

Journal club: 24 November 2011

Attendees: Mr A. Brooksbank, Mr D. Russell, Mr D. Howie, Mr Nicholas Holloway
West of Scotland Journal Club

Theme: Surgery of