7 minute Presentation & 3 minute Discussion

1. **9.15  Future forecast for hip fractures: A growing problem for the health service**
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2. **9.25 “GDPR: Improving our compliance with the Blue Book Standards?”**
   Geoff Crozier Shaw, Andrew Hughes, James Cashman, Keith Synnott
   Department of Trauma and Orthopaedics, Mater Misercordiae University Hospital, Eccles Street, Dublin 7, Ireland

3. **9.35 A 12-month audit of length of stay for hip fractures admitted to a large trauma centre in Ireland**
   David Keohane, Toni O’Keeffe, James Harty, Declan Reidy
   Department of Orthopaedics, Cork University Hospital, Wilton, Cork, Ireland

4. **9.45 The use of proton pump inhibitors in hip fracture patients**
   Finian Doyle
   Department of Trauma and Orthopaedics, University Hospital Waterford, Dunmore East Road, Waterford, Ireland

5. **9.55 Opportunistic screening for vertebral fractures in a hip fracture population**
   Michael Kelly, John Carey, Stephen Kearns, John McCabe
   Department of Orthopaedic, University Hospital Galway, Newcastle Road, Galway, Ireland

6. **10.05 Fragility hip fracture & mortality – A 4 year single institution, multiple surgeon, retrospective cohort study**
   Colum Downey, John Quinlan
   Department of Orthopaedics, Tallaght University Hospital, Tallaght, Dublin 24

7. **10.15 The current state of plastic waste in the orthopaedic operating theatre**
   Finian Doyle, Jill Mulrain, Fiachra Rowan
   Department of Trauma and Orthopaedics, University Hospital Waterford
   Dunmore East Road, Waterford, Ireland

8. **10.25 DNS DNS**

9. **10.35 The impact of operative times on hip fracture outcomes**
   Hannah Hughes, Gerard Anthon Sheridan, James Storme, Ursula Kelleher, Conor Hurson, Paul Curtin
   Department of Trauma & Orthopaedic Surgery, St. Vincent’s University Hospital, Elm Park, Dublin 4, Ireland
10. **10.45**  Single versus separate implant fixation for ipsilateral concomitant femoral neck and shaft fractures: A systematic review

**Kunal Mohan**, Prasad Ellanti, Helen French, Niall Hogan, Tom McCarthy

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AB118. 106. Future forecast for hip fractures: a growing problem for the health service

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Background: Hip fractures represent a significant cause of morbidity within the elderly population and are an increasing burden on an already stretched health service. University Hospital Limerick is the primary provider of acute orthopaedic care to approximately 400,000 people in the Limerick, Clare, and North Tipperary. With a large and ageing population, it is vital that trends in service provision requirements are understood. The objective of this study was to predict future trends in hip fracture case load in over 65s to guide health service providers in the allocation of resources for these patients in the future.

Methods: A review of the data recorded by the Irish Hip Fracture Database was performed to provide information on changing patient demographics, length of stay, and time to surgery. Population data was obtained from the national census for 2011 and 2016. Population projections were provided by the Central Statistics office (CSO) for 2021, 2026, and 2031 to determine predicted hip fracture figures for these years.

Results: Between 2013 and 2018, the number of hip fractures treated in University Hospital Limerick has increased by 35% while in the same period the average length of stay for these patients has increased from 10 to 16 days. A further increase of 34% is predicted between 2018 and 2026 with a predicted increase of over 100% in hip fracture cases between 2013 and 2031.

Conclusions: This study provides vital information for health service providers for the growing issue of hip fractures within the elderly population and will help guide them with regards to service allocation and support into the future.

Keywords: Hip fracture; orthopaedic; trauma

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AB119. 203. GDPR: improving our compliance with the Blue Book Standards?

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Background: Compliance with Blue Book Standards (BBS) is essential for hip fracture patient care. Communication is integral to providing an efficient service. It was thought GDPR would impede healthcare provider communication. MedXNote is an encrypted GDPR compliant messaging service, which can be downloaded as a phone app. Many of the BBS are time-dependent; rapid, confidential communication is paramount. The authors aim to analyse the effect of a MedXNote Hip Fracture messaging group on our trauma unit’s BBS compliance.

Methods: Access to the MedXNote Hip Fracture Group was provided to all stakeholders in hip fracture care trainee and consultant emergency physicians and orthopaedic surgeons, as well as advanced nurse practitioners, bed managers, ward managers and theatre managers. BBS compliance for the period of April to July 2017 was compared with that of April to July 2018.

