Knee Surgery

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Prospective study on functional outcome of arthroscopic drilling combined with intra articular stem cell-hyaluronic acid injections compared to intra articular stem cell-hyaluronic acid injections alone without arthroscopic drilling for treatment of osteoarthritis of knee joint
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Background: Osteoarthritic knee patients’ grades 2, 3 with disadvantages treated by Hyaluronic acid injection with oral glucosamine-chondroitin. We studied the effectiveness of arthroscopic drilling plus post-operative intra-articular injection of Stem cell- Hyaluronic acid with oral glucosamine-chondroitin sulphate compared to intra articular injection of Stem cell without arthroscopic drilling.

Methods: In prospective comparative study 32 patients with knee osteoarthritis grade 2, 3 disadvantages treated by intra-articular injections Hyaluronic acid plus oral glucosamine-chondroitin were randomised according to inclusion/exclusion criteria into two groups. Group A 16 patients were treated by arthroscopic drilling with intra-articular injections of stem cell (harvested from patients’ bone marrow then expanded the cell number), with Hyaluronic acid 25 mg plus oral combination of glucosamine-chondroitin sulphate, the injections done post-operative. Compared to group B 16 patients were treated by intra-articular injection of stem cell-Hyaluronic acid 25 mg plus oral combination glucosamine-chondroitin alone without arthroscopic drilling, the patients were followed up for 24 months period. The primary outcome measurements were according to Modified Lequesne’s and Modified WOMAC scores.

Results: In both groups, A and B significant reduction in the mean of both Modified Lequesne’s and Modified WOMAC scores from baseline were seen at all follow up visits for 12, 24 months. Also there were significant statistical differences and clinical improvements at 12, 24 months for both Modified Lequesne’s and Modified WOMAC scores in group A superior to the group B (P-value < 0.0001). No severe adverse events related to these combinations were observed.

Conclusion(s): We concluded that arthroscopic drilling with post-operative intra-articular injections of stem cell-Hyaluronic acid plus oral combinations of glucosamine-chondroitin sulphate depending on Modified Lequesne’s and Modified WOMAC scores for 2 years follow up are superior to intra-articular injections of stem cell-Hyaluronic acid combined to oral glucosamine-chondroitin alone without arthroscopic drilling.

Conflict of Interest: None declared

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Knee arthroplasty in cases of bone tumours
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Background: Surgical treatment of tumours of bone is the main method of treatment. One type of surgical treatment of bone tumours is the individual endoprosthesis. Arthroplasty in cases of bone tumours allows you to keep functioning limb and life of the patient.

Methods: During the period from 2009 to 2014 knee arthroplasty was performed in 62 patients with bone tumours. Morphologically met: giant cell tumour of bone - 25 cases, osteosarcoma - 20, chondrosarcoma - 6, fibrosarcoma of bone - 4, malignant giant cell tumour of bone - 4, malignant fibrous histiocytoma of bone - 2, Ewing’s sarcoma - 1. Size of surgical involvement: resection of bone tumour “en block”, replacement of bone defect with endoprosthesis. Implants were used: “Stryker”
and “Link”. The functional outcome of the operated limb was calculated on a scale of MSTS. QOL was assessed by questionnaire EORTIC-QLQ-C30. Survival estimated by the Kaplan - Meier method.

**Results:** Post-operative complications - 37.1%. Tumour recurrence - 6.5%. The overall three-year survival rate - 82.2 ± 0.14%, five-year survival - 65.8 ± 0.26%. The functional outcome (scale MSTS) of the lower limb was 82%. Quality of life after arthroplasty (questionnaire EORTIC-QLQ-C30) increased from 40 to 80 points. The results of total knee arthroplasty with bone tumours have shown the effectiveness of this method of surgical treatment, which provided a good functional result of limbs and improved the quality of life of patients.

**Conclusion(s):** Arthroplasty in patients with bone tumours is considered to be the optimal method of surgery upon condition of a careful planning and the correct pre-operative selection of patients for surgery.

