene sequencing was then undertaken using the NextSeq@500 system (Illumina, Chesterfield, UK). Statistical analysis was performed using student's t-test with adjustment for multiple comparisons. Differentially expression genes (adjusted value of $p < 0.05$) were loaded into the "Integrated Pathway Analysis" software.

Results: There were in excess of 800 differentially expressed genes. Pathway analysis identified "Cartilage Acidic Protein 1" a molecule essential in glycosylated extracellular matrix protein found in deep zone and 3 "Glutamate receptor subunits" of major interest.

Discussion: Gene sequencing and pathway analysis enable identification of differences in cellular pathways that may account for the variation in susceptibility of these two joints to OA. Glutamate receptors in particular have been directly implicated in the inflammatory process associated with cartilage degradation. NBQX, a glutamate antagonist currently under investigation within our department has also been shown to reduce swelling and protect cartilage from degeneration in a post-traumatic animal model. Our findings add further weight to recent evidence that glutamate receptors are strongly implicated in degenerative joint disease and may provide a potential medical target to prevent arthritis.



Abstracts Selected for Poster Presentation

TIMING OF SURGERY IN FRACTURES OF THE UPPER EXTREMITY: A QUALITY IMPROVEMENT INITIATIVE TO INCREASE COMPLIANCE WITH NICE GUIDELINES IN A DGH IN NORTH WEST ENGLAND

L. NUGENT, R. MACFARLANE

Background: It was noted that in some cases, patients with certain upper limb fractures requiring operative intervention would face wait-times in excess of 2 weeks when listed for a 'scheduled upper-limb trauma list' as opposed to being *pooled* for all available consultants' waiting lists for scheduled trauma, despite the fact that their injuries could be addressed by any surgeon. NICE guideline ng38 - Fractures (non-complex): assessment and management - states that in distal radius fractures requiring operative intervention, surgery should be performed; - within 72 hours of injury for intra-articular fractures - within 7 days of injury for extra-articular fractures. **Aims:** We aimed to define the extent of this problem (via audit, including radiographic review), and to implement a system whereby patients (presenting to the unit's fracture clinic or acute take) with fractures requiring operative intervention, would be listed categorically based on the need for an upper or lower limb specialist, or whether they could be added to a general 'pool' of outstanding trauma cases. It would be the task of the clerking SHO and the specialist nurse 'trauma coordinators' to keep a record of the patients waiting for theatre. Re-audit after the period of implementation would ascertain whether any change in waiting times had taken place.

Results: The initial (pre-intervention audit) identified 53 patients requiring operative intervention for upper limb fractures who presented over a 1 month period (19 of which were fractures of the distal radius). Mean time to surgery was 15.3 days (range 1-24 days), and fewer than a third (31%) met the NICE target of operation within 7 days. For intra-articular fractures (AO B and C subtypes/Frykman types 3-8) mean time to surgery was 2-19 days, and only 14% of cases met the 72 hour NICE target. The intervention was implemented and re-audit was conducted for patients presenting in the month period thereafter. Mean time from injury to surgery in the post intervention group was 7.3 days (range 2-16 days) $p < 0.05$ for extra-articular fractures. Extra-articular fractures had a mean time to surgery of 2.7 days, but 2 out of the 3 identified cases were operated on within 72 hours $p < 0.05$.

Discussion: Despite expressed concerns that 'pooling' patients for planned trauma would interrupt continuity of care, or that the trauma meeting would operate less smoothly, the system was anecdotally well received and continues to operate. Most cases of distal radius fracture fixations are now compliant with the guidance whereas previously they were not. It would seem reasonable to conclude that offloading common and straightforward cases (A type and simple intra-articular B/C type distal radius fractures) onto any available trauma list will take pressure of the system and reduce wait for all cause pathology as a result.

COMPLIANCE WITH NATIONAL HIP FRACTURE DATABASE STANDARDS FOR RECORDING OPERATIVE DATA IN NOF PATIENTS: A PROSPECTIVE AUDIT

M. Horner, R. Slade, D. Winson, M. Dodd
Department of Trauma & Orthopaedic Surgery, Morriston Hospital.

Background: The National Hip Fracture Database (NHFD) is a mandatory reporting tool that records demographics and various outcomes in patients who sustain a proximal femoral fracture. Accurate data collection is important in improving care for these common significant injuries and essential for outcome comparison between different UK centres. However recent evidence suggests that operative details may be incorrectly recorded in approximately a third of hip fracture patients. As such the NHFD has recently introduced new standards for the recording of surgical details in these cases. The aim of this study was to audit the compliance at our institution with this new standard.

Methods: A prospective full cycle audit was conducted at our institution from December 2017 to January 2018. Data was initially collected following the introduction of the NHFD theatre proforma and subsequently following an education session at the departmental governance meeting.

Results: A total of 86 patients (50 Female with a mean age of 80.7 years) sustained a neck of femur fracture during the audit period and underwent operative management. NHFD theatre proformas were completed in 8 patients (16%) before the intervention with this increasing to 16 patients (44.4%) subsequently.

Conclusion: The intervention implemented improved compliance with NHFD standards but the majority of patients still did not have this mandatory documentation recorded and we are in the process of making improvements and plan to re-audit this aspect of our hip fracture pathway.