Results: Two periods in 2017 and 2018 saw 33 and 39 hip fracture patients admitted respectively. Mean time to an orthopaedic ward in 2017 was 40 (SD +/- 40.3) hours compared to 7.7 (SD +/- 2.43) hours in 2018 (P=0.06, NS). No cases were admitted to an orthopaedic ward within 4 hours. Mean time to surgery was 65.0 (SD +/- 30.2) hours in 2017 and 32.7 (SD +/- 10.6) hours in 2018 (P=0.02). And 53% of patients had surgery within 48 hours of admission in 2017, compared to 81% in 2018 (P=0.14, NS).

Conclusions: Improving a trauma unit’s BBS compliance requires an efficient multidisciplinary approach. Timely communication between stakeholders can improve these time dependent measurements. MedXNote, a GDPR compliant social media messaging service, has helped to significantly reduce the time to surgery for hip fracture patients in our trauma unit. These promising results show these communication-enhancing efforts could lead to improvements nationwide.

Keywords: Blue Book; hip fractures; orthopaedics; trauma

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AB120. 28. A 12-month audit of length of stay for hip fractures admitted to a large trauma centre in Ireland

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Background: In 2017, Cork University Hospital (CUH) admitted 467 hip fracture patients over the age of 60.

Methods: In 2017, CUH admitted 467 hip fracture patients over the age of 60. The national hip fracture database was queried to assess if admission day or month affected CUH patient length of stay (LOS)—including day of the week for admission and surgery. The search criterion was all discharges occurring between 01 January 2018 and 31 December 2018. The query returned 515 discharge records of all ages.

Results: The average LOS for all 515 records was 15.5 days. Once exclusion criteria were applied to the results, 395 records are left. The average LOS for these patients was 14.7 days. The LOS peaked in March at 18.2 days but overall trended downwards month-on-month after that bar small spikes in June and October. Patients that had their operation on a Wednesday had the longest average LOS of 16.5 days, whereas surgery on a Saturday had a LOS of 13 days—this discrepancy may be due to a lack of physiotherapy services over the weekend.

Conclusions: CUH saw a decrease in average LOS based on admission date from Q1 (16.9 days) to Q4 (12 days). This can be attributed to several initiatives including: centralising patients onto a dedicated trauma floor, establishing a ‘Hip Fracture Pathway’ that included a designated hip fracture.

Keywords: Hip fracture; hip fracture database; length of stay

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AB121. 75. The use of proton pump inhibitors in hip fracture patients

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Background: Hip fractures represent a significant burden to every orthopaedic department. Patients with hip fractures are at risk of gastrointestinal stress ulceration. It is not common practice to prescribe prophylactic proton pump inhibitors (PPIs) to patients who are admitted with hip fractures. This may lead to an increased morbidity associated with gastrointestinal stress ulceration in this patient population.

Methods: A retrospective chart review of patients admitted with hip fractures to our department over a 3-month period was performed. PPI usage, stress ulcer symptoms and complications, predisposing medications and length of stay were noted for each patient. The rates of stress ulcer symptoms and complications were compared between those patients taking PPI’s and those not taking PPIs.

Results: A total of 86 patients’ charts were reviewed: 35% were taking while 65% were not taking a PPI prior to admission. In total 10.5% experienced symptoms of stress ulceration. Of those taking a PPI 6.6% experienced symptoms. For those not on a PPI 12.5% experienced symptoms, 3 patients required an oesophagastroduodenoscopy, 2 patients received blood and blood products, 1 patient required admission to the high dependency unit. All patients who suffered complications had lengths of stay in excess of the national average.

Conclusions: Patients with hip fractures are at an increased risk of stress induced ulceration and the concomitant complications. Limited data suggests those taking PPI therapy had a lower risk. Orthopaedic surgeons should be aware of these risks in assessing their patients. A randomised control trial due would determine best practice with regard to PPI use in this patient population.

