



Limb Reconstruction Free Papers

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Hall 11

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THE IMPORTANCE OF PATIENT EDUCATION IN INFLUENCING ILIZAROV FRAME REMOVAL IN THE OUTPATIENT SETTING

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Background: Developing a successful outpatient service for Ilizarov frame removal provides both patient and cost benefits. Misinformation and patient trepidation can be detrimental to recovery and influence choices. Education may play an important role in tailoring an efficacious service. Our objective was to review the Belfast regional limb reconstruction frame removal practice, introduce changes aimed at improving care and evaluate the effects.

Methods: We performed a one-year retrospective review of our Ilizarov frame removal practice. We evaluated the service prior to and following provision of a new patient information leaflet, alongside a test wire removal technique. The one-year prospective service evaluation was supplemented with a patient reported feedback questionnaire.

Results: Retrospectively, 85% of Ilizarov frames were removed in clinic, with 54% requiring Entonox. Annual costs of Ilizarov removal were £19,000. Forty-six percent of patients were unaware of the removal process, gathering information from unprofessional sources.

We noted that general anaesthetic and analgesic requirements appeared to relate to psychosocial influences; there was no correlation between fracture configuration, elective reconstructive cases and operative techniques.

Prospectively 96% of patients found the information leaflet educational and beneficial. Eighty-seven percent of Ilizarov frames are now removed in clinic. One hundred percent of patients who had outpatient removal performed recommend this method. Entonox use was reduced to 15% with average VAS pain score 4.6/10 without analgesia. Patients felt happier. Projected annual cost savings were £3,000. One hundred percent rated the service excellent.

Conclusions: Professional education and a standardised outpatient removal process for Ilizarov frames, delivered by a dedicated specialist team, reduces morbidity and positively impacts service provision.

Implications: We would advocate our standardised, nurse specialist-led approach, with use of the test wire technique and patient information leaflet to facilitate an outpatient Ilizarov Frame removal service.

Disclosure: Nothing to disclose.

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OPIOIDS INCREASE LENGTH OF STAY. IS THERE A SAFE DOSE?

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Aims: The purpose of this study was to assess the number of patients receiving opioids pre-operatively and the association between opioid use and length of hospital stay.



Methods: A retrospective review of all patients who had arthroplasty surgery in the unit between 2016 and 2017. Six hundred and twenty-five patients were included, 15 were excluded. We looked at the GP letters to assess whether opioids were prescribed and the doses used. The patients are divided into four groups; opioid use ≤ 12 mg Morphine Equivalent Dose (MED), >12 MED, no opioids and allergy. A Kruskal-Wallis analysis was performed using SPSS.

Results: 61.3% (383) of our group were not on any opioids, in comparison to 13.9% (87) and 20.3% (127) who were on >12 MED and < 12 MED opioids respectively.

A Kruskal-Wallis H test was run to look at the difference in the length of hospital stay between patients according to their opioid use: ' >12 MED' (n = 87), ' < 12 MED' (n = 127), 'no Opioids' (n = 383) and 'allergy' (n = 28).

Visually inspecting the boxplot revealed the distributions to be similar between groups. Median length of hospital stay scores were statistically significantly different between the patient groups $\chi^2(3) = 10.220$, $p = .017$. Subsequently Pairwise comparisons were performed using Dunn's (1964) procedure with a Bonferroni correction for multiple comparisons. Adjusted p-values are presented. This *post hoc* analysis revealed statistically significant differences in median length of hospital stay scores between the "no opioids" (6.24) and the prescription opioids (6.75) ($p = .031$), but not between any other group combination.

Conclusions: Patients who are taking > 12 mg morphine equivalent dose of opioids are more likely to stay longer in hospital post elective arthroplasty surgery when compared to patients who do not.

Disclosure: Nothing to disclose.

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CAN 18F-FDG PET-CT BE USED TO DIAGNOSE FRACTURE-RELATED INFECTION?

