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Introduction

- Approximately 86% of hip fractures occur in individuals aged 65 years or older.
- The impact of hip fragility fractures on morbidity, mortality, and healthcare costs is significant, with approximately 50% of patients unable to return to independent living, and a one-year post fracture mortality rate of >30%.
- Effective pain management plays a pivotal role in the early, successful, and enhanced rehabilitation and recovery from hip fragility fractures. However, the use of opioid analgesics for pain management in this elderly, at-risk population is often associated with an increased risk of unwanted side effects such as delirium.
- Continuous fascia iliaca compartment block (CFICB) maintained for the first 48 hours after surgery has been demonstrated to both reduce pain intensity (when compared to patient-controlled intravenous fentanyl analgesia) and to lower the incidence of postoperative nausea, vomiting and pruritus.¹⁻³

Table 1. Patient Demographics and Characteristics

Variable	CFICB (n=96)	Non-FICB (n=113)	Total (N=209)	P
Age (mean±SD)	84.52±8.17	84.22±8.18	84.36±8.16	0.79
Gender, n (%)				0.74
Female	72 (75.0)	87 (77.0)	159 (76.1)	
Male	24 (25.0)	26 (23.0)	50 (23.9)	
Race, n (%)				0.28
White or Caucasian	83 (86.5)	103 (91.2)	186 (89)	
Black or African American	3 (3.1)	1 (0.9)	4 (1.9)	
Asian	2 (2.1)	0 (0.0)	2 (1.0)	
Other	7 (7.3)	9 (8.0)	16 (7.7)	
Unknown	1 (1.0)	0 (0.0)	1 (0.5)	
Ethnicity, n (%)				0.29
Hispanic or Latino	6 (6.3)	6 (5.3)	12 (5.7)	
Non-Hispanic or Non-Latino	88 (91.7)	107 (94.7)	195 (93.3)	
Unknown	2 (2.1)	0 (0.0)	2 (1.0)	
Duration of surgery (min; mean±SD)	80.34±30.63	80.67±30.89	80.51±30.68	0.94
Baseline Dementia, n (%)	40 (41.7)	34 (30.1)	74 (35.4)	0.08
Charleston Comorbidity Index				
Weighted score (mean±SD)	3.56±3.22	3.19±3.09	3.36±3.15	0.39
Weighted index, n (%)				
0	8 (8.3)	19 (16.8)	27 (12.9)	0.07
2 to 1	40 (41.7)	37 (32.7)	77 936.8)	0.16
4 to 3	21 (21.9)	29 (25.7)	50 (23.9)	0.5
>5	27 (28.1)	28 (24.8)	55 (26.3)	0.61

Method

- We performed a retrospective, single-center study of patients who underwent surgical repair of hip fragility fractures. A group of patients that received CFICB was compared to a group of patients who received standard of care analgesia (Non-FICB).
- Objectives were to compare postoperative pain scores, opioid consumption, hospital LOS, discharge destination, and hospital readmission in CFICB versus non-FICB patients. Also, we compared the incidence of occurrence of surgical, block and opioid-related complications between groups (e.g., delirium).

Results

- A total of 209 patients were identified who underwent surgical repair for hip fragility fractures (96 CFICB patients between July 2019 and August 2020; while 113 Non-FICB patients between July 2018 and June 2019). Table 1.
- Postoperative and total opioid consumption were significantly greater in Non-FICB versus CFICB patients (P<.05 and <.01, respectively). Figure 2.
 - While average pain scores at rest and activity and maximum pain score at rest were significantly elevated in the non-FICB group (P<.05 and <.01, respectively), there were no differences in minimum pain score at rest and activity, and in maximum pain score with activity between groups (Ps>.05). Figure 1.
 - There were no block-related complications and no significant differences in surgical and local joint complications between groups (Ps>.05). Baseline dementia was a predictor of postoperative delirium (OR=2.817, 95% CI =-1.084, 31.575; P<.001). Hospital LOS, discharge destination, and total hospital readmissions were not significantly different between groups (Ps>.05). Table 2.