THE EFFECTS OF A NEW ACHILLES PAIN PATHWAY– A QUALITY IMPROVEMENT STUDY

A Hutchison, H Laing, O Bodger, P Williams & C Topliss

Background Achilles tendinopathy (tendon pain) is a common pathology that is considered difficult to treat. At a time of austerity in the NHS it is essential to have carefully designed pathways that are monitored in terms of cost and effectiveness. However, a paucity of evidence exists for what the “best value” dedicated “joined up” pathway of care is for this difficult condition. Objectives Design, implement and evaluate the impact of a new pathway for Tendon- Achilles Pain (TAP). Methods Process mapping, driver diagrams, stakeholder analysis and a series of Plan-Do-Study-Act cycles were used to design and implement TAP. To assess the impact of TAP, data was compared on whole system measures for 46 patients treated with referral to the traditional service (without TAP) and 46 patients managed according to the newly designed pathway (with TAP). A cost analysis was also conducted. Results A quality improvement approach led to the successful design and implementation of a therapist lead TAP. As part of the pathway we introduced a Heel Pain Clinic where patients have an initial combined assessment with a specialist physiotherapist and podiatrist, followed by a staged treatment and investigation plan. The impact of TAP included positive effects on patient satisfaction, a decrease in duplication of treatments, investigations and inappropriate reviews with consultants. No safety concerns were found and 50% of patients successfully responded to non-surgical treatments. TAP was also £21,000 cheaper per annum than the previous service. Conclusion Collaboration between orthopaedic and therapy services has resulted in a standardised pathway of care for patients with an Achilles tendinopathy. It has removed unwanted variation, provided an opportunity to monitor the outcomes of treatments and resulted in decreased cost for the health board.

A 5-YEAR RETROSPECTIVE AUDIT OF POSTERIOR MALLEOLAR FRACTURES

A.W. Gardner, W. Al-Azzani, P. Hodgson.

University Hospital of Wales, Cardiff and Vale University Health Board, Cardiff.

Background: Posterior malleolar fractures are associated with poor outcome and there has been recent debate about when to fix them (1). The present study reviewed the current practice in the Cardiff and Vale region. Method: A retrospective audit of all patients who had an open reduction and internal fixation (ORIF) in the Cardiff and Vale University Health Board (CVUHB) between August 2012 and January 2018 was performed. The British Orthopaedic Association Standards for Trauma (BOAST) 12 (2) was used as a guideline. The electronic clinical records and radiographs were reviewed and the patients fracture pattern, type of fixation and follow up was recorded. Results A total of 837 ankle ORIFs were performed, of which 282 (33.7%) had a posterior malleolar fracture (PMF). Of the PMF, 175 (62.0%) were tri-malleolar fractures, 91 (32.7%) were bi-malleolar and 16 (5.7%) were isolated posterior fractures. 82 (29.1%) PMF were fixed (51 with a plate and 31 with screws). Of the 200 PMF that were not primarily fixed, 68 received a syndesmosis screw. Only 39 (13.8%) received a pre-operative CT scan, of which 18 (46.15%) occurred after the introduction of BOAST 12 (August 2016). The average time to theatre was 5.55 days and 270 (95.7%) patients were followed up within 6 weeks. Conclusion: There is currently no guideline to determine when PMFs should be fixed and the decision varies between surgeons. Recent publications have called for the routine use of pre-operative CT scanning to identify and classify fracture patterns (1). The current practice in CVUHB shows increased

use of CT since BOAST 12 was published. Long term outcome data is needed to further evaluate the merits of fixation.

MID-TERM OUTCOMES FOR ACUTE DISTAL BICEPS TENDON RECONSTRUCTION USING ENDOBUTTON AND MITEK SUPER ANCHOR FIXATION

W Abdul, E Poyser, H Mehta
Nevill Hall Hospital, Abergavenny

Background: Surgical repair of acute distal biceps tendon rupture can be challenging with no true consensus regarding optimal method of fixation. We evaluated patient reported outcomes and clinical results for patients undergoing either Endobutton or Mitek Super Anchor (MAS) fixations to determine optimum fixation. **Methods:** Retrospective single unit case series of patients surgically managed between January 2010 and December 2017. Fifty one cases (50 patients) underwent distal biceps tendon repair; 19 Endobutton and 32 MAS fixations. Patients were assessed using the Disabilities of the Arm, Shoulder, and Hand (DASH) questionnaire, post-operative complications and overall satisfaction.

Results: All patients were male, with a mean age of 41 years (24-61 years). Mean time to surgery was 12.6 days (1-46 days). Thirty-eight (76.5%) patients responded to DASH questionnaires with a mean follow-up of 3.6 years (0.2-8.1 years). Eight patients (16%) reported lateral antebrachial cutaneous neuropraxia. Mean patient satisfaction were 9.4/10. Mean DASH scores for Endobutton and MAS groups were 6.2 (0-30.8) and 3.3 (0-16.7) respectively ($p=0.21$). Optional mean DASH scores for the working population for Endobutton and MAS groups were 3.8 (0-25) and 0.9 (0-12.5) respectively ($p=0.16$). Optional mean DASH scores for athletes and musicians were 8.3 (0-43.8) and 4 (0-25) respectively ($p=0.47$). All patients were able to return to work, sports and playing musical instruments. **Conclusion:** Patients undergoing MAS reported better overall mean DASH scores compared to Endobutton group, but were not statistically significant. We observed a 16% ($n=8/51$) incidence of lateral antebrachial cutaneous neuropraxia with only 4% ($n=2$) experiencing long-term symptoms.

PRIMARY LOWER LIMB JOINT REPLACEMENT AND TRANEXAMIC ACID: AN OBSERVATIONAL COHORT STUDY

R. Milne, L. Davies, K. Bainton, P. Lewis
Cwm Taf University Health Board NHS Trust, Prince Charles Hospital & Royal Glamorgan Hospital.

