Return to Work Following Treatment of Humeral Shaft Fractures: Comparing Operative and Non-operative Management in a Manual Laborer Population

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INTRODUCTION:

Closed humeral shaft fractures are a common orthopedic injury encountered in the adult population. Prior literature has shown equivocal long-term outcomes between operative and non-operative treatment of these fractures. However, the short-term restrictions with non-operative management may not be optimal for all patients, particularly those employed in manual labor jobs who may benefit from a faster recovery time and earlier return to work. This study aims to compare the effects of operative and non-operative treatment for closed humeral shaft fractures with regards to time to return to work. METHODS:

In this retrospective cohort study, patient chart review was conducted using data collected from an academic Level I trauma center. Adult patients presenting with isolated, closed humeral shaft fractures between 2020-2022 were identified. Demographic data, injury-specific information, and radiographic and clinical outcomes were collected and analyzed. The primary outcome of time to return to work was compared between the two groups. Secondary outcomes included complication rates, including nonunion rate.

RESULTS:

The study cohort comprised 106 patients, with 49 undergoing operative management and 55 undergoing non-operative management. Between the two groups, there were no significant differences in age, gender, smoking status, manual laborer vocation, or body mass index (Table 1). Of these patients, date of return to work was documented during follow-up visits for 35 operative patients and 18 non-operative patients. The operative group returned to work at an average of 66.7 days as opposed to 145 days in the non-operative group (p=0.0001). Interestingly, our data shows there were no significant differences in complication rates, specifically_with regard to infection, nerve injury, and nonunion rates (Table 2). The non-union rate was nearly 10% in the non-operative group, which is similar to that described in the literature. DISCUSSION AND CONCLUSION:

Although humeral shaft fractures may be successfully treated with non-operative management, there may be advantages to operative treatment, especially in patients who perform manual labor jobs and need to return to work as quickly as possible to limit loss of income. In our study, patients returned to work an average of two months faster after operative management. Our study also showed no statistically significant differences in complication rates between the two groups. This information may prove helpful in shared decision making for patients prioritizing a quicker return to work after this common

Patient Demographics						
Characteristic	Non-op (n = 55)	Op (n = 49)	P-value			
Age	41.4	37.6	0.17			
Gender (Males)	29 (52%)	34 (68%)	0.09			
Smoker (Yes)	18 (32%)	14 (28%)	0.643			
Manual Laborer (Yes)	18 (out of 20) (90%)	36 (out of 38) (95%)	0.461			
BMI	30.68	29.26	0.29			

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of manual laborers were similar between our 2 groups.	

Outcomes				
Measure	Non-op	Op	P-value	
Return to work (days after injury)	145.8 (18)	66.7 (35)	0.0001	
Infection (Yes)	0/24	6/46	0.064	
Nerve Injury (Yes)	5/28	10/47	0.72	
Non-union	2/23	1/46	0.21	

Table 2. Outcomes of operative versus non-operative treatment. Operative treatment allowed for return to work an average of about 80 days faster than on-operative management. No significant differences in infection, nerve injury, or non-union was noted between the two groups.