COMPARISON BETWEEN RESULTS OF OPEN REDUCTION INTERNAL FIXATION AND CONSERVATIVE TREATMENT IN COMMINUTED PROXIMAL HUMERUS FRACTURES IN ELDERLY

Ahmed Wahid Kandil, Mohie El-din Mohammed Fadel, Loay Hamdy Hussien Eshba

Department of Orthopedic Surgery and Traumatology, Faculty of Medicine, Alexandria University

Introduction

Proximal humerus fractures are one of the most common fractures in the elderly population and ranked third among the incidence of the fragility fractures. They most commonly occur in patients over 60 years of age following a low-energy domestic fall. Neer's classification is the most common classification system of proximal humerus fractures. It is based on six groups and four main fracture segments comprising the head, greater tuberosity, lesser tuberosity and shaft. The diagnosis is confirmed using plain radiographs and computerized tomography (CT) scan with 3- dimension reconstruction. There is no consensus on the method of choice for treating displaced 3- and 4-part proximal humerus fractures in the elderly. Decision making should be tailored and individualized according to the patient age, medical co-morbidities, functional demands and expectations. Non operative management, open reduction internal fixation and arthroplasty are the treatment options.

Aim of the work

To compare the radiological and functional outcome between open reduction internal fixation (ORIF) using locked plates and non-operative treatment of displaced three- and four-part proximal humerus fractures in the elderly population.

Patients and Methods

A Retrospective study was conducted on forty adult patients aged above 60 years who sustained isolated three/four-part proximal humerus fracture and were admitted to Alexandria El-Hadara University Hospital. The patients were divided into 2 groups. Each group included twenty patients. Group I underwent open reduction internal fixation by locked plate while group II was treated conservatively by sling immobilization. All patients were assessed retrospectively after at least one year as regard the radiological outcome using plain X-ray, the functional outcome using the modified Constant Murley score (CS), the quality of life using the The Disabilities of Arm, Shoulder and Hand (DASH) score and the extent of pain using the visual analogue scale (VAS).

Results

Table(1) : Comparison between the two studied groups according to functional outcome using the modified Constant score:

Constant score	Group I (n=20)		Group II (n=20)		Test of sig.	p
	No.	%	No.	%		
Poor	6	30.0	8	40.0	c^2= 1.254	^{MC}p= 0.846
Fair	3	15.0	3	15.0		
Good	8	40.0	5	25.0		
Excellent	3	15.0	4	20.0		
Min. – Max.	15.0 – 95.0		15.0 –93.0		U= 191.50	0.820
Mean ± SD.	63.15 ± 24.39		60.75 ±25.90			
Median (IQR)	71.50 (43.0 – 80.0)		69.0 (41.0 –79.0)			

χ^2: **Chi square test** MC: **Monte Carlo U: Mann Whitney test**
p: p value for comparing between **the two studied groups**

Table (2) : Comparison between the two groups according to the radiological outcome using plain X-ray:

Radiological assessment	Group I (n=20)		Group II (n=20)		c^2	^{FE}p
	No.	%	No.	%		
Nonunion	3	15.0	3	15.0	0.000	1.000
AVN	3	15.0	2	10.0	0.229	1.000
Glenohumeral OA	1	5.0	2	10.0	0.360	1.000
Valgus malunion	0	0.0	6	30.0	7.059*	0.020*
Varus malunion	2	10.0	4	20.0	0.784	0.661
Tuberosity malunion	2	10.0	5	25.0	1.558	0.407

χ^2: **Chi square test** FE: Fisher exact test
p: p value for comparing between **the two studied groups**

Conclusion

There is no statistically significant difference between open reduction internal fixation (ORIF) and conservative treatment of 3- and 4-part proximal humerus fractures in the elderly as regard the functional outcome, the quality of life, the extent of pain or the rate of complications including non-union, AVN and glenohumeral OA.
Malunion rate is significantly higher after conservative treatment compared to open reduction internal fixation of 3- and 4-part proximal humerus fractures.