Background: This work aimed to evaluate the efficacy and safety of routine tranexamic acid (TXA) use in elective orthopaedic lower limb joint replacement surgery. The primary aims were to identify if TXA use was associated with lower blood loss, reduced transfusion requirement and shorter post-operative length of hospital stay, with a secondary aim of reporting the coupled economic analysis. **Methods:** This retrospective cohort study included all primary hip or knee replacement procedures by a single surgeon over a 6-year period. TXA was introduced during the study period as part of an enhanced recovery after surgery strategy. **Results:** Of the 673 procedures, 446 cases (66.3%) received TXA. The median length of stay was 5 days (2-69) and 6 days (3-28) for the TXA and control groups, respectively ($P < .001$). Blood transfusion was required for 28 (6.3%) of the TXA cases versus 40 (17.6%) controls ($P < .001$). Complication rates were similar irrespective of TXA status. At multivariate analysis, TXA was significantly and independently associated with fewer blood transfusions (hazard ratio 0.309, 95% confidence interval: 0.168-0.568, $P < .001$), with a number needed to treat of 9 cases. TXA use was estimated to save between £67.89 and £155.90 per case. **Conclusion:** Routine prophylactic TXA administration for elective primary hip and knee replacement reduces the likelihood of postoperative transfusion with a number needed to treat of 9. Cost savings may be as high as £155.90 per case, and no safety concerns were noted.

WEIGHT-BEARING IN ANKLE FRACTURES: A NATIONAL AUDIT

D Ebreo

Introduction: NICE (The National Institute for Health and Care Excellence) advises immediate weight-bearing for ankle fractures managed conservatively. The most effective strategy for postoperative weight-bearing in ankle fractures remains uncertain and is one of the NICE recommendations for research in trauma. The purpose of this national study was to audit the weight-bearing practice of orthopaedic services in the National Health Service (NHS). **Methods:** A multicentre prospective 2-week snapshot audit of all adult ankle fractures was conducted between July 3rd 2017 and July 17th 2017. Fractures were classified by AO classification. Fractures fixed with syndesmosis screws or unstable fractures treated conservatively were excluded. Data collection finished when patients were allowed to weight-bear without restriction (or a future date was indicated on the operation-note). No outcome data were collected. In line with NICE criteria, "early" weight-bearing was defined as unrestricted weight-bearing of <3 weeks and "delayed" weight-bearing as >3 weeks. **Results:** 246 collaborators from 81 NHS hospitals. 531 patients managed non-operatively. Mean age 52.6 [16-97]. Mean time restricted weight-bearing from date of injury was 12.4 days [0-63]. 103 (19.4%) patients were advised delayed weight-bearing and 428 (80.6%) were allowed early weight-bearing. 276 patients managed operatively. Mean age was 50.5 [16-92]. Mean time restricted weight-bearing postoperatively was 36.1 days [0-92]. 222 (79%) patients were advised delayed weight-bearing, with 59 (21%) allowed early weight-bearing. **Discussion:** There is notable variability amongst and within NHS hospitals. Further high-quality studies are required to guide postoperative weight-bearing practice in light of the clinical equipoise demonstrated by this study.

MENISCAL REPAIR IN ACL-DEFICIENT AND NON ACL-DEFICIENT KNEES

Ebreo D , Cochin H , , Guro R, Kotwal R, Chandratreya A
Princess of Wales Hospital, Bridgend.

Background: Meniscal injury and meniscectomy contribute to instability and early progression to osteoarthritis. This is compounded in the context of ACL tear. **Aim:** To evaluate patient reported outcome measures of overall satisfaction, return to sports and number of patients requiring revision surgery following meniscal repair. **Method:** Retrospective cohort analysis of arthroscopic meniscal repairs (n=102) in a series of isolated meniscal repair (MR) and meniscal repair with ACL injury (MRACL) between 2006-2017 using Oxford Knee Score (OKS) and Tegner Activity Score (TAS). **Results:** 102 patients. M:F (80:22), median age 23yrs(13-55yrs). 69 patients underwent isolated meniscal repair and 33 patients underwent meniscal repair + ACL reconstruction. 4 revision meniscal repair (2 in each group). 58 patients declined further participation. 43 patients (42%) response rate. Average follow up 1 year
There was no difference in pre-op OKS or Tegner for meniscal repair with or without ACL repair. Significant improvement in OKS, but a decrease in Tegner activity score with a meniscal repair irrespective of whether there was a simultaneous ACL repair. **Discussion:** Meniscal repair leads to Increase in patient perceived quality of life post meniscal repair. The majority of patients were happy with their surgery and returned to some level of athletic activity. Overall decrease in athletic activity may reflect a short follow up period, re-evaluation of career goals/lifestyle independent of satisfaction with surgery and variability in longer term rehabilitation. There may be influences relating to timing of surgery either within a competitive season or waiting time to surgery may have affected outcome via deconditioning. **Conclusion:** Meniscal repair offers short term increase in patient satisfaction either on its own or combined with ACL repair. Return to higher level athletic activity and achievement of full potential is a long multifactorial process

SEVEN YEAR RESULTS OF THE R3 CUP AND POLAR STEM TOTAL HIP ARTHROPLASTY

JR Manara, A Assaf, K Teoh, AR Evans
Royal Gwent Hospital, Newport.

Introduction: Total Hip Arthroplasty (THA) is well established as one of the most successful operations in medicine. Controversy continues to exist over various aspects of the procedure, mainly methods of fixation, type of bearing and surgical approach. We describe our experience with an uncemented stem and cup, the R3 and Polar, performed at the Royal Gwent Hospital. **Methods:** We have reviewed all patients who have had the above combination of THA in our unit. All procedures have been performed by, or under the direct supervision of one of five Consultant surgeons. Patients have been reviewed either in an outpatient clinic or a virtual clinic with Oxford Hip Scores (OHS) posted to the patient and radiographs performed in a local unit and subsequently reviewed by a Consultant arthroplasty surgeon. Each patient had their latest radiograph reviewed and their Brooker, Gruen and Charnley zones all assessed. Notes were reviewed to obtain the 7 year OHS. **Results:** There were 144 patients who had a THA with an R3 cup and Polar stem in our unit who were seven years post surgery at the time of our study. 30 patients had died prior to their seven-year review. Three patients we are aware of required a revision, one for recurrent dislocation, one required a liner exchange four days after the primary operation and the third developed a pseudotumour. The average pre-operative OHS was 23. 60 patients had a recorded seven year OHS with an average score of 35 (range 8-48) with a median of 38. Radiographs revealed the vast majority of patients had a Dorr A or B femur. The stem and the cup had excellent radiological appearances with few lucent areas around the implants. The seven year revision rate in our study was 2.1%. **Conclusion:** The R3 cup was launched in 2007 and became unpopular due to failings associated with the metal-on-metal bearings. Our experience with traditional bearings are similar to those from the Australian National Joint Registry (where this is the best performing uncemented implant combination in terms of revision) as well as Orthopaedic Data Evaluation Panel, where both prostheses have a 7A* rating. In summary this combination of implants shows both good clinical and radiological results with low rates of revision.