**Implications:** Improved methods of arthroplasty allows to reduce the number of post-operative complications and recurrence of bone tumours.

**Conflict of Interest:** None declared

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**116**

**Association between knee osteoarthritis and functional changes in ankle joint and Achilles tendon**

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**Background:** The gastrocnemius and soleus muscles are responsible for knee and ankle joint stabilisation and are important components in the gait cycle. The association of knee osteoarthritis (OA) with Achilles tendon thickness was never inquired. The purpose of the current study was to evaluate changes in Achilles tendon thickness of individuals with knee OA and to evaluate the correlation between Achilles tendon thickness and knee OA severity.

**Methods:** 93 participants with no previous ankle injuries were recruited, of which 63 subjects had knee OA and 30 participants served as controls. Subjects underwent a clinical examination included measurements of Achilles tendon thickness and one-leg heel rise. Subjects also underwent a computerised gait test and completed the WOMAC and SF-36 health survey.

**Results:** Significant difference was found in Achilles tendon thickness between subjects with knee OA and healthy controls (17.1±3.4 compared to 15.1±3.1, p=0.009). Significant differences were also found between groups in one-leg heel rise test, WOMAC overall score, SF-36 overall score and all gait measures. Significant correlations were found between Achilles tendon thickness and knee OA severity including weight (r=0.46), body mass index (r=0.55), Kellgren & Lawrence OA severity grade (r=0.25), one-leg heel rises (r=−0.50), SF-36 overall score (r=−0.25).

**Conclusion(s):** Subjects with knee OA present compensatory adaptations at the ankle joint including thickening of the Achilles tendon compared to match healthy controls. Furthermore, a significant correlation between Achilles tendon thickness and knee OA severity was found. Comprehensive assessment of Achilles tendon and of the ankle joint should be part of knee OA evaluation process.

**Implications:** Attention should be given to the ankle joint when evaluating patients with knee OA, as it seems that knee OA may affect clinical measures at the ankle joint.

**Conflict of Interest:** None declared

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**390**

**Management of bone defects in revision total knee arthroplasty using trabecular metal cones and structural allograft: results from a single centre with minimum 5 year follow up**

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Management of severe bone defects during revision total knee arthroplasty (TKA) is challenging. Bulk structural allograft and porous trabecular metal (TM) cones have been used in cases with uncontained or segmental defects. To our knowledge these techniques have not been compared previously. The aim of this study is to compare the clinical and radiographic outcome of patients treated with bulk allografts and TM cones from a single centre with minimum 5 year follow up.

Methods: All patients who were treated using bulk allograft and TM cones in our unit were reviewed retrospectively. Patients completed the Oxford Knee Score (OKS), Short-Form-12 (SF-12), Western Ontario McMasters Osteoarthritis Index (WOMAC), a satisfaction score and the University of California Los Angeles (UCLA) Activity Scores. All patients had radiographs within 12 months of their last follow up.

Results: Twenty eight patients were treated with bulk allograft (Group A) and 14 with TM Cones (Group B). Mean duration of follow up was 102 months (72-144). In Group A, the mean age was 66 years (30-85). Median WOMAC score was 93.9 (90-100), Median Oxford Knee score was 94, Median satisfaction score was 95 (90-100) and median UCLA score was 6(3-8). In Group B, the mean age was 71 years (44-84). Median WOMAC and OKS scores were 91.9 (95-100) and 90.8 (87-100). The median UCLA score was 6 (4-8). There was 1 revision in each group. There was no significant difference between these groups. There were no cases with radiological failure up to the time of last follow up.

Discussion: Trabecular metal cones and structural allograft provide encouraging clinical outcomes, patient satisfaction levels and low revision rates at up to 5 years post revision total knee arthroplasty.

Implications: Given that both techniques perform well to the midterm, cost might be a discriminating factor in their use.

