



MANAGEMENT OF DISTAL RADIAL FRACTURES IN THE ELDERLY: RESULTS AND COMPLICATIONS

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ABSTRACT

Fractures of the distal part of the radius are a major public health problem around the world, particularly among the elderly, with an annual incidence of 25.4 per 10,000 patients in India. In older adults, distal radial fractures are the most common upper extremity fracture. The financial effect of distal radial fractures in this cohort is well understood, and the costs associated with distal radial fractures are projected to increase in lockstep with the population over 65. In this adult population, the best treatment technique for distal radial fractures is also up for debate. We are aimed to achieve the results and complications of Elderly people in management of Distal Radial Fractures. The average incidence of 90-day post-injury medical complications was very low (36.5 per 1,000 fractures) and did not vary substantially between patients treated operatively and those treated nonoperatively ($p = 0.1631$). Regardless of the surgical technique, the average 1-year complication rate following operative management (307.5 per 1,000 fractures) was significantly higher than nonoperative management (236.2 per 1,000 fractures) ($p 0.01$). Hospital complications 90 days after an accident were uncommon (Table III). Wound-related complications, on the other hand, were significantly more frequent after surgery (odds ratio [OR] = 3.38 [95 percent confidence interval (CI) = 2.11, 5.41]; $p 0.01$). Non-operative management was found to be the most common treatment modality, and it was used more often in patients with a higher number and severity of medical comorbidities. Nonoperative treatment was linked to a substantial reduction in upper extremity-specific complications after one year. The use of operative management was linked to a decrease in fracture malunion, as well as a decrease in overall secondary operative procedures.

Key words: Distal Radial Fractures, Orthopaedics, Elderly Patient Therapy Complications, Drug Management.

INTRODUCTION

Fractures of the distal part of the radius are a major public health problem around the world, particularly among the elderly, with an annual incidence of 25.4 per 10,000 patients in India [1, 2]. In older adults, distal radial fractures are the most common upper extremity fracture. The financial effect of distal radial fractures in this cohort is well understood, and the costs associated with distal radial fractures are projected to increase in lockstep with the population over 65. In this adult population, the best treatment technique for distal radial fractures is also up for debate [3 – 7].

Regardless of the occurrence of malalignment or loss of reduction on radiographic imaging, patients 65 years of age tend to have satisfactory functional outcomes and care satisfaction. In the last decade, the use of open reduction and internal fixation (ORIF) in the elderly population has gradually increased [8]. Despite evidence of improved radiographic outcomes and grip strength in combination with ORIF, recent systematic reviews and meta-analyses have found that operative operation is associated with higher rates of complications.

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Furthermore, in this patient population, comparative studies between ORIF and Kirschner wire fixation have failed to show a difference in functional results, arguing for less invasive and less expensive percutaneous techniques [9]. The latest literature does not conclusively endorse a single treatment option for older adults with distal radial fractures. The Medicare-based database studies lend themselves to studying the population of adults 65 years of age; however, such analyses are subject to patient selection bias because privately insured adults 65 years of age will not be included [10].

To that end, the current study aimed to identify trends in the mode of treatment for distal radial fractures, with a particular focus on the relative use of nonoperative management with closed reduction and plaster casting versus operative intervention with closed reduction and percutaneous pinning with Kirschner wire (CRPP), external fixation, and ORIF in adults aged 65 years and older. The patient-specific demographic variables and comorbidities associated with both operative and nonoperative distal radial fracture treatment were independently evaluated. The study's secondary goal was to look at the rates of medical complications, postoperative complications, and the need for secondary operative procedures associated with each mode of management at 90 days and one year [11].

Aims & Objectives:

We are aimed to achieve the results and complications of Elderly people in management of Distal Radial Fractures.

Methodology:

Population Research

We pulled all claims of a primary or secondary distal radial fracture diagnosis code as a first instance to eliminate the risk for historical or pre-existing conditions in order to classify the analytical population of patients 65 years old who had been managed for distal radial fractures. We included diagnosis codes that included and excluded the distal part of the ulna, as well as treatment codes that were associated with an inpatient or outpatient experience. The treatments were divided into two categories: nonoperative and operative. The experience was classified as operational if both nonoperative and operative procedures were performed during the same visit. We found two interactions to be the same if they were 90 days apart (same fracture). No same-side surgical procedure within 90 days of the first instance of a distal radial fracture was considered nonoperative initial treatment.

Secondary operative treatments were described as operative procedures performed between 91 days and 1 year after the initial nonoperative care. External fixation,

CRPP, and ORIF were the three types of surgical procedure.

Unrelated Variables

Age, sex, race/ethnicity (Asian, black, Hispanic, white, unknown), census area (Midwest, Northeast, South, West, unknown), year of split, Charlson/Deyo Index, and individual component comorbidities were among the baseline characteristics. Using primary and secondary diagnoses, the Charlson/Deyo comorbidity index was estimated to classify 17 disorders one year prior to fracture (baseline period). This test was used to determine the comorbidity burden at baseline, and it was stratified into three groups for review.