ARE WE TAKING “INFORMED” CONSENT?

T.Srirangarajan, S. Isopescu
Withybush General Hospital

Aims: Litigation is on the rise and it favours the patient. Taking informed consent is an important legal action that has a lot of variability in practice amongst surgeons. Our aim was to raise awareness about Good Surgical Practice standards set out by the Royal College of Surgeons (RCS) and British Orthopaedic Association (BOA) standards of hip fracture consent. We evaluated the current informed consent practice in a district general hospital. **Methods:** A consecutive series of 49 fractured neck of femurs patients who were consented and operated on were included. For each patient the written consent form, outlining benefits and risks of surgery, were compared to the BOA standards. Medical records were reviewed for effective documentation of the patient discussion during the consent process as standardised by the RCS. **Results:** Only 6.1% (3/49) of consent forms were appropriately completed outlining risks for the operation as stated by the BOA. An average of 5 risks/complications stated by BOA was missed from the consent form. Only 26.5% (13/49) demonstrated good documentation in the medical records that outlines the discussion had during the consent process. **Conclusions:** Taking proper informed consent is a habit that needed to be developed by surgeons. All material risks of the operation should be explained and the discussion documented in the patients notes. There is considerable room for improvement in the consent process at this hospital. A standardised hip fracture consent form can help reduced variability during the consent process.

OUTCOMES FROM A SPECIALIST KNEE CLINIC

YH. Mirza, S. Dalal, R. Kotwal, AP. Chandratreya
Princess of Wales Hospital, Bridgend

Introduction: The aim of this audit was to assess the impact of an elective specialist knee clinic. The presentation of patients was examined. Additionally, outcomes from the clinic were reviewed including whether patients were listed for surgery, reviewed again after further investigation, referred for physiotherapy, or discharged. The utilisation of a specialist brace was also recorded. **Methods:** The patients were identified from specialist knee clinic lists at the Princess of Wales Hospital, Bridgend. Data was collected over the course of 12 months of 2016-2017, including age, sex, BMI, Oxford Knee Score and presenting complaint. The patients outcomes were analysed, using our electronic patient record. **Results:** 300 new patients were identified. Of these new patients, 160 (53%) had sustained knee injuries. 96 patients underwent surgery. Of the 96, 58 (60%) were discovered to have meniscal injuries, which underwent subsequent repair or debridement whilst 40 (42%) underwent ACL reconstruction. The waiting list time decreased from 28 weeks to 6 weeks. **Conclusion:** The introduction of a specialist knee clinic has multiple benefits including early review and investigation of the patient with complex knee problems, decreasing time to diagnosis and time to surgery of those requiring it.

NECK OF FEMUR FRACTURES MANAGED WITH TOTAL HIP ARTHROPLASTY IN A SECONDARY CARE UNIT. IS IT NICE?

F. Khan, C. Horgan, A. Singhal, S. Sarasin, P. Lewis
Prince Charles Hospital, Merthyr Tydfil

Aim: This study reviews the outcome of patients who underwent total hip arthroplasty for an intracapsular neck of femur fracture as per NICE guidelines. **Patient and Methods:** A retrospective review of 440 patients who presented with neck of femur fractures to the Cwm Taf Health Board from January to December 2016 was undertaken. There were 26 (6%) patients who underwent total hip arthroplasty. There were 7 males and 19 females with a mean age of 74 years (Range 62-90 years). Mean ASA grade was 2.35 (Range 1-4, Median 2). Time from admission to surgery was a mean of 3.92 days with a range of 1-12 days. There were 5 cemented, 8 uncemented and 13 hybrid (2MDM) implants. Median length of stay was 11 days (Range 8-105 days). Two patients among the Twenty four had pathological fractures. All procedures were undertaken by an arthroplasty surgeon. **Results:** Twelve patients had appropriate follow up as per BOA recommendations. Complications in this group included one dislocation due to recurrent falls, a second dislocation requiring an open reduction and subsequent laparotomy for gastrointestinal perforation, one acetabulum revision, one pressure sore on buttock, one death at 8 months and two patients had recurrent falls of which one had a TIA. There were delays due to the lack of availability of an arthroplasty surgeon, a higher than expected complications rate, a lack of follow up as per BOA guidelines and the use of implants was not as per NICE guidelines in all cases. **Conclusion:** The use of total hip arthroplasty in fractures of neck of femur presents a unique challenge in relation to patient selection, timing of surgery and surgical outcomes.

RELATIONSHIP OF FEMORO-TIBIAL ALIGNMENT ANGLE AND FAILURE IN MEDIAL UNICOMPARTMENTAL KNEE REPLACEMENTS.

D. Pearce, S. Agarwal
Cardiff University, Cardiff and the Vale University Health board

Introduction: Over the years, many types of unicompartmental knee replacements (UKR) have evolved. Revision rate of UKRs may be higher than total knee replacements. We planned to investigate the relationship between the femoro-tibial alignment angle and failure in medial UKRs.