Conflict of Interest: None declared
Implications of the Getting it Right First Time Project for regional knee arthroplasty services
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Background: The Getting it Right First Time Report (GIRFT, 2012) made a number of recommendations for organisational change that will be necessary to meet the growing demands of the UK’s ageing population. Key themes of the GIRFT report include centralisation of complex orthopaedic procedures and introduction of minimum surgeon and/or unit volumes. The aim of this case study was to estimate the potential impact of the GIRFT recommendations (iGIRFT) of minimum unit and surgeon specific volumes upon orthopaedic units within the Severn Region, UK.

Methods: Practice profiles for surgeons and units were generated using the UK National Joint Registry Surgeon and Hospital Profile Database. Minimum volume thresholds were set at 13 procedures/year for surgeons and 30 procedures/year for units.

Results: 5517 knee arthroplasty procedures were recorded within the Severn Region between 1st of January and 31st December 2012 by 94 surgeons in 18 units. Median surgeon volumes were 33 (range 2-180) for primary TKR, 10 (range 2-64) for UKR, 2 (range 2-41) for PFJR and 5 (range 2-57) for Revision TKR. Amongst 48 surgeons performing UKR, 26 (54%) performed < 13 procedures per year accounting for 108 (14%) procedures. Amongst 20 surgeons performing PFJR, 19 (95%) performed < 13/year, accounting for 56 (58%) of cases. 50 Surgeons performed revision TKR with 37 (74%) performing < 13 revisions per annum, accounting 151 (35%) procedures. Amongst 16 units performing UKR, 8 (50%) performed < 30/year, accounting for 16% overall. Revision TKR was performed in 15 units whilst 8 (53%) performed < 30/year, accounting for 62 (15%) cases.

Conclusion and Implications: The implementation of the GIRFT recommendations to regional practice will necessitate changes to the case mix and referral patterns of both units and surgeons in the Severn Region.

Conflict of Interest: None declared

The use of trabecular metal tibia in total knee replacement surgery in the elderly - a review of 346 cases
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Background: Porous trabecular metal has been one of the significant advances in arthroplasty surgery in recent years. We have used this implant selectively for a large cohort of elderly patients with poor quality bone with good outcome.

Methods: We retrospectively reviewed the outcome of 346 consecutive total knee replacements performed with the Trabecular Metal Monoblock tibial component and Nexgen uncemented femoral component in 294 patients who underwent surgery between January 2003 and January 2010. Our mean follow up was 78 months (range 36 to 120). Patients were assessed using the American Knee Society and Oxford knee scores. Radiological assessment was done according to the Knee Society rating system. Spearman rank correlation coefficient was used to test the association between radiological parameters and functional outcome. Survival was analysed by the Kaplan-Meier Method and life tables.

Results: All patients were aged over 75, were known to have osteoporosis, inflammatory arthropathy or had risk factors suggestive of poor bone quality. Of the 346 patients, 5 patients (1.4%) required a further operation for: prosthetic fracture in 1, instability in 3 and dislocation (cam jump) in 1. There were no infections. The incidence of radiolucency on the radiographs was 7.7%, although the majority of these were a minor lucent line under the anterior flange of the femoral component, of uncertain significance. The ten year survival with revision for any reason as the end point was 96.9%.
Conclusion(s): The use of a Trabecular Metal Tibia and Uncemented Nexgen Legacy Femur has numerous advantages in patients with osteoporotic bone, but there is very little published work in this area. We report good mid to long term outcome in this patient group.

Implications: This study provides basis for use of trabecular metal tibial implant in the elderly during knee replacement surgery.

Conflict of Interest: None declared

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The healing response technique in the management of complete proximal ACL tears: outcomes at two years follow up
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Background: Steadman et al developed a non-reconstructive technique for treatment of complete proximal ACL tears. The healing response technique involves arthroscopic microfracture next to the femoral insertion of the ACL. The aim of this study was to assess the functional and clinical outcomes of the healing response technique in patients who had complete proximal ACL tears treated at our institution.