Table 2. Length of Stay, Discharge, and Readmissions

Variable	CFICB (n=96)	Non-FICB (n=113)	Total (N=209)	P
PACU LOS, hours (median, IQR)	119.00, 71.00	89.00, 53.00	97.50, 59.00	<0.001
Hospital LOS, hours (median, IQR)	111.95, 42.67	106.20, 38.60	107.90, 41.90	0.24
Discharge destination, n (%)				0.59
Skilled nursing facility	87 (90.6)	107 (94.7)	194 (92.8)	
Home with health care	6 (6.3)	5 (4.4)	11 (5.3)	
Inpatient rehab facility	1 (1.0)	0 (0.0)	1 (0.5)	
VA facility	1 (1.0)	0 (0.0)	1 (0.5)	
Expired	1 (1.0)	1 (0.9)	2 (1.0)	
Total hospital readmissions, n (%)	18 (18.8)	22 (19.5)	40 (19.1)	0.8
Hospital readmission reason, n (%)	n=18	n=22	N=40	0.94
Surgery	3 (16.7)	3 (13.6)	6 (15.0)	
Multifactorial	10 (55.6)	12 (54.5)	22 (55.0)	
Unrelated	5 (27.8)	7 (31.8)	12 (30.0)	
Days to readmission, n (%)	n=20	n=22	N=40	0.64
30-d	11 (61.1)	15 (50.0)	26 (45.2)	
60-d	7 (38.9)	7 (31.8)	14 (23.8)	