Method: We reviewed radiographs of 217 patients who received a primary UKRs between 2008 and 2011. Minimum follow up was 5 years. Six patients had a revision in this period. We also included data from tertiary referrals for patients who had the primary UKR elsewhere. This provided a further 15 making a study group 20 patients. A comparison group of 55 successful UKR's was used for comparing radiological parameters (control group). **Results:** Indications for revision included progression of lateral compartment arthritis (10), loosening of implant (7) and unexplained pain (3). The femorotibial alignment angle was similar (4.0 degrees) in the study and control group. A second analysis was done using 10 patients in which progression of arthritis in the lateral compartment was cause of revision. The mean femoro-tibial angle was 5.8 degree of valgus in this group. Comparing this with the control group showed that although this was not statistically significant (p value = 0.073), it may indicate a trend.

Discussion: Overall, there was little evidence to suggest that the femoro-tibial angle influenced failure of the UKR. However, in patients with progression of arthritis in the lateral compartment, a greater valgus angle may be a contributory factor.

ASYMMETRIC EXTENSION GAP ON INITIAL POST-OPERATIVE AND WEIGHT BEARING X-RAYS: IS THERE A DIFFERENCE?

E. Barlow and S. Agarwal

Cardiff and Vale Orthopaedic Department, CAVOC, University Hospital Llandough

Introduction: Asymmetric gap between the femoral and tibial component after primary total knee replacement (TKR) is a cause of postoperative pain. This study investigates whether significant asymmetric extension gaps on initial post-operative non-weight-bearing (NWB) radiographs remain consistent on follow-up weight-bearing (WB) radiographs. **Method:** 203 consecutive patients who underwent primary TKR, and had adequate radiographs during a four-year period were included. The distance between the tibial tray and femoral condyle on the medial and lateral sides was measured on initial and follow-up WB radiographs, to identify significant asymmetric extension gaps. Previous studies showed medial extension gaps of $\geq 1.5\text{mm}$ may be associated with increased pain post-operatively. Therefore, we defined a significant gap as $\geq 1.5\text{mm}$. The results were examined to determine whether initial post-operative gaps remain appreciable on follow-up x-rays. **Results:** Of the 203 radiographs reviewed, 29 (14.3%) patients had an extension gap mismatch of $\geq 1.5\text{mm}$ on initial post-operative imaging. 13 (44.8%) patients had a medial opening gap whilst 16 (55.2%) had a lateral opening. Only 4 (13.8%) of these patients showed no significant change in the asymmetrical extension gap (remained $\geq 1.5\text{mm}$) on WB x-rays. In the remaining patients, the gap was not appreciable. **Conclusion:** The study showed that if patients present with post-TKR pain, which could be related to a medial opening extension gap, clinicians should use initial NWB x-rays to investigate as it may not be detectable on follow-up WB radiographs.

IMPROVING FASTING TIMES IN PREPARATION FOR ENHANCED RECOVERY IN TRAUMA

S Dehbozorgi, H Measuria, I Mayo, K Harding, J Lewis

University Hospital of Wales, Cardiff

Purpose: Enhanced Recovery After Surgery (ERAS) is well established in General Surgery and can be attributed to improvement in the holistic approach to emergency surgery. Despite its benefits, it has yet to be implemented in trauma surgery. **Method:** All trauma patients for a 1 week period in October 2017 were identified and retrospective data was collected from Bluespир, patient notes and Theatreman. Changes to current practices were made to come in line with latest guidelines available from the Royal College of Anaesthetists in the form of verbal education to doctors and nurses, written instructions as posters on wards and email reminders to staff from the directorate. Re-audit was performed for a further 1 week period in February 2018 after the changes had been made. These changes were as follows: a) Prescription of 250mls of water at 6 am on the day of surgery b) Clear and documented fasting time of 2 am as opposed to midnight. **Results:** A total of 46 patients required

operative intervention during the study period; 19 in October, 27 in February. Average age of patients treated in October was 53 years compared with 67 years in February. During the initial audit, mean fasting time was 12.5 hours with a median fasting time of 13 hours. The range of fasting times was 4-21 hours. During the re-audit following the intervention, mean fasting time was 11.5 hours with a median fasting time of 9.75 hours. The range of fasting times was 4-19 hours. Significance: Enhanced recovery in trauma is being developed at UHW, however has not yet been established. With the potential of a major trauma centre allocation being made, enhanced recovery in trauma would be vital in order to manage trauma patients more efficiently. From the data shown, it can be seen that a simple change to improve fasting times can be carried out with re-education of staff involved with trauma however to revise current practices, it will take time as it has in order to carry out this simple improvement.

DOES RUGBY BOOT DESIGN AFFECT THE GROUND REACTION FORCES THROUGH THE FIFTH METATARSAL?

Winson DMG, Cazzola D, Lawrence OJ, Winson IG
Trauma and Orthopaedic Department, Morriston Hospital

Fifth metatarsal stress fracture in sport is known to occur during acceleration and cross cutting movements when running. It is also established that playing surface has an impact on the ground reaction forces through the foot thereby increasing the strain through the fifth metatarsal, but what impact does boot design have on these forces? Current thought is that boots that utilise a blade stud design resist sideways slipping of the planted foot to a higher force than boots with a rounded stud. This biomechanics study aims to identify whether this is indeed true by comparing forces in the fifth metatarsal in two different designs of rugby boots. Recently there has also been an increase in the use of artificial pitches for sports such as football and rugby, therefore this trial was conducted not in a biomechanics lab but on an artificial pitch to replicate these conditions more accurately. Ground reaction forces in the foot were measured using Tekscan in shoe pressure plates in 24 rugby players. Each player was asked to complete an agility course to measure acceleration, cutting and cross-cutting in the two different designs of rugby boot. The two boots used were the Canterbury Phoenix Club 8 Stud boot and the Canterbury Speed Club Blade boot. The trial was conducted on an 4G artificial pitch at the Cardiff Arms Park rugby ground. Results indicate that a studded boot produces higher ground reaction forces than a blade boot. These results will guide clinicians advising athletes in shoe design.

