

Immobilization in External Rotation After Primary Shoulder Dislocation Did Not Reduce the Risk of Recurrence: A Randomized Controlled Trial

Liavaag S, Brox JI, Pripp AH, Enger M, Soldal LA, Svenningsen S. *J Bone Joint Surg Am.* 2011; 93(10):897-904.

Each month, this column summarizes a Level I article and provides a thought-provoking review on how the treatment in the article has either stood the test of time or serves as an example of how conventional wisdom has changed.

Primary traumatic anterior shoulder dislocations have a high risk of recurrence. Reduction followed by immobilization in internal rotation for 2 to 3 weeks in a sling or a brace is the traditional treatment method. Treatment with immobilization in external rotation is a new concept that seeks to decrease the rate of recurrent dislocation. The authors compared immobilization in internal and external rotation after anterior shoulder dislocation to determine whether either affected the shoulder dislocation recurrence rate after 2-year follow-up.

A total of 257 patients were managed for primary traumatic

shoulder dislocation at 13 hospitals between January 2005 and February 2008. Of those patients, 188 (153 men, 35 women) met inclusion criteria and agreed to participate in the study. Block randomization was conducted for each hospital, and concealed randomization was performed with all patients using sealed envelopes. Ninety-five patients were allocated to the internal rotation group and 93 were allocated to the external rotation group. No demographic differences existed between groups.

Patients were randomized to have their shoulder immobilized in either internal or external rotation. Radiographic

examination was performed before and after reduction, and patients were placed in immobilization immediately after reduction. For patients in the internal rotation group, a normal collar and cuff device or a sling and a swathe were used. For patients in the external rotation group, immobilization was achieved using a shoulder immobilizer (15° UltraSling ER; DonJoy, Vista, California), with 15° of external rotation.

Patients in both groups were instructed to remain immobilized for 3 weeks. All patients were asked to keep immobilized as much as possible and record daily use of the sling as one of the following: none, up to 8 hours, between 8 and 16 hours, and more than 16 hours. Patients who remained immobilized more than 16 hours every day and night for at least 20 days were deemed compliant.

Forty-five (47.4%) patients in the internal rotation group and 63 (67.7%) in the external rotation group were compliant with those requirements.

Patients were followed up for a minimum of 2 years, with the primary outcome measure of recurrent dislocation within 24 months of initial dislocation. Fifty-one (27.1%) patients had a recurrent shoulder dislocation. The recurrence rate was 24.7% (23/93) in the internal rotation group and 30.8% (28/91) in the external rotation group, with no significant difference found between the groups ($P=.36$). Mean time to recurrence was 11.6 months (range, 2-24 months).

The authors concluded that immobilization in 15° of external rotation does not reduce the rate of recurrence for patients with first-time traumatic anterior shoulder dislocation. 



REVIEW

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Primary traumatic anterior shoulder dislocations are a relatively common injury seen by orthopedic surgeons. The traditional management generally includes a closed reduction followed by a period of immobilization with the arm in a sling or cuff and collar. This typically results in the extremity being immobilized in internal rotation. Recent studies by Itoi et al^{1,2} have challenged this traditional management algorithm. In a magnetic resonance imaging study¹ and a prospective, randomized clinical study,² they were able to demonstrate significantly reduced rates of recurrent dislocations in patients who were immobilized in external rotation. Other studies have failed to reproduce these results.

In the current well-designed prospective, randomized, controlled multicenter study, the authors followed 188 patients who were randomized to immobilization in either internal or

external rotation. They had excellent patient compliance and follow-up but were not able to demonstrate a difference in the primary outcome measure of recurrent dislocation between the 2 groups.

Recurrent dislocations following primary, traumatic shoulder dislocations remain a challenging problem. Based on the results of this study, it appears that the position of immobilization following closed reduction does not affect the rate of recurrent dislocation. The conflicting results between this study and those of Itoi et al^{1,2} suggest that this is an area that warrants further research.

REFERENCES

1. Itoi E, Sashi R, Minagawa H, Shimizu T, Wakabayashi I, Sato K. Position of immobilization after dislocation of the glenohumeral joint. A study with use of magnetic resonance imaging. *J Bone Joint Surg Am.* 2001; 83(5):661-667.
2. Itoi E, Hatakeyama Y, Kido T, et al. A new method of immobilization after traumatic anterior dislocation of the shoulder: a preliminary study. *J Shoulder Elbow Surg.* 2003; 12(5):413-415.

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