Keywords: Hip fracture; proton pump inhibitor; stress ulceration
doi: 10.21037/map.2019.AB121

AB122. 45. Opportunistic screening for vertebral fractures in a hip fracture population

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Background: Osteoporotic vertebral fractures have significant consequences for the patient including disability and increased mortality. One vertebral fracture increases the risk of a further fracture by 20% in year one alone. These events are an opportunity to diagnose osteoporosis and instigate treatment, yet as few as one third present clinically. Methods: We undertook an opportunistic screening of hip fracture patients using available CT pulmonary angiogram (CTPA) imaging to assess the effect of these fractures on this population. Prospective database of all hip fractures admitted between 2010 and 2017 was utilised for this study. A consultant musculoskeletal radiologist reviewed all available CTPA scans for the presence of vertebral fractures. The number of fractures, grade and location was recorded in a database that also included length of stay (LOS), gender and mortality. Results were analysed using SPSS Version 22. Results: A total of 225 hip fracture patients had a CTPA available for analysis: 70% of patients were female (n=158). Median age was 80 (range, 30–102) years. Median LOS was 16 (range, 1–301) days; 40% of patients (n=90) had a vertebral fracture present on CTPA; 44 patients had more than one fracture. Only 22% (n=20) of those fractures were reported in the official radiology report. Linear regression analysis revealed an independent association between the presence of vertebral fractures and increased LOS for hip fracture patients (P=0.018). Conclusions: A high proportion of hip fracture patients have concomitant vertebral fractures. Patients with vertebral fractures have an increased LOS for hip fracture treatment. Improved recognition of vertebral fractures on CTPA’s represents an opportunity to diagnose and treat osteoporosis. Keywords: Osteoporosis; vertebral fractures
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AB123. 230. Fragility hip fracture & mortality: a 4-year single institution, multiple surgeon and retrospective cohort study

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Background: Fragility hip fractures are the most common serious injury of our older patients. Due to increasing life expectancy worldwide, the current global prevalence of hip fractures (~2 million) is predicted to increase threefold by 2050. Recent studies show that hip fracture registries may be contributing to a reduction in 30-day mortality. The objective of the present study was threefold: (I) to assess the local hospital compliance with international hip fracture quality care standards over the years 2013–2016; (II) to establish the local hospital inpatient, 30-day and 1-year mortality rates for a 4-year cohort of fragility hip fracture patients (n=646 patients); and (III) to perform a logistical regression analysis to ascertain associations between patient and organisational variables and increased risk of death within 1-year post fragility hip fracture in our cohort.

Methods: The local hip fracture database was investigated to establish the number of patients who had suffered a fragility hip fracture in the years 2013–2016 (4-year retrospective single-centre multi-surgeon cohort) in Tallaght University Hospital (n=646). The local hospital hip fracture dataset was used to assess both annual and overall compliance with each of the 6 quality care standards. Access to the National Irish Death Events Registry was granted to establish each death event to establish short and long term mortality rates. A univariate and multivariate logistic regression analysis was performed to determine associations, if any, between patient or organisational specific variables and mortality within the 1st year post fragility hip fracture.

Results: Local hospital compliance in Blue Book Standards 1, 3, 4 and 6 were disappointing. Standards 2 and 5 were more positive with annual improvements year-on-year. The mean and median lengths of stay were significantly increased in comparison to national and international figures. The mean 30-day mortality rate was 4.3%. The mean inpatient mortality rate was 5.9%. The mean 1-year mortality rate was 19%. The patient specific variables: (I) age (OR 1.484, 1.130–1.948, P=0.004), (II) nursing home admission source (OR 2.691, 1.376–5.259, P=0.004) and (III) American Society of Anaesthetics (ASA) grade (OR 3.328, 1.855–5.967, P=0.000) demonstrated statistically significant associations with mortality at 1-year on multivariate logistic regression analysis.

Conclusions: It is an exciting time for fragility hip fracture care internationally. It is possible that this cohort are benefiting from ~30 years of rigorous audit and international collaboration in the form of national registries. The mortality rate estimates of 10% at 30-days and 30% at 1-year may be outdated. Further improvements in hip fracture care quality indicators are expected by the authors in light of increased involvement of the orthogeriatric subspeciality and the continuous refinement process of the national registries. The results of 7 novel national pilot registries are anticipated.

Keywords: Hip fracture; Irish hip fracture database; mortality; registries

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AB124. 77. The current state of plastic waste in the orthopaedic operating theatre

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Background: In total, 8.3 billion tonnes of plastic has been produced since its use began in the 1950’s with approximately 50% of the plastic produced for single use only and only 9% being recycled. The healthcare industry is the second highest producer of waste. Operating theatres contribute up to 70% of a hospital’s waste. Waste is classified as either general or regulated waste with 15% considered hazardous that requires regulated disposal.

Methods: A PubMed search was performed with the search terms: recycling, waste, plastics, single-use plastic, medical waste, environment, greening, disposal, orthopaedic, operating theatre, surgery, hospitals. Bibliographies of selected papers were read for articles that were not returned by the original search. The titles and relevant abstracts were reviewed, and 8 Orthopaedic articles were read by two reviewers. Five pertained to hip and knee, 2 to hand and 1 to spine surgery.

Results: Plastic accounted for 26% by weight and 23% by volume of total waste. Fifteen and 13.6 kg of waste was produced in total hip and total knee arthroplasty with 3 kg of recyclable plastic produced. Better segregation process reduced the volume of waste for regulated disposal. Environmental and economic benefit from introduction of reusable sterilisation cases, reusable surgical gowns and reprocessing of equipment. Education campaigns and change of bin layout led to improved recycling.

Conclusions: There is a significant environmental impact from orthopaedic surgery. We need to improve our adherence to the waste management principles of reduce, reuse and recycle. By implementing ‘Green Theatre’ initiatives orthopaedic surgeons can take a leadership role in this area.

Keywords: Orthopaedic surgery; plastic waste; reduce; reuse; recycle

doi: 10.21037/map.2019.AB124

Cite this abstract as: Doyle F, Mulrain J, Rowan F. The current state of plastic waste in the orthopaedic operating theatre. Mesentery Peritoneum 2019;3:AB124.
AB126. 44. The impact of operative times on hip fracture outcomes

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Background: Longer operative times have been associated with increased postoperative complications. Shorter operative times have been associated with lower infection rates. To date, there is limited research investigating the effect of operative times on hip fracture outcomes.

Methods: All hip fracture surgeries carried out in St. Vincent’s University Hospital (SVUH) between August 2012 and July 2018 were analysed using the Regional Hip Fracture Database. The type of surgical intervention and the intraoperative time was recorded for each hip fracture surgery performed. Statistical analysis was carried out using Stata (Stata for Mac IC 13.1) to identify correlations between intraoperative times and hip fracture outcomes.

Results: In total, 1,587 hip fracture surgeries were analysed. The two most common surgical interventions performed were short intramedullary nailing (n=468) and bipolar hemiarthroplasty (n=458). The mean operative time was 59 minutes for all surgeries performed. Consultant surgeons had significantly lower operative times for hip fractures compared to specialist registrars and registrars (P<0.05). Consultant surgeons also had a significantly higher rate of successful day one postoperative mobility (P<0.05).

Conclusions: Operative times impact on the day one postoperative mobility rates of hip fracture patients. Consultant surgeons have significantly lower operative times and significantly higher day one postoperative mobility rates. We recommend the presence of a consultant surgeon for all hip fracture operations performed by non-consultant hospital doctors (NCHDs) in order to optimise outcomes for hip fracture patients undergoing surgical intervention.

Keywords: Hip fractures; mobility; operative times; surgical outcomes

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AB127. 83. Single versus separate implant fixation for ipsilateral concomitant femoral neck and shaft fractures: a systematic review

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Background: Concomitant ipsilateral femoral neck and shaft fractures are uncommon, occurring in 1–9% of femoral shaft fractures. While this injury typically occurs in young patients following high-energy trauma, little consensus has been established regarding the optimal fixation approach. A multitude of treatment strategies, are in existence, with limited evidence as to which is more favourable. The aim of this study was to appraise current evidence, comparing management with either one single or separate devices for both fractures.

Methods: A systematic review was undertaken in accordance with preferred reporting items for systematic reviews and meta-analyses (PRISMA) guidelines. Studies published between 1992 and 2018 comparing the rate of postoperative nonunion, malunion, delayed union, avascular necrosis, infection or reoperation between at least one method of single device fixation and one method of separate device fixation were included.

Results: Six non-randomised cohort studies assessing 173 patients were suitable for inclusion, each comparing single device cephalomedullary nail fixation of both fractures with a combination of devices. All patients presented following high-energy trauma, at a median age of 32 years. The rates of femoral neck nonunion and reoperation appeared higher in the single device group, with a low complication rate and favourable outcomes found across both groups.

Conclusions: This injury pattern continues to occur in the traditionally described patient group, and results in acceptable postoperative outcomes. Single device fixation appears to be associated with certain higher complication rates. Prospective, randomised trials with adequately powered sample sizes are required for more definite comparison of these two management strategies in this rare but complex injury.

Keywords: Femur; neck; shaft; fracture; concomitant; ipsilateral

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