URGENT SPINAL SURGERY REFERRALS: A COMPARISON WITH BOAST 8

U. Jayaraju, K. Rahman, R. Gywn, N. Moideen, S. Ahuja
Welsh Spinal Trauma Unit, University Hospital of Wales.

Introduction: British Orthopaedic Association Standards for Trauma (BOAST) outline guidelines for the management of spinal column and spinal cord injuries. This provides protocols for pre-hospital and emergency room treatment of spinal injuries. The BOAST 8 standards advise that clinical examination findings should be recorded onto the American Spinal Injury Association (ASIA) chart as part of the International Standard for Neurological Classification in Spinal Cord Injury. The Welsh Centre for Spinal Trauma and Surgery covers the entire South and West Wales region for emergency referrals. Referrals to the Welsh Spinal Trauma Unit are made by contacting the on call team, and emailing a standardized pro-forma. We review these referrals and assess the information present on the pro forma when patients are referred to the Welsh Spinal Trauma Unit. Method: Emails were scrutinized and new referrals were identified retrospectively. Data was collected and analysed. Results: There were a total of 36 referrals analysed for this study over a two-month period. 33 referrals completed the pro forma, when referring a patient. Utilizing the BOAST guidelines an adequate neurological examination was conducted in a third of referrals (n =12). Only 1 of the 36 referrals provided an ASIA chart with a detailed neurological examination. Discussion: Neurological compromise as a result of spinal cord

injury is rare, but can be a devastating event. There is an agreed protocol, within the South/West Wales region; urgent referrals must be discussed with the spinal fellow, orthopaedic registrar or Spinal consultant. With spinal injuries, time is an important factor. Therefore a precise, efficient handover with detailed clinical information will enable the spinal surgeon to make a holistic decision with regards to the best course of treatment for the patient. The ASIA chart is an internationally recognized scoring system to assess for impairment of the spinal cord. This will provide a map of the sensory and motor deficits and the likely anatomical site of injury. Important reasons for this to be implemented into the pro forma are the following: detailed examination to allow accurate evaluation of the site of injury and to enable one to assess patient progress through the post-operative rehabilitation period. We aim to introduce an updated pro forma and increase compliance with BOAST 8.

CUTTING TIME: CHANGING JUNIOR STAFFING ROTAS TO ACHIEVE DENEARY OPERATIVE TARGETS IN CORE SURGICAL TRAINING (ORTH).

S.Stevens, P.Hak
Trauma and Orthopaedic Department, Morriston Hospital

In one trauma and orthopaedic department in South Wales, a previously 1:9 on-call, team based system was utilised. Staffing consisted of 6 training grades and 3 locum doctors. Trainees were identified to attain sporadic training opportunities, usually out of hours without direct consultant input. Trainees were found to average 42 (133-0) procedures over a four-month rotation. It seemed appropriate to develop a junior staffing system to provide equal protected training opportunities to all junior clinical staff. We developed a 12:1 on-call rota comprising of 8 training grades, 2 locums, and 2 fellows. A once team based system was changed to ward based, allowing the department to offer guaranteed protected training opportunities in both the trauma and elective setting. This incorporates basic competencies such as on-call duties, and ward management. Junior trainees are now found to average 64 (25-106) procedures during a four-month rotation, with a predicted average 192 per annum. This allows a case load to achieve the Wales deanery requirement for outcome 1 completion of core training year 2 orthopaedics. Trainees are now offered equal and adequate training opportunities in all settings, offering compliant, and comprehensive training in our department. Ward based working ensures a better continuity of care for patients. In addition, non-training doctors are more easily recruited with the offer of protected training opportunities. With the introduction of Improving surgical training programme from the Royal college of surgeons this year – we have illustrated the same goals of protected training can be achieved by appropriate division of staffing.

CONSULTANTS – FRIEND OR FOE FOR RADIATION EXPOSURE

K. Rahman, U. Jayaraju, G.L. Roberts
Trauma and Orthopaedic Directorate, University Hospital of Wales.

Introduction: Image intensifier (II) systems have been utilised to minimise invasiveness, reduce operative time and overall reduce morbidity, thereby being a staple of many orthopaedic procedures. With these intended benefits there is the risk of varying doses of ionising radiation to the surgeon, patient and theatre staff potentiating a higher rate of malignancies. For this study we assessed radiation exposure by exploring the relationship between when a Consultant is present vs. when no Consultant is present in Dynamic Hip Screw (DHS) procedures.

Methods: In a 6-month period, 63 DHS cases were retrospectively identified where II had been used. The cases were scrutinised to check whether a Consultant was present during the procedure and whether a radiation dose report was available. Out of the 63 cases, 44 were found suitable for analysis; 15 cases (4 male, 11 female, mean age 78 years) had a Consultant present (CP), and 29 cases (8 male, 21 female, mean age 85 years) did not have a Consultant present (NCP). The II device was a Ziehm mobile C-arm, and the radiation dose reports are measured in Dose Area Product (DAP). The mean DAP of the CP and NCP group were compared, and a paired T-test used for statistical significance. Results: The

mean DAP for the CP group was 302 (95% CI 132 to 472) whereas the NCP group was 217 (95% CI 177 to 257). $p=0.11$. Discussion: Consultant presence in DHS procedures led to increased levels of ionising radiation used, which likely represents increased difficulty in the technical factors of each individual DHS procedure. This may include the location and number of fragments of the fracture to indicate Consultant support was required. The operation notes do not mention how long each consultant was present for in the procedure, or indeed how involved each consultant was in the procedure, which is a limitation of the study. Further work could include raising case numbers and classifying the fracture pattern to more accurately assess radiation doses and reduce confounding factors.

