



Invited Commentary

A commentary on “A novel hybrid fixation versus dual plating for both-bone forearm fractures in older children: A prospective comparative study” (Int. J. Surg. 2019;70:19–24)



Dear Editor,

Thanks for the study by Zhu et al. on the clinical outcomes of hybrid fixation using elastic stable intramedullary nailing (ESIN) for the ulna and plate screw fixation for the radius in the Hybrid group, compared with dual plating fixation in the comparison group for children ages between 10 and 16 years with forearm fracture of both bones [1]. Forearm fractures are among the most common lesions in adolescence. The incidence is increasing during the last decade. The treatment goals are to re-establish the axial and rotational stability, and to restore the functional range of motion in the upper extremity. However, controversies exist regarding the optimal method of fixation in children between the ages of 10 and 16 years. Greenbaum reported that open reduction induced a local periosteal destruction leading to reduced blood supply to the injured bones and delayed callus formation. Wright and Glowczewskie [2] explained the healing delay by the presence of a relative watershed zone in the intraosseous blood supply to the ulna in the mid-diaphyseal region. Behnke et al. [3] found hybrid fixation to be an acceptable method to treat both-bone diaphyseal forearm fractures in skeletally mature patients. However, delayed union and nonunion of the ulna after ESIN fixation of pediatric forearm fractures suggest that dual ESIN for forearm fractures in older children is infeasible. Feng et al. [4] found the union rate of ulna at three months postoperatively in the hybrid group was significantly higher than that in the dual-ESIN group for old children. Thus, the study by Zhu et al. was conducted to assess the hybrid treatment more precisely. The results showed that the Hybrid group had better results than the dual plating construct group in the incision length of ulna (1.88cm vs 6.03cm), duration of surgery (46.92min vs 56.6min) and hospital costs (¥10.92 × 103 vs ¥13.50 × 103). However, the mean times of intraoperative fluoroscopy was significantly longer in the hybrid group than in the dual plating group (11.63 vs 4.73). The rates of complication, rates of union, times to union and early functional outcome were similar between the two groups. Thus, we can conclude that hybrid plate–nail constructs was an acceptable means of treating diaphyseal both-bone forearm fractures in

children aged between 10 and 16 years.

There are several limitations of this study: (1) the sample size was too small, (2) this is a non-RCT study. The retrospective design is an obvious weaknesses which limited the level of evidence of the study, (3) the fracture pattern, the degree of soft tissue injuries, surgeons' experience with implants and surgeons' comfort level with implants were possible inherent selection biases which might influence outcomes.

Provenance and peer review

Invited Commentary, internally reviewed.

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