Methods: Between January 2006 and December 2011, 12 patients (7 males and 5 females) were enrolled for this study. Average age was 32 (range from 24-37). Inclusion criteria were active patients, signs of instability and proximal complete ACL tear on MRI scan with only grade 2 Lachman test and grade 1 pivot. Elite athletes and patients who had undergone contralateral ACL reconstruction were excluded. All the patients had arthroscopic treatment with the healing response technique. Patients were assessed pre-operatively and post-operatively with Lachman test, KT-1000, Tegner, Lysholm and KOOS scores.

Results: All patients completed two years follow up. One patient didn’t show any clinical improvement post-operatively and another 2 patients sustained further ACL injury 9 months post-operatively. These 3 patients underwent subsequent ACL reconstruction between 3 and 9 months from the index procedure. Post-operative KT-1000 measurements showed an average improvement of 2 mm (range 1-4). The average pre-operative and post-operative Tegner scores were 3 and 6.7 while Lysholm scores were 73 and 94 respectively. The respective pre and post-operative average KOOS scores were: symptoms (72 and 81), pain (74 and 80), activity of daily living (78 and 87), sports and recreation function (38 and 65) and quality of life (36 and 58).

Conclusion: Patients had significant improvement in the knee functional outcome scores following the healing response technique at 2 years follow up. Our results highlight the potential use of this technique as a non-reconstructive treatment modality in highly selected patients with ACL injuries.

Conflict of Interest: None declared

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The Synovasure near patient lateral flow test - an evaluation of a novel test for the diagnosis of periprosthetic joint infection (PJI)
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Background: The diagnosis of deep periprosthetic joint infection (PJI) remains a challenge. The Synovasure™ test for alpha defensins 1-3 is a new test that has a reportedly high sensitivity and specificity for the diagnosis of PJI.

Purpose: To evaluate the performance of the Synovasure near patient device a novel test for the diagnosis of PJI.
Methods: All patients undergoing investigation/treatment for suspected PJI at our institution had synovial fluid testing using the Synovasure device at the time of arthrocentesis or revision surgery. Diagnosis of deep PJI was based on the Public Health England modified CDC definition as used for mandatory reporting of surgical site infection in the NHS in England and Wales.

Results: A total of 25 tests were carried out in 23 patients. Tests were carried out on 12 male and 11 female patients. 13 knees and 11 hips were tested; these included 15 primary joint replacements, 5 revisions, 2 hemiarthroplasties, 1 unicondylar knee replacement and 1 girdlestone. A diagnosis of infection was confirmed in 4 out of 23 patients (2 primary hip replacements, 1 hemiarthroplasty and 1 girdlestone). The Synovasure test correctly identified all patients with a confirmed infection. In the remaining patients the Synovasure test was negative. In two patients who did not meet the criteria for infection, contaminants were grown on enrichment culture - these Synovasure tests were negative.

Conclusions: In this cohort of 25 patients the Synovasure near patient test has demonstrated 100% sensitivity and 100% specificity for the diagnosis of PJI.

Implications: The Synovasure test is a simple and effective test for the diagnosis of PJI. Its use in clinical practice can provide a faster more accurate diagnosis than other rapid diagnostics such as the more traditional Gram stain.

Conflict of Interest: None declared

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Tibial crest osteotomy in revision knee arthroplasty - a new low energy osteotomy & suture technique
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Background: The tibial crest osteotomy (TCO) is an established extensile approach of the knee. To date, technical descriptions in the literature include the use of power saws to perform the osteotomy and wires and/or screws to re-attach the tubercle crest. The reported complications of this technique include mal-union, non-union and hardware problems. We describe a new technique aimed at reducing these complications by applying the principles of a low-energy osteotomy with osteotomes in addition to using a braided polyester-suture for reattachment.

