Management And Clinical Outcomes Of Periprosthetic Hip Fractures In Comparison To Native Hip Fractures: A Retrospective Audit

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Introduction

- The rising incidence of periprosthetic proximal femur fractures (PPFs) presents a challenge for orthopaedic surgeons due to associated increased morbidity and mortality, prolonged hospital stays, and high healthcare costs.
- We carried out an audit to evaluate epidemiology and management of periprosthetic hip fractures in comparison to native hip fractures according to BHS Surgical standards for periprosthetic fractures & Best Practice Tariff (BPT) for Fragility Hip Fracture Care.
- Aims:
  - Compare time to orthopaedic review, orthopaedic admission and time to surgery.
  - Compare rate non-operative vs operative management between the two groups.
  - Evaluate reasons for delay in time to surgery.
  - Compare post-op mobilisation, complications, length of stay and mortality.

Methodology

- **Design**: Retrospective audit (Jan 2021–Dec 2024).
- **Data Source**: NHFD + local hospital database.
- **Inclusion**: All consecutive patients with native or periprosthetic fractures around the hip.
- **Exclusion**: Midshaft/distal femur fractures.
- **Classification**: Müller AO/OTA classification for native hip fracturs and Vancouver Classification for periprosthetic fractures.

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Results

	Native Hip Fracture (n = 1692)	Periprosthetic Hip Fracture (n = 111	*p-value*
Age, years, mean (IQR)	82 (12)	82 (12)	**<0.001**
Sex, n (%)			0.014
Male	572	45	
Female	1120	66	
ASA grade ≥III, n (%)	1485 (88)	96 (86)	**<0.001**
Median AMTS	8	8	>0.5
Pre-fracture mobility, n (%)			0.031
Independently mobile	649 (38)	29 (26)	
Mobile outdoors with x1 stick	282 (17)	28 (25)	
Mobile outdoors with x2 stick or frame	268 (16)	23 (21)	
Some indoor mobility	472 (28)	28 (25)	
No functional mobility	16 (1)	2 (2)	
Pre-fracture residence, n (%)			0.088
Own home	1276 (75)	93 (84)	
Residential home	389 (23)	18 (16)	
Nursing home	27 (2)	0 (0)	
Admission route			0.816
Admission via ED, n (%)	1631	108	
Admission as an inpatient, n (%)	61 (4	3 (3)	
Time to transfer (hours), median (IQR)	54 (67)	60 (96)	>0.5
Time to ward admission (hours), median (IQR)	7 (5)	6 (4)	>0.5
Time to surgery (hours), median (IQR)	22 (65)	52 (14)	**<0.001**
Non-operative management, n (%)	29 (2)	28 (25)	**<0.001**
Operative management, n (%)	1664 (98)	82 (74)	**<0.001**
Consultant surgeon involvement, n (%)	1102 (66)	76 (93))	**<0.001**
Delayed surgery, n (%)	323 (19)	56 (51)	**<0.001**
Post-operative mobilisation, n (%)			**<0.001**
Yes	1628 (96)	78 (70)	
No	42 (3)	4 (4)	
Not recorded	22 (1)	29 (26)	
Time to geriatrician review (hours), median (IQR)	16.94 (17)	18.91 (14.81)	0.247
Post-operative bone protection, n (%)	1297 (77)	82 (74)	0.707
Length of hospital stay (days), median (IQR)	15 (20)	17 (13)	**<0.001**
Reoperation for complication, n (%)	26 (2)	2 (2)	**0.041**
Inpatient mortality, n (%)	140 (8)	11 (10)	0.67

Conclusion

- Patients with periprosthetic hip fracture patients are more likely to experience delay in surgery and treated non-operatively(P <0.001).
- Post-op mobilisation was less likely in patients presenting with periprosthetic fractures.
- Inpatient mortality is higher for patient with periprosthetic fractures (p = 0.67).
- Complications are more likely in patients undergoing surgery for periprosthetic fractures (p = 0.04).
- Length of hospital stay is higher in patients with periprosthetic fractures (p< 0.001).
- Time to orthogeriatrician involvement was similar between the two cohorts.
- Delay in surgery mainly attributed to logistical reasons such as lack of theatre space, theatre overrun, equipment not available or surgeon not available.

Recommendations

- Early referral to orthogeriatrics team to facilitate early reviews in line with BPT for native hip fractures.
- Evaluate feasibility of dedicated peri-prosthetic fracture pathway like the NOF pathway.
- Appointed lead for periprosthetic hip fractures in collaboration with specialist hip surgeons in the unit.
- Audit access to surgical kits and surgical planning process.
- Establish how often loan kits are required for surgical management of periprosthetic fractures.
- Increased theatre space and prioritisation.
- ED to ED transfer with early discussion with Ortho SpR and Consultant hip surgeon for management.

References

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