Operative Treatment of Dislocated Midshaft Clavicle Fractures: Plate or Intramedullary Pin Fixation? A Randomized Controlled Trial

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Purpose: Over the past decades there has been a paradigm shift toward more aggressive treatment of dislocated midshaft clavicle fractures (DMCF). Open reduction and internal plate fixation and intramedullary (IM) nailing are the most commonly used operative techniques. The aim of this study was to compare short and midterm results of plate fixation and IM nailing for DMCF.

Methods: A multicenter randomized controlled trial was performed in four different hospitals. A total of 120 patients, age 18-65 years, were included and treated with either plate fixation (n = 58) or IM nailing (n = 62). Pre- and postoperative shoulder function scores and complications were documented up until 1 year postoperatively. Statistical significance was set at $P < 0.05$.

Results: There were no significant differences noted between the two surgical interventions for both the Disabilities of the Arm, Shoulder and Hand (DASH) and Constant-Murley score at 6 months postoperatively (3.0 and 99.2 for the plate group and 5.6 and 95.5 for the IM group). The area under the curve for the DASH score for the time period between 6 weeks and 6 months did differ significantly in favor of the plate group ($P = 0.02$). There was only one recorded nonunion, which occurred in the plate group, and there were 2 implant failures in the IM group. The cumulative number of complications was high and mainly implant-related. However, 1 year after surgery only 3% of patients in the plate group and 6% in the IM fixation group still experienced implant related irritation.

Conclusion: Patients in the plate group recovered faster than the patients in the IM group, but groups were similar at final follow-up. The rate of major complications was low yet implant-related complications occurred frequently and could often be treated by implant removal.

- The FDA has not cleared this drug and/or medical device for the use described in this presentation (i.e., the drug or medical device is being discussed for an "off label" use). For full information, refer to page 600.