Methods: We reviewed the radiographs of a consecutive series of TCO’s using this new technique. Union, mal-union and complications, including fractures, were recorded.

Results: 181 consecutive TCO’s using this new technique where performed on 159 patients. The mean patient age was 66 years (range 34 to 92 years) and the mean follow-up was 22 months (range from 6 to 49 months). A union rate of 100% was achieved, at a mean of 11 weeks. Osteotomy fracture was observed in 11 knees (6%). However, all of these cases resulted in an uncomplicated union. Proximal migration (mean 11.5mm) was observed in 12 knees (7%). No hardware problems such as breakage or loosening of wires or screws were noted as these implants are not used as part of this new technique.

Conclusion and Implications: The new low energy osteotomy and suture reattachment technique of performing a TCO results in excellent union and satisfactory radiological outcomes. It also avoids hardware-related complications associated with revision total knee arthroplasty.

Conflict of Interest: None declared

Trauma

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The usefulness of the lateral radiograph for pre-operative planning in patients with intracapsular fractured neck of femur
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Background: With an estimated £600 million spent within the NHS annually on medical imaging, there is a national drive to reduce unnecessary investigations and total spend. Our aim was to
determine the usefulness of the lateral radiograph in the management decision making process of patients with intracapsular fractured NOF.

**Methods:** 100 consecutive patients with intracapsular fractured NOF were reviewed. Patient demographics were recorded such as age, pre-fracture mobility, past medical history and social circumstances. Five fully registered medical professionals reviewed each case, (1 core surgical trainee, 1 Str6,1 Staff Grade, 2 Consultants in Trauma and Orthopaedics). Radiographs were classified as displaced or undisplaced. Management plans were formulated reviewing the AP film in all cases, by each reviewer. Fixation (screws vs DHS) and arthroplasty (Hemi or Total) were the management options. Following this, the lateral radiographs were reviewed to determine any change in management. Cohen’s Kappa statistic was used to calculate inter-observer error.

**Results:** Of the 100 patient radiographs reviewed by 5 different medical professionals, 2 patients had a change in management as a result of the lateral radiograph. There was moderate agreement between raters regarding management based on the AP and clinical details of the patient. $[k =0.593; 95\% CI 0.462 to 0.717]$. 

**Conclusion(s):** This study suggests the AP radiograph, with clinical information alone may provide sufficient information to formulate a management plan in patients with intracapsular fracture NOF. Very few management plans were changed base on the lateral.

**Implications:** This study highlights the limited use of the lateral radiograph in intracapsular fracture neck of femur management. With the increase use of CT and MRI used for detecting occult fracture, we believe the lateral radiograph should not be routinely performed in patients who have an intracapsular fractures on the AP radiograph.

**Conflict of Interest:** None declared

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**370**

The Impact of the Major Trauma Centre status on a University Teaching Hospital
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**Introduction:** Trauma is a disease entity that has been managed sub-optimally in the UK for many years. The advent of the Major Trauma Centre (MTC) and regional trauma networks (RTN) has seen an improvement in trauma care nationally.

**Method:** We have completed a retrospective study on the impact of an MTC status upon our unit and its implication on adult and paediatric major trauma (ISS>15) patients using Trauma and Audit Research Network data.

**Results:** Our unit has experienced a 54% increase in the volume of major trauma including a substantial increase in high energy (e.g. pelvic and scapular) injuries. A 10-fold increase in volume and a statistically significant increase of 9.05 ($p=0.047$) in the mean ISS was observed in the 0-5 year old subgroup. We found a significant decrease in the length of critical care stay by 3 days ($p=0.004$) once our unit had become an MTC as part of the RTN. There was no difference in the probability of survival (PS) or the Glasgow Outcome Score (GOS) after the MTC was established compared to before.

