

Cast Versus Plate In The Treatment Of Both Bone Forearm Fracture In Older Children: Functional Outcome At Maturity

Munajat I, Jeyasilan K

School of Medical Sciences, Universiti Sains Malaysia, Kubang Kerian Kelantan

Background

Both bone fracture at forearm is usually treated with cast for children less than 10 years old but for those 10 and above the treatment is debatable¹. This study compares between the treatment of cast and plate for both radius ulna fracture in older children approaching skeletal maturity. The age of patient at time of fracture, post reduction angular correction of radius and ulna and forearm rotational limitation were compared with the functional outcome during the assessment at skeletal maturity.

Methodology

Fifty patients were involved in this study, 25 patients treated with cast and another 25 treated with plate. All those chosen are 10 years and above. They were assessed at least 2 years after treatment and at skeletal maturity to allow remodeling. For boys the skeletal maturity age was taken as 16 and girls as 14².

Those selected were contacted after reviewing their radiological and treatment records and have been asked to come to Hospital Universiti Sains Malaysia for further evaluation. During evaluation, the functional ability of the involved hand and forearm has been assessed. A radiological assessment of affected limb was also done through a proper antero- posterior and lateral radiograph³. The functional outcome was assessed based on activity of daily living, the differences of the pronation and supination of the affected forearm with the normal arm and graded using Price method into excellent, good, poor and fair outcome. The angulations of the radius and ulna post reduction and at skeletal maturity were documented. Data was statistically analyzed using SPSS version 22.

Results

In this study both the groups treated with cast and plate had either excellent or good functional outcome assessment by Price score. In the cast group, there was a statistically significant correction of both radius and ulna angulation in post reduction and after skeletal maturity. ($p < 0.05$)

Majority of the patients have excellent price grading with 44 patients (88.0%) and only six patients under good price grading (12.0%) in both the groups.

This shows that even the cast group treated without surgery can achieve excellent (88.0%) and good (12.0%) functional outcome at maturity. However, this is only true if the maximum post reduction angulation of radius and ulna is 15 degrees in the cast group, as angulation more than that may need surgical reduction.

Mean age at time of fracture in both the groups were 12.12 with the youngest age at the time of fracture was 10 years old and 15 years old was the eldest patient.

For the limitation of supination in the cast group, there was 5.00 degree of median compared to 0 degree of median in plating group and for the limitation of pronation in the cast group there was 4.00 degrees of median compared to 0 degree of median in plate group.

Conclusion

This study showed that the result of casting is comparable to plate fixation in both bone forearm fracture to achieve excellent functional outcome in older children approaching skeletal maturity provided the maximum radius and ulna angulation post reduction in the cast group is 15 degrees.

References

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