COMPARISON OF THE RESULTS BETWEEN THREE AND FOUR CORNER ARTHRODESIS IN WRIST ARTHRITIS

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Introduction

Scaphoid non-union advanced collapse (SNAC) and scapholunate advanced collapse (SLAC) are predictable forms of arthritis that occurs after scaphoid non union and scapholunate instability respectively. The main presentation is pain and limited range of motion, There are many treatment options one of them include limited carpal fusion which was a well-established techniques for management of wrist arthritis with specific prerequisites which is healthy radiolunate joint.

Limited carpal fusion has been evolved over the years, including four corner arthrodesis (4CA) which specifically entails the excision of the scaphoid and the arthrodesis of the capitate, lunate, and hamate which is considered the gold standard treatment for elimination of pain and improving hand grip.

But 4CA has some drawbacks regarding limitation of wrist range of motion and non-union rate which leaded to development of new techniques with many modifications such as three corner arthrodesis with triquetrum excision (3CA).

Aim of the Work

The aim of this study was doing a comparison of three and four corner arthrodesis as a palliative procedures of wrist osteoarthritis.

Patients And Methods

Retrospective comparative study included 40 patients with SNAC or SLAC wrist admitted to Alexandria El-Hadra university hospital divided to two equal subgroups underwent 3CA and 4CA, respectively with a minimal follow up of one year. Patientsaged18-60yearswith stage II or III SNAC or SLAC wrists were included, while those with age above 60 years or with specific arthritis such as rheumatoid arthritis were excluded. Comprehensive history taking and physical examinations to assess pain, tenderness and patient satisfaction. Reoperation was also recorded and union was assessed radiologically using plane X rays (antero-posterior and lateral view).

Results

In group I (3CA), 55% of patients experienced mild intermittent pain, and 45% experienced moderate intermittent pain, while in group II (4CA), 65% of patients experienced mild intermittent pain, and 35% experienced moderate intermittent pain.

However, the p-value of 0.0845 indicates that there was no statistically significant difference in pain between the two groups. Table (1)

Patients' satisfaction levels varied between the two groups, with 3CA having more "Satisfied" patients (45%) and 4CA having more "Pleased" patients (50%) yet, p-value of 0.841 suggests that there was no statistically significant difference in overall satisfaction between the two groups. Table (2)

Both groups showed high union rates, with 3CA achieving 100% union and 95 % for 4CA which include one patient developed non union at 14 months follow up with back out of headless screws and was schedule for screw removal and total wrist arthrodesis. The p-value of 1.000 indicates that there was no statistically significant difference in union rates between the two groups. Table (3)

Table 1: Comparison between the two studied groups according to pain

Pain	Group I (n = 20)		Group II (n = 20)		p
	No.	%	No.	%	
Post-operative					
No	0	0.0	0	0.0	0.0845
Mild with movement	0	0.0	0	0.0	
Mild intermitted at wrist	11	55.0	13	65.0	
Moderate intermittent	9	45.0	7	35.0	

Table 2: Comparison between the two studied groups according to satisfaction

Satisfaction	Group I (n = 20)		Group II (n = 20)		p
	No.	%	No.	%	
Post-operative					
Dissatisfied	1	5.0	1	5.0	0.841
Moderately satisfied	3	15.0	3	15.0	
Satisfied	9	45.0	6	30.0	
Pleased	7	35.0	10	50.0	

Table 3: Comparison between the two studied groups according to union in PXR

Union	Group I (n = 20)		Group II (n = 20)		p
	No.	%	No.	%	
Non united	0	0.0	1	5.0	1.000
United	20	100.0	19	95.0	

Conclusion

Both 3CA and 4CA are well established procedures in the treatment of midcarpal osteoarthritis of SLAC and SNAC wrist with no statistically significant superiority regarding pain, patient satisfaction and union rate.

The choice between 3CA and 4CA technique can be made based on surgeon preference, and patient factors, as both techniques provide satisfactory pain relief and union rate.