Figure 1. Reported pain scores CFICB group & Non-FICB group

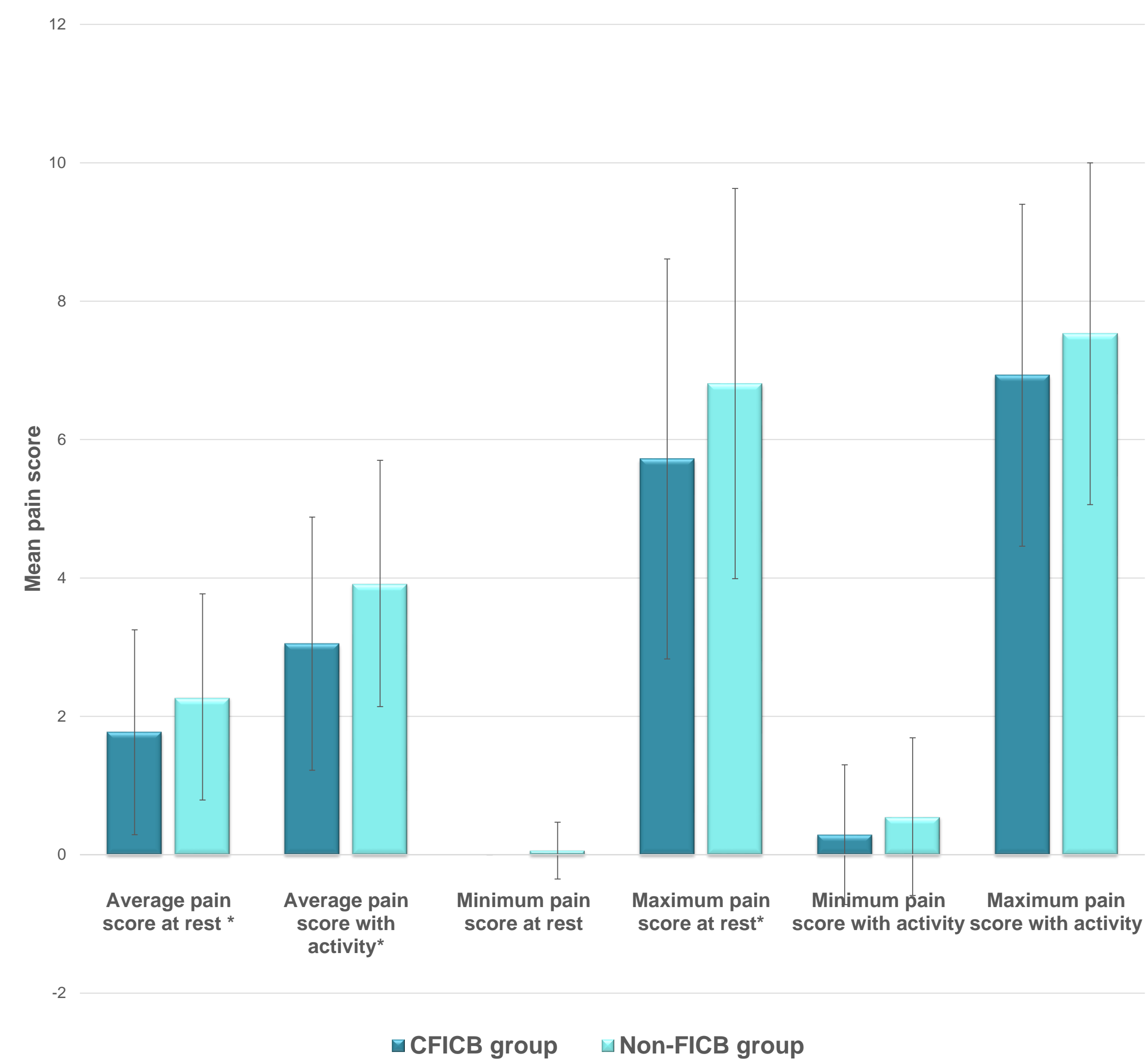


Figure 2. Postoperative and total opioid in MME

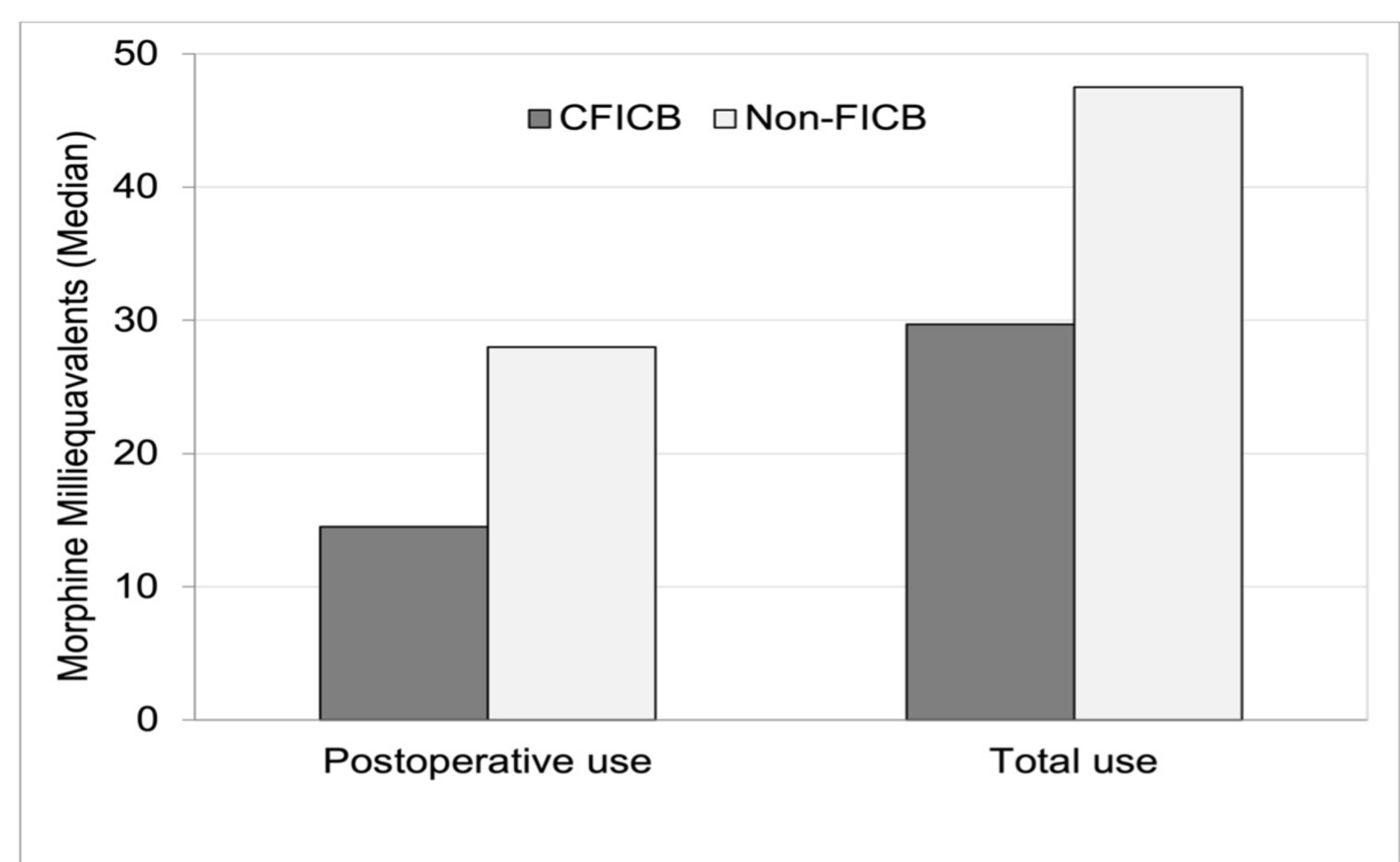


Table 3. Post Surgical Complications

Variable, # (%)	CFICB (n=96)	Non-FICB (n=113)	Total (N=209)	P
Opioid-related complications				
Delirium or Metabolic encephalopathy	33 (33.4)	34 (30.1)	67 (32.1)	0.51
Respiratory depression	1 (1.0)	0 (0.0)	1 (0.5)	0.46
Other	2 (2.1)	2 (1.8)	4 (1.9)	1
Total # of patients with any opioid event*	33 (34.4)	33 (29.2)	66 (31.6)	0.42
Surgery complications				
Thromboembolic event	3 (3.1)	4 (3.5)	7 (3.3)	1
Hematoma	1 (1.0)	0 (0.0)	1 (0.5)	0.46
Site infection	2 (2.0)	0 (0.0)	2 (1.0)	0.21
Sepsis	1 (1.0)	2 (1.8)	3 (1.4)	1
Kidney injury	20 (20.8)	13 (11.5)	33 (15.8)	0.07
Unplanned operating room return	2 (2.1)	1 (0.9)	3 (1.4)	0.6
Total # of patients with any surgery event*	27 (28.1)	19 (16.8)	46 (22.0)	0.05
Local joint complications				
Weakness	6 (6.3)	7 (5.7)	13 (6.2)	1
Decreased quadriceps activity	1 (1.0)	1 (0.9)	2 (1.0)	1
Numbness	2 (1.0)	1 (0.9)	3 (1.4)	0.6
Knee buckling	2 (2.1)	7 (5.7)	9 (4.3)	0.18

Conclusion

- This observational cohort study indicates that CFICB provides safe, effective and opioid-sparing postoperative pain relief for patients undergoing surgical repair of fragility hip fractures.
- Even though baseline dementia was higher in CFICB group, the incidence of postoperative delirium stayed similar between groups.
- The use of CFICB was associated with opioid-sparing efficacy and enhanced pain relief. However, it did not shorten the hospital length of stay nor did it lower the incidence of delirium.

References

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