**Conclusion:** The decrease in critical care length of stay suggests patients are less physiologically compromised when managed in a RTN. We conclude that the change in workload experienced by our MTC was absorbed without compromising patient care and suggest that MTC’s should have both adult and paediatric trauma services on one site due to the significant increase in complex paediatric cases with higher ISS.

**Conflict of Interest:** None declared

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**372**

Outcomes of geriatric hip fractures treated with AFFIXUS hip fracture nail
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Background: Geriatric hip fractures are one of the commonest fractures worldwide. The purpose of this study was to report the outcomes of a series of unstable geriatric hip fractures treated with AFFIXUS hip fracture nail.

Methods: All fractures were treated by closed reduction under C-arm fluoroscopy control. The reduction of head and neck fragment was evaluated by Garden alignment index (GAI) and lag screw position was evaluated by tip apex distance (TAD). Local and systemic complications were reported.

Results: A retrospective study of 100 unstable geriatric hip fractures treated with AFFIXUS hip fracture nail is presented. The mean follow-up duration was 8 months (range 3-32). Of the patients 83% were female. The average age was 85 years. The mean acute hospital stay was 17.6 days. Systemic complications occurred in 29 patients (29%) and local complications in 3 patients (3%) including lag screw cutout in one patient (1%), lag screw backout in one patient (1%), and deep infection in one patient (1%). Mechanical failures and periprosthetic fractures were not observed in our series. Fractures united in all patients. Preinjury activity level was recovered in 78% of the patients.

Conclusion(s): The results of AFFIXUS hip fracture nail were satisfactory in most elderly patients. The unique design of the lag screw and its thread spacing had effectively reduced cut-out rate.


Conflict of Interest: None declared

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384
What is my chance of sustaining a fracture? Age and gender specific fracture odds

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Background: Over the course of a lifetime 50% of the population will sustain a fracture. Despite the significant challenges that a fracture can cause, little is known about an individual’s fracture risk throughout their lifetime. Knowledge of individual fracture risk can guide interventions to prevent fractures and the subsequent disruption to the individual and society. The aim of this study was to calculate the odds of an individual sustaining a particular fracture given their age and gender.

Methods: Data were collected on 19,218 fractures over an 11-year period. Fracture type, patient demographics and place of residence were recorded. From this, an individual’s yearly fracture odds were calculated.

Results: Young people were at highest risk of metacarpal and finger fractures with the odds of sustaining these fractures far higher in males than in females. Middle age resulted in the lowest odds of sustaining a fracture with odds of 1 in 129 per year in the sixth decade for males and 1 in 212 per year in the fourth decade for females. The highest overall fracture odds were in super-elderly women with odds of 1 in 27 per year of sustaining a proximal femoral fracture. The odds of sustaining low-energy fractures were far higher than those of sustaining high-energy injuries with the odds of a femoral shaft fracture 1 in 287 per year for males over the age of 90, compared to teenage males having odds of 1 in 11,165 per year.

Conclusion(s): Individual fracture risk changes significantly throughout life with the highest odds in the super-elderly.

Implications: The knowledge of which fractures occur at particular stages of life can guide research and preventative medicine. In addition this information assists in allocation of local treatment facilities based on the local demographics.

Conflict of Interest: None declared

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429
3D femoral mapping demonstrates age-related changes that influence femoral implant positioning

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Introduction: Anterior positioning of a cephalomedullary nail in the distal femur occurs in up to 88% of cases. This is considered to occur because of a mismatch between the radius of curvature of the femur and that of available implants. The hypothesis for this study was that the relative thicknesses of the cortices of the femur (referenced off the linea aspera) change with age and determine the final position of intramedullary implants.

Methods: This study used the data from CT scans undertaken as part of routine clinical practice in 919 patients with intact left femora (median age 66 years, 484 male and 435 female). The linea aspera and transverse intervals were plotted on a template femur between 25% - 60% femoral bone length (5% increments) and mapped automatically to all individual femora in the database with measurements taken in the plane of the linea aspera.

