#3081 - Posters

Is Above-Elbow Cast Better Than Below-Elbow Cast For Orthopaedic Management Of Distal Radius Fracture? A Randomized Study

Trauma / Hand & Wrist Trauma / Conservative Treatment & Rehabilitation

Marta Cuenca Llavall, Carlo Gamba, Felipe Andrés Mingo Fernandez, Javier Lizano Diez, Fernando Santana Perez

Parc de Salut Mar, Barcelona, Spain

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Introduction
Distal radius fractures are one of the most common fractures seen by physicians in the emergency room. Non-surgical treatment is recommended in elderly patients and extra-articular fracture. Different methods of immobilization and position of the wrist are described but evidence to suggest the best method of immobilization is insufficient.
Objectives
The aim is to compare the below-elbow cast with a above-elbow cast in terms of reduction loss of distal radius fractures.

Methods
A prospective randomized study was performed including patients over 55 years old with distal radius fractures assisted in the emergency room from September 2013 to September 2014 at our centre. All patients were treated with the same protocol: perifracture mepivacain injection under aseptic technique, manual closed reduction with finger traps and immobilization of the wrist with 15º palmar flexion, 10º ulnar deviation and slight pronation. Informed consent was obtained and below-elbow (cast A) or above-elbow (cast B) cast treatment was settled. A radiographic study was performed after reduction with AP and profile views. Only patients with good reduction were included in the study. The reduction was defined by volar tilt greater or equal than 0º, radial inclination greater than 20º, radial length greater than -1mm and articular surface separation less than 2 mm. Distal radius fractures were classified in four comparable groups, according to instability criteria: dorsal angulation over 20º, dorsal conminution, radial shortening over -2mm, articular fracture and associated distal ulnar (styloid) fracture: Group 1: fractures without instability criteria, Group 2: fractures with one of the instability criteria, Group 3: fractures with two instability criteria and Group 4: fractures with three or more instability criteria
A radiographic study (AP and profile views) was performed in consecutive controls at week, three weeks and six weeks later. Three radiological parameters were measured to check reduction in each control: volar tilt, radial inclination and radial height. Statistical analysis was done with SPSS v 15.0 pack

Results
72 patients finally matched inclusion criteria. Mean age was 77 years (55-96). 69 (95,8%) patients were female and 3 male. Affected side was right hand in 31 (43%) cases while left was in 41 (57%). 97% of the included patients were right-handed. Group with cast A and B were comparable for sex and age distribution: no differences en fracture characteristic

(displacement risk factor) either were observed.
Both cast types, globally, had similar results finding no differences in lost of reduction parameters: volar tilt loss (P = 0,8), Radial tilt loss (P = 0,07) and Radial height loss (P = 0,1) were all similar comparing patients only for cast A or B.
Then results were analysed for each instability group (1-4). Group 1 was too small and was not statistically relevant. Group 2 showed no differences between two cast types for all measured parameters. Group 3 and group 4 showed a lesser lost of radial tilt in cast type A (P = 0,02 and P < 0,001).

Conclusions
Orthopaedic treatment for distal radius fracture is an effective option when correctly indicated. Results form this study allows to think that above-elbow cast is not better than below-elbow cast in terms of loss reduction. But also that below-elbow cast controls more efficiently radial tilt reduction. Below-elbow cast is a good treatment for distal radius fracture treated conservatively