CONSENT IN FRACTURED NECK OF FEMUR SURGERY

K. Hodnett, I. Byrom, K. Dayananda
Ysbyty Gwynedd, Bangor

Objectives: Neck of femur fractures are a common cause for admission to hospital which usually require fixation. The British Orthopaedic Association (BOA) provide guidance for the consent process for these procedures. A previous departmental audit based on these guidelines was performed in January 2017 and showed that the consent process could be improved. Departmental teaching has now included work on consent, specifically consent for dynamic hip screw fixation and hip hemiarthroplasty. Our aim was to determine whether patients are giving informed consent with the risks being explained to them according to the BOA guidelines following the intervention implemented in the department following the previous audit. Method: 22 patients were admitted with a hip fracture but only those who underwent either dynamic hip screw fixation or hip hemiarthroplasty and where a consent form 1 was used. Consent forms were analysed based on the BOA guidance to look at risks and benefits, along with the grade of the person taking consent from the patient. Risks were split into three categories as per BOA guidelines; common (5), less common (1) and rare risks (6). Results: 7 patients fulfilled the inclusion criteria, all of whom underwent hip hemiarthroplasty. Predominantly registrar grade surgeons are taking consent from patients, compared to an even split between senior house officer (SHO) grade doctors and registrars from the previous audit. The data is mixed in terms of improved inclusion of risks. 4 risks (2 common risks, 2 rare risks) showed a drop in their inclusion, 4 risks (2 common, 1 less common and 1 rare) remained static and 4 risks were increased (1 common, 3 rare) in their inclusion on consent forms. Conclusion: Consent is a vital part of surgery and we must all ensure patients give informed consent. Teaching is an important part of training for junior members of staff. Based upon the risks which commonly are not included on consent forms, but that the BOA recommend, we are looking to continue teaching around consent and procedure specific consent and should consider implementing pre-constructed consent forms or stickers for consent forms based upon BOA guidelines.

DRIVING A CHANGE: ARE PATIENTS ATTENDING THE TRAUMA CLINIC AT UHW UP TO SPEED WITH DRIVING GUIDANCE?

L.M. Atkinson, T. Yasin, E.C. Carpenter.
University Hospital of Wales, Cardiff.

Background: Patients attending trauma clinics often have questions about their injuries impacting their lifestyle, particularly driving. Healthcare professionals (HCPs) are expected to give advice without training or guidance to follow. Ultimate responsibility lies with the patient, but their decision can be guided by advice from healthcare professionals (HCPs). Method: A short survey was distributed to patients above the legal age of driving attending trauma clinic. The results were then collated and analysed. Results: 53 Patients responded, of which 18 (34.0%) did not hold a driving license and were excluded from analysis. Of the remaining 35 participants, 14 (40.0%) stated they had previously received advice. 32 (91.4%) expressed a wish for further information either in a written or electronic format. When asked whom responsibility fell to for declaring if fit to drive, 14 (40.0%) answered solely themselves and the remaining 21 (60.0%) felt this fell upon HCPs or HCPs in combination with themselves. Those of which had been given

previous advice, 3 (21.4%) had advice from the Emergency Department, 6 (42.9%) by doctors alone and the remaining 5 (35.7%) a combination of HCPs and insurers. Outcome: Patients have indicated a need for information regarding driving and trauma injuries. Development of an information leaflet is in process to aid patients' decision making on when it is safe to drive.

HIP HEMIARTHROPLASTY DISLOCATION RATES A THREE YEAR RETROSPECTIVE STUDY.

G. Reid, A. Fishlock, J. Parker

Huddersfield Royal Infirmary, England

Background: During daily trauma meetings at Huddersfield Royal Infirmary, England, a high number of hip Hemiarthroplasties were discussed and booked for operative relocation. A retrospective study was designed to identify the number of dislocations and the percentage of dislocations per number of operations performed. This sub-group of patients was then closely analysed to see if these patients had further dislocations or suffered from increased morbidity or mortality. Methods: 3 years of electronic records of trauma meeting handovers were compared with 3 years of records of theatre operations and the number of dislocations were identified. This was compared with the number of hip Hemiarthroplasty operations performed during this period. This data was benchmarked against national data to evaluate current performance. Results: Overall dislocation rate was 1.56%. National averages range from 0.4-1.8%. 50% of patients suffering from a dislocation proceed to have further dislocations. 50% of patients suffering from a dislocation need further operative management. 20% of patients died within two months of first dislocation. Key Messages: Hip Hemiarthroplasty operations have a low rate of dislocation, however patients who have a dislocation are at a much higher risk of further complications than those who do not dislocate.

COMPLIANCE TO BOAST GUIDELINES ON THE MANAGEMENT OF ANKLE FRACTURES

J. Thomas, N. Deshmukh, C. Nambiar, A. Phaily, A. Ali
Withybush Hospital, Hywel Dda University Health Board

The British Orthopaedic Association published guidelines for the management of patients with ankle fractures in August 2016¹, on the basis of NICE recommendations issued previously in February 2016². Guidance was issued on 16 separate criteria related to ankle fracture management. An audit was performed to assess our department's compliance with these guidelines. Of 30 cases where acute ankle fractures were fixed operatively between January and August 2017, 18 casenotes were available for review. The median age of patients was 61.5 years; there were 12 females and 6 males. 17 patients presented acutely to our A&E while 1 was referred to us for operative management following presentation elsewhere. 16 were followed up for at least 6 weeks in our fracture clinic, with 2 having follow-up at their local hospitals. All 17 patients presenting acutely to us had adequate documentation of injury mechanism, comorbidities, and clinical findings pre- and post reduction, including skin integrity and neurovascular status. However, the time of reduction and splinting of the fracture was only documented in the medical notes in 3 cases. Acceptable radiographs centered on the ankle were taken in 16 cases. Reduction and stabilisation of the ankle mortise by internal fixation was achieved in all cases. However only 7 cases were operated on within 24 hours, falling short of BOAST's recommendation. Contrary to the guidelines, none of our patients were allowed to weight-bear immediately postoperatively despite adequate fixation. Similarly, none of the 7 patients who would have been suitable for non-operative management with Total Contact Casting (TCC) were managed in this way. This audit has demonstrated adequate performance and compliance with the guidelines on most of the criteria regarding basic documentation on the initial injury.