Results: The linea aspera was found to be internally rotated as compared to the sagittal plane referenced off the posterior femoral condyles. An age related change in the posterior/anterior cortical thickness ratio was demonstrated. The ≥80 year old cohort shows a significantly disproportional posterior/anterior ratio increase of 70.0% from 25-50% bone length as compared to 48.1% for the < 40 year old cohort (p< 0.05).

Discussion: This study has shown that assessment in the sagittal plane may be inaccurate because of rotational changes in the linea aspera. The centring influence of the corticies is lost with age with a relative thinning of the anterior cortex and thickening of the posterior cortex moving distally in the femur. This has a direct influence on the positioning of intramedullary implants explaining the preponderance of anterior malpositioning of intramedullary implants in the elderly.

Conflict of Interest: None declared

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The use of topical tranexamic acid in patients undergoing surgery for proximal femoral fracture

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Background: Hip fracture is a relatively common injury in elderly population with 65000 cases in England and Wales in 2013. These injuries are associated with significant blood loss. Topical tranexamic acid has been proven to be effective reducing blood loss in elective hip arthroplasty. The aim of this study was to assess the efficacy of the use of topical tranexamic acid in patients undergoing surgery for proximal femoral fractures.

Methods: This is a prospective study of 1148 patients who underwent surgery for proximal femoral fracture: 395 patients that did not received tranexamic acid, 753 patients received 1 gram of topical tranexamic acid instilled into the wound before closure. The primary outcome measure was the incidence of post-operative red blood cell transfusion. Secondary outcomes include units of red blood cells transfused, incidence of post-operative thromboembolic events (deep vein thrombosis and pulmonary emboli), stroke, myocardial infarction, gastrointestinal bleeding, readmission rate and death.

Results: Topical tranexamic acid did not reduce the blood transfusion rate: Non-intervention group 18.2% (95% confidence interval [CI] 14.7-19.1%) vs Topical tranexamic acid group 19.12% (CI 16.5-22.1%) p=0.772. There was a near significant reduction of the number of units of red blood cells transfused per 100 patients (48.10 vs. 42.36%, p=0.054). There was a statistically significant reduction of stroke in the topical tranexamic acid group (1.77% vs 0.53% - P value= 0.013). No other differences in post-operative complications were observed.

Conclusion(s): Topical tranexamic acid was not effective reducing the need for blood transfusion following hip fracture surgery.

Implications: The use of topical tranexamic acid at the time of surgery will be discontinued and other methods to reduce the need for blood transfusion will be explored.

Conflict of Interest: None declared
563
The inpatient fracture neck of femur
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Background: Fractured neck of femur (FNOF) is an increasing problem for the NHS. NICE guidelines and the Best Practice Tariff (BPT) form a basis to optimise patient management. However, the needs of the “Inpatient” FNOF are not clearly defined in the literature.

Methods: Patients with a potential inpatient FNOF from a single NHS Trust were identified using data collected from the National Hip Fracture Database (NHFD) for all fractures recorded between January 2012 - June 2013, and cross-checked by data obtained from “Dr Foster” and records from the Trusts’ Falls Risk Coordinator. Retrospective analysis of patient notes and BPT data was performed for confirmed inpatient FNOF.

Results: Of 694 patients sustaining an acute FNOF at a single Trust between January 2012 - June 2013, 40 patients (5.8%) sustained an inpatient FNOF. 19 patients (47.5%) were male and 15 patients (37.5%) had an ASA grade of 4 or 5, compared to 153 patients (23.4%) and 127 patients (19.4%) respectively of “community” FNOF. 39 patients received operative management. 23 patients (57.5%) received operative management within 36 hours and only 19 patients (47.5%) achieved BPT compared to 76.5% and 72.5% respectively for “community” FNOF patients. Mortality among inpatients reached 40% at 120 days and 50% at 1 year, significantly higher than community FNOF patients. None were rated as “severe” injuries on incident forms.

