

# Preliminary insights into mobility, pain recording and pain management during hospitalisation for low trauma hip fracture

Bui TA, Naylor JM, Penm J, Frost S, McEvoy L, Radhakrishnan S, Brady B, Dickson H, Harris IA, Johns N, Kimmel L, Lim D, Lieu D, Tcharkhedian E, Ni Chroinin D



## Background/Aims

- Effective pain management after a low-trauma hip fracture (LTHF) is important for pain relief, early mobilisation, prevention of complications, shorter hospital stays, and enhanced quality of life, as it helps reduce discomfort, and promotes recovery <sup>1</sup>.
- Early and regular mobilisation is also important for patients with LTHF <sup>2</sup>. This study prospectively evaluated local practices regarding pain management and mobility for LTHF patients at Liverpool Hospital.

## Methods

### Participant Recruitment

- **Inclusion Criteria:** Patients admitted with LTHF who underwent surgery.
- **Exclusion Criteria:** Patients without LTHF, those who went to private rehabilitation facility or those who died during the hospital admission.

### Pain and Mobility Assessment

- Routine documentation of pain scores (at rest, during movement) was used to report pain outcomes. The highest pain recorded each day (at any time) was noted here as 'the worst pain'. Mobility was assessed by: counting the number of times patients were mobilised during their acute and subacute hospital stays; and recording the day they first mobilised post-surgery. Additionally, percentage of days with pain limiting mobility over total length of stay (LOS) were recorded.

### Pain Medication Usage

- Opioid use was measured in morphine milligram equivalents (MME) for both daily and total consumption during the acute and subacute phases. Paracetamol usage was recorded in milligrams, while NSAID use was documented as a percentage of patients who received these medications.

## Results

- 118 patients were eligible over seven months. We categorised them by discharge destination: direct home discharge (DHD, n=37), subacute discharge facility (SDF, n=38), and nursing home (NH, n=43) (Table 1).
- Patients discharged directly home mobilised more frequently on post-operative day 1 (63% [n=24/37] vs. 34% for SDF [n=13/38], and 37% for NH [n=16/43]).

Table 1: Characteristics

Discharge destination	Directly home 31%	Subacute facility 32%	Nursing home 36%
Sample, n	37	38	43
Age (mean ±SD)	78.3 (9.6)	81.2 (8.3)	85.4 (7.6)
Female n(%)	20 (53)	23 (61)	28 (65)
Co-morbidities (top 5), %	Hypertension 50 Heart disease 43 Type 2 diabetes 33 Hyperlipidaemia 25 Mental health 18	Hypertension 61 Type 2 diabetes 47 Hyperlipidaemia 42 Heart disease 50 Renal disease 24	Hypertension 66 Dementia 51 Heart disease 42 Type 2 diabetes 42 Hyperlipidaemia 42
Acute LOS (days), median [IQR]	12 [8, 19]	13 [9, 21]	11 [8, 16]
Total LOS (days), median [IQR]	12 [8, 19]	33 [23, 53]	20 [9, 40]
First mobilised on Post-op day 1 (POD1), n (%)	24 (63)	13 (34)	16 (37)
Mobility occasions over total LOS, median [IQR]	7 [4, 11]	11 [9, 14]	4 [1, 9]

## Results

- Pain recording in general was suboptimal with median percentages of days with pain recordings ranging from 29% to 44% at rest, 16% to 29% during movement, and 67% to 75% for worst pain (Table 2).
- Patients discharged directly home (DHD) generally reported lower median pain scores at rest, and during movement but higher pain scores at worst compared to the SDF and NH groups (Table 2). The percentage of days with pain limiting mobility in DHD patients was lower for patients discharged home (8%) compared to those in SDF (30%) and NH (33%).

Table 2: Pain score

Discharge destination	DHD (n=37)	SDF (n=38)	NH (n=43)
Av daily Pain at Rest, median [IQR]	0.3 [0.0, 1.0]	0.4 [0.2, 1.0]	0.4 [0.0, 1.2]
Av daily Pain on Movement, median [IQR]	0.8 [0, 2]	0.9 [0.4, 1.7]	1.2 [0.0, 2.0]
Av daily Worst Pain, median [IQR]	1.7 [0.70, 2.5]	1.4 [0.7, 1.9]	1.3 [0.4, 2.0]
% Days Pain at Rest recorded (Morning), median [IQR]	44 [25, 69]	41 [29, 54]	29 [18, 50]
% Days Pain on Movement recorded (Morning), median [IQR]	28 [20, 50]	30 [19, 61]	16 [8, 39]
% Days Worst Pain recorded, median [IQR]	75 [64, 89]	74 [60, 83]	67 [50, 81]
% Days Pain Limiting Mobility over total LOS	8 [0, 50]	30 [19, 61]	33 [13, 50]

- Median daily opioid consumption over total LOS was higher among DHD patients (8 MME) compared to SDF (6 MME) and NH (3 MME) (Table 3). Most were prescribed opioids on discharge.

Table 3: Opioid use

	DHD (n=37)	SDF (n=38)	NH (n=43)
Av daily opioid use (MME) median [IQR]	8 [3.0, 15.0]	6 [1.6, 8.5]	3 [1.4, 7.0]
Total opioid use (MME) median [IQR]	37.5 [21.6, 134.1]	120.0 [37.5, 172.5]	42.2 [19.4, 81.1]
Opioids prescribed at discharge from acute, n (%)	26 (68) Oxycodone 18 (50) Tapentadol 4 (10.5) Hydromorphone 3 (7.9)	30 (79) Oxycodone 19 (50) Tapentadol 11 (28.9) Hydromorphone 2 (5.3)	30 (70) Oxycodone 18 (41.9) Hydromorphone 10 (23.5) Tapentadol 3 (7.0)

- Daily paracetamol consumption was consistent across all groups and NSAID use was low (<11%) (Table 4).

Table 4: Paracetamol & NSAID use

	DHD (n=37)	SDF (n=38)	NH (n=43)
Av daily paracetamol use (mg), median [IQR]	2939 [2738, 3500]	2711 [2187, 2884]	2421 [1714, 2750]
Total paracetamol use (mg), median [IQR]	37500 [16250, 47750]	58500 [33750, 86500]	36000 [16000, 77000]
Received NSAIDs, n (%)	3 (9)	4 (11)	2 (5)

## Conclusion

- Daily pain recording is suboptimal, rendering the patterns observed inconclusive
- As anticipated, DHD patients were generally more mobile on POD1 and reported fewer instances of pain-limited mobility.
- Despite low daily opioid consumption across all groups, a significant proportion of patients were still prescribed opioids at discharge, indicating a need for a weaning plan in the post-discharge period.

## References

- 1 Sanzone AG. *J Orthop Trauma* 30():p S1-S5, May 2016.
- 2 Aprisunadi, N et al. *SAGE Open Nurs.* 2023 Apr 11;9:23779608231167825