The primary outcomes were the rates of complications, changes, and subsequent procedures at 90 days and one year. Neurological, cardiovascular, cardiac, gastrointestinal, urinary/renal, thromboembolic, and wound-related complications were among the ninety-day complications. Radioulnar instability, periprosthetic infection, ulnar neuropathy, fracture nonunion, fracture malunion, implant-related complications, tendon-related complications, median neuropathy, chronic regional pain syndrome, stiffness, and overall complications were among the upper-extremity-specific complications at one year.

Statistical Analysis:

For categorical and ordinal data, counts and percentages were used to characterise patient characteristics, while for continuous data, means and standard deviation were used. The chi-square test for categorical variables and the Kruskal-Wallis test for continuous variables were used in the univariate analysis. For the overall analysis and the analysis by treatment modality, complication rates were expressed per 1,000 fractures at 90 days and 1 year. To account for variations in patient characteristics, multivariable logistic regression models were used. Models were run for average 90-day and 1-year complication rates, as well as individual complications, with a covariate indicating surgery form (operative versus nonoperative [reference]) and patient characteristics being adjusted. When data points had 11 observations, data were suppressed to protect patient confidentiality, as per OptumLabs policy. All significance tests were two-sided, with a p value of less than 0.05 considered meaningful.

Results and Discussion:

The average incidence of 90-day post-injury medical complications was very low (36.5 per 1,000 fractures) and did not vary substantially between patients treated operatively and those treated nonoperatively ($p = 0.1631$). Regardless of the surgical technique, the average 1-year complication rate following operative management

(307.5 per 1,000 fractures) was significantly higher than nonoperative management (236.2 per 1,000 fractures) (p 0.01). Hospital complications 90 days after an accident were uncommon (Table III). Wound-related complications, on the other hand, were significantly more frequent after surgery (odds ratio [OR] = 3.38 [95 percent confidence interval (CI) = 2.11, 5.41]; p 0.01).

With a frequency of 11.5 percent (1,577 occurrences in 13,713 fractures), stiffness was the most common 1-year post-injury complication across all types of care, and stiffness was slightly more common following operative management. The average 1-year post-injury complication rate was lowest (23.6%) for nonoperative management and slightly higher (OR = 1.15 [95 percent CI = 1.04, 1.27]; p = 0.01) for operative management, with rates of 28.8%, 23.9 percent, and 32.0 percent for external fixation, CRPP, and ORIF, respectively. External fixation had a substantially higher incidence of implant-related complications (9.3%) than CRPP and ORIF (4.9 percent and 3.2 percent, respectively) (p 0.0001).

Specific fracture patterns or fracture classifications were also not accurately documented, so they couldn't be included in the comprehensive study, so

all fracture types were included. Furthermore, patients with multiple fractures, such as high-energy fractures caused by polytrauma, were not excluded from the study population.

As a result, it's likely that patients in the operative cohort suffered more serious or high-energy injuries than those in the nonoperative cohort. Since functional parameters like patient-reported outcomes measures were not recorded in this sample, no conclusions about the functional effects of intergroup differences can be drawn. Another drawback is the inability to report on individual study cohorts with a cell size of 11, which is designed to maintain patient confidentiality; however, several complications are found in a small number of patients and therefore could not be identified separately. To counter this, we included rank order lists for complications, so the reader could draw their own conclusions about the frequency of these occurrences. Despite these limitations, this broad review, A detailed assessment of secular patterns in fracture treatment in the population of patients aged 65 and older, which has not been previously reported.

Table 1: Study

	Treatment (no. of patients)		Unadjusted*		Adjusted*	
	Nonoperative	Operative	OR (95% CI)	P Value	OR (95% CI)	P Value
90-Day Complications	(N = 9,973)	(N = 3,740)				
Respiratory complications	65 (0.7%)	29 (0.8%)	1.19 (0.77, 1.85)	0.44	1.27 (0.81, 1.99)	0.30
Cardiac complications	42 (0.4%)	20 (0.5%)	1.27 (0.75, 2.17)	0.38	1.50 (0.86, 2.62)	0.15
Gastrointestinal complications	63 (0.6%)	17 (0.5%)	0.72 (0.42, 1.23)	0.23	0.75 (0.44, 1.30)	0.31
Urinary and renal complications	115 (1.2%)	29 (0.8%)	0.67 (0.45, 1.01)	0.05	0.87 (0.57, 1.32)	0.51
Pulmonary embolism	28 (0.3%)	16 (0.4%)	1.53 (0.83, 2.82)	0.18	1.50 (0.80, 2.82)	0.21
Deep venous thrombosis	50 (0.5%)	29 (0.8%)	1.55 (0.98, 2.45)	0.06	1.72 (1.08, 2.76)	0.02
Wound-related complications	34 (0.3%)	40 (1.1%)	3.16 (2.00, 5.00)	<0.01	3.38 (2.11, 5.41)	<0.01
Overall complications within 90 days	350 (3.5%)	150 (4.0%)	1.15 (0.95, 1.40)	0.16	1.31 (1.07, 1.60)	0.01
Reference = non-operative.						

CONCLUSION

Non-operative management was found to be the most common treatment modality, and it was used more often in patients with a higher number and severity of medical comorbidities. Nonoperative treatment was

linked to a substantial reduction in upperextremity-specific complications after one year. The use of operative management was linked to a decrease in fracture malunion, as well as a decrease in overall secondary operative procedures.

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