Conclusion(s): Inpatient FNOF is associated with a higher mortality and all inpatient falls resulting in FNOF should be rated as “severe” due to their potentially life-changing or life-threatening consequences. A thorough investigation into the cause of fall may help reduce the incidence of inpatient FNOF within the Trust.

Implications: Care for patients with an inpatient FNOF is a focus for improvement following this report. Hospital policy was changed to improve screening and subsequent care for patients suffering an inpatient FNOF.

Conflict of Interest: None declared

732
The ortho-plastic management of severe open tibial fractures: a prospective review of outcomes in a level 1 trauma centre
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Background: Corrective osteotomy for malunited distal radius fractures is an established but challenging treatment strategy. Controversies revolve around the best technical approach to restore radial inclination, volar tilt and stability of the distal radioulnar joint

Methods: We evaluated 35 patients treated in a tertiary hand referral unit between 2005 and 2011 with extra-articular distal radial malunion who were managed with corrective osteotomy and were followed for an average follow up of one year. Each patient was managed with a radial opening-wedge osteotomy and interpositional iliac bone graft. The osteotomy was performed with two volar plates applied in staged manner to facilitate maintenance of the tentative alignments in the sagittal and coronal planes. The patients were evaluated on the basis of objective radiographic measurements and functional outcomes as determined by clinical examination, including range of wrist motion, strength, and functional capacity.

Results: The mean duration of follow-up was twelve months (range, 6 to 23 months). Post-operative volar tilt and ulnar variance improved significantly compared with the pre-operative status (p < 0.05). Radiological union was confirmed in the vast majority of patients at an average of 3 months. The patients reported significant relief of pre-operative pain as well as an improvement in the wrist and range of motion and strength. No intra-operative complications were noted.
Conclusion/Implications: We describe an easily reproducible, controlled method of corrective osteotomy for malunited distal radial fractures. This approach has achieved consistent correction of volar tilt, radial inclination and ulnar variance with no significant complications.
Conflict of Interest: None declared

The cost of litigation relating to hip fractures in the UK: can lessons be learned from the NHS litigation authority?
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Background: We sought to highlight patient safety issues in patients with neck of femur fractures in the UK, with regard to negligence claims made against NHS trusts
Methods: We obtained data from the NHSLA database over a 10 year period on litigation that arose from hospitals fall resulting in neck of femur fractures.
Results: After sorting through data to identify only those cases clearly relating to ‘hip surgery’ for a fracture a total of 133 cases were identified. The average time lag between incident and claim was 1.2 years. A total of £2,011,337.27 was paid in damages, £378,398.29 in defence costs, and £1,281,623.13 claimants' costs.
Cause of negligence: (%)
Inadequate nursing care - in hospital fall/injury (24.8)
X-ray fracture missed (21.8)
Inadequate nursing - Pressure sore care (9)
Operator error (6)
Intra/post-operative handling (6)
Fail/Delay Treatment-surgical/medical (4.5)
Failure to carry out post-operative observations (3.8)
Inadequate nursing care - nutrition/pain control (2.3)

Injury sustained to patients: (%)
Fracture (21)
Unnecessary Pain (24)
Additional/unnecessary operation(s) (18.8)
Pressure Sores (9.8)
Fatality (6.8)
Amputation - Lower (2.3)
Thrombosis/Embolism (1.5)

Conclusion(s): 25% of claims made by patients with hip fractures resulted directly as a result of an in hospital fall and 9% from failure of pressure sore prevention. NHS trusts have prioritised patient safety and resources have been allocated to ensure vulnerable patients are not harmed whilst in hospital. There is a trend of improvement but there have been recent examples of catastrophic failings. Finally the standard of training and care by emergency departments in the UK needs to be challenged as 22% of claims were as result of missed fractures.

Implications: The NHS faces a growing challenge with increased numbers of at risk vulnerable elderly patients.
Conflict of Interest: None declared