We have identified room for improvement in achieving the recommendation of fixation within 24 hours of presentation. Moreover we have identified the need to explore our department's apparent reluctance to weight-bear patients immediately postoperatively and to use TCC in suitable cases.

OUTCOME OF SINGLE STAGE ACL REVISION SURGERIES, HOSPITAL SERVICE REVIEW.

A.Ragab, V.Ghanate, O.Elalfy, S.Dalal, R.Kotwal, A.Chandratreya
Princess Of Wales Hospital, Bridgend.

Introduction: ACL reconstruction is a common orthopaedic procedure and hence there is increasing potential for ACL reconstruction revision surgeries.

Aim: Hospital service review of single stage revision ACL reconstruction.

Methods: Retrospective study included 59 patients with revision ACL reconstruction done by one surgeon from 2007 to 2017. Clinical records were assessed to determine mechanism of re-injury. Operative notes and x-rays were assessed to find if there was biomechanical reason of failure. Results: Fifty-nine patients done by one surgeon were included; three of them underwent more than one revision surgeries. 36 patients had their primary surgery done by same surgeon. In primary reconstruction, hamstrings grafts were used in 40 patients, Patellar tendon grafts (BTB) in 13 patients, 1 patient with quadriceps tendon, 3 patients with carbon fibre and 2 patients with LARS ligament. All ACL revisions were done using autografts. In revision surgery, BTB grafts were used in 33 patients, quadriceps tendons in 5 revisions, contralateral hamstrings in 9 patients, and ipsilateral hamstrings in 12 patients. Type of graft was decided depending on surgeon's clinical judgment. Associated surgeries included 9 antero-lateral ligament (ALL) reconstruction, 7 postero-lateral corner (PLC) reconstruction, 1 medial collateral ligament (MCL) reconstruction. Thirteen patients had associated procedures including meniscal or PCL surgeries. 6 patients suffered from residual instability. Conclusion: Single stage revision ACL reconstruction is feasible as being successful in our centre. Use of BTB as standard for primary ACL graft should be considered but needs further research.

TIMING OF SURGERY IN COMMON FRACTURES: AN AUDIT OF COMPLIANCE WITH BOAST GUIDELINES IN YSBYTY GWYNEDD

K. Cheema, T. Richards, A. Kaminskas, R. Kanvinde
Ysbyty Gwynedd, Bangor

Objective: Delaying definitive trauma surgery is associated with an increase in morbidity, mortality and poorer functional outcomes. In a bid to encourage timely surgery for common fractures, guidelines have been issued by the British Orthopaedic Association. Fragility hip fractures and unstable ankle fractures are recommended to undergo surgery on the day of, or day after admission. Surgical intervention in distal radial fractures is recommended to occur within 72 hours or 7 days depending on fracture pattern.

Methods: We retrospectively audited our compliance with these guidelines for timing of surgery at Ysbyty Gwynedd over a 6 month period in 2017 (01/07/17-31/12/17).

Results: We found that compliance with the guidelines was met in 59% (70/118) of patients with hip fractures, 68% (13/19) of patients with ankle fractures and 84% (44/52) of distal radius fractures. Discussion: Most patients underwent surgical intervention within the recommended timeframe, however there is room for improvement particularly in hip fracture patients. Within the constraints of the current resources it should be considered whether prioritising these fractures is to the detriment of patients with other injuries of similar importance, which are not incentivised. Achieving these targets requires increasing available resources and maximising efficiency, perhaps by utilising additional lists or extending the trauma list to an evening session, whilst being careful not to neglect conditions not prioritised in current national guidelines.

A REVIEW OF ACUTE REFERRALS IN A TERTIARY SPINAL UNIT OVER THE COURSE OF A YEAR

W.Y Man, A.N Moideen, S.A Ahuja
University Hospital of Wales

Purpose: To investigate what injuries are most commonly referred in the acute setting to the spinal injuries unit based in the University Hospital of Wales, Cardiff. This review looks at both the out-of-area referrals and local “in-house” referrals. **Method:** Out of area referrals were reviewed retrospectively using the email database used to collate them. The on-call team collected in-house referrals from A&E/ ward prospectively over a 4-month period. Data collected included patient demographics, time and date of referral and the advice given.

Results: In December 2017 there were 36 out of area referrals. Of these 19 (53%) were made out of hours. 4 (11%) were transferred for definitive spinal intervention and 5 (14%) required a follow-up appointment to be arranged in Cardiff. **Significance:** The results demonstrate that the majority of referrals received can be managed locally and conservatively. There is a need for more structured and formalised regional spinal referral guidelines to aid secondary care centres make definitive management decisions.

**Thank you to our Trade Exhibitors for
their continued support**

**BIOVENTUS
DEPUY SYNTHES
JOINT OPERATIONS
MEDI-UK
BIOCOMPOSITES
WRIGHT MEDICAL
HOSPITAL INNOVATIONS
OSSUR
BONE SUPPORT
MICROPORT
SMITH AND NEPHEW
EXACTECH
SI-BONE
LIMA
STRYKER
ZIMMER BIOMET**