Does Indomethacin Cause Nonunion When Used for HO Prophylaxis After ORIF of Distal Humerus Fractures?

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Background/Purpose: Open reduction and internal fixation (ORIF) is the standard of care for displaced distal humerus fractures in adults. One of the common problems associated with distal humerus fractures is heterotopic ossification (HO), and it is reported to occur up to 49%. HO is commonly associated with decreased range of motion (ROM). Indomethacin can be used after surgical treatment of distal humerus fractures but it may complicate the fracture healing; as a nonsteroidal anti-inflammatory medication, it may cause nonunion of the fracture. The effect of indomethacin on fracture union in distal humerus fractures has not been reported previously. The purpose of the study was report the radiographic and clinical outcomes of patients with distal humerus fractures treated with ORIF and indomethacin postoperatively.

Methods: All adult patients (>18 years old) treated for distal humerus fracture with ORIF with a minimum follow-up of 6 months were included in the study. All patients were placed on indomethacin 75 mg PO once a day postoperatively for 6 weeks. The arm was placed in a sling for comfort postoperatively. Full active and active-assisted ROM was started on post-operative day 1. Weight bearing was started after fracture union. All patients were followed at 2 weeks, 6 weeks, 12 weeks, 6 months, 1 year, and annually afterwards. A retrospective review was performed and the following data were collected: age, gender, history of HO, associated injuries, fracture type per OTA classification, type of surgical exposure, union at 3 and 6 months, time to union, HO, loss of reduction, failure of fixation, wound-healing problem, infection, and ROM of elbow and forearm.

Results: 29 patients (mean age 46 years; range, 24-67) were included in the study. The majority of fractures were intra-articular (OTA classification: 2 patients Type 13 A, 5 patients 13B, and 22 patients Type 13 C). Mean follow-up was 19 months (range, 12-51 months). Posterior paratricipital approach with olecranon osteotomy was utilized in 14 patients, posterior paracipital approach (without osteotomy) in 12 patients, and lateral approach in 3 patients. There was no nonunion of distal humerus or osteotomy site. Type I HO occurred in 3 patients, and Type II HO in 2 patients. Osteotomy fixation failed in one patient in 2 weeks requiring revision. There was no infection or wound-healing problem. The mean elbow extension was 8°; mean elbow flexion was 142°. Mean forearm supination was 72° and mean forearm pronation 77°.

Conclusion: Nonunion has not occurred when indomethacin was used for prophylaxis against HO after ORIF of distal humerus fractures. Good to excellent ROM of elbow and forearm has also achieved using a standard aggressive protocol.

See pages 47 - 108 for financial disclosure information.