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Introduction: One-stage reconstruction of infected non-unions may be associated with higher risk of failure. Indolent fracture-related infection (FRI) is challenging to diagnose. Previously accepted parameters such as CRP and ESR are now considered imperfect. 18F FDG PET-CT may allow diagnosis and localisation of indolent FRI, delineating more accurate treatment pathways. This study explores the use of one-stop shop 18F FDG-PET-CT to localise FRI in long bones.

Methods: A review of all PET-CTs undertaken for the diagnosis and localisation of FRI between June 2012 and June 2015. Scan usefulness was interpreted in the clinical context of decision to treat surgically and intra-operative microbiological sampling.

Results: One hundred and sixty-two patients (104 men), with a median age of 53 (range 19 - 88) were reviewed. One hundred and forty-one scans were reported positive (121 osteomyelitis and 18 soft tissue). Of the 121, surgical samples confirmed osteomyelitis in 43, a PPV of 58.1% and NPV of 100%. The PPV for diagnosis of FRI around an IM nail was 27.8%, and for a plate 63.0%. The NPV for both groups was 100%.

All patients with negative scans underwent one-stage surgery; samples were negative for infection. No patient with a scan reported as normal or inflammation returned during 24 months surveillance with evidence of infection, giving a negative predictive value of 100%.



Discussion: Revision surgery for unanticipated FRI in a nonunion is expensive, and further bone stock loss makes repeat surgery challenging. PET-CT helps confirm the absence of FRI and where present, delineate its extent before treatment. Better PPV for plate-related FRI may be misrepresentation of inflammatory activity as infection.

Conclusions: This first large real-world experience study of PET-CT provides a particularly high NPV for absence and good confidence for presence of infection, significantly aiding clinical decision-making. A negative PET-CT may reassure clinicians that one-stage surgery is safe with minimal risk non-union infection.

Disclosure: Nothing to disclose.

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POST-TRAUMATIC LOWER LIMB OSTEOMYELITIS: DIAGNOSIS AND LONG-TERM OUTCOMES

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Introduction: The aim of our study was to describe the demographics, treatment strategies and long-term outcomes of patients presenting with post-traumatic osteomyelitis (PTOM).

Patients and methods: All consecutive patients presenting to a tertiary centre with a confirmed diagnosis of PTOM of tibia/femur were retrospectively identified, with a minimum follow-up of five years. Treatment was individualised according to the patient need and preferences of the operating surgeon. Outcomes were assessed according pain levels and return to function. Limb function was assessed according to the Lower Extremity Functional Index (LEFI), and quality of life with EQ-5D-3L.

Results: Seventy-one patients (59 male; average age 46 years; 45/26 tibia/femur; 18 open fractures) were included. The average time from injury to presentation was 23.6 months (median 12 months; range 3 - 84 months). Patients were followed-up for an average of 27.8 months [m1] (22 months; 5 - 119 months) requiring on average 2.8 surgical procedures (2; 1 - 12), and 2.3 readmissions (2; 0 - 10).

Treatment of PTOM included removal of metalwork, radical debridement and administration of local and/or systemic antibiotics. RIA technique was utilised in 31 cases. Twenty patients required soft tissue coverage including a free-flap (10), pedicled flap (four), skin graft alone (one), or combination of techniques (five). Patients received, on average, 13.8 days (14 days; 0 - 47 days) of intravenous and 38.5 days (28 days; 0-365 days) of oral antibiotics.

Forty-four percent of patients were left with a moderately/severely-impaired limb, with eight patients requiring an amputation. Recurrence of disease occurred in 16 patients. Both the use of RIA and local antibiotics were associated with significantly improved outcomes ($p < 0.01$ and $p < 0.05$ respectively). LEFI and EQ-5D-3L scores were significantly lower than the general population.

Conclusions: PTOM carries devastating long-term effects to both the limb function and quality of life. Aggressive debridement and use of local antibiotic agents may improve patient outcomes.

Disclosure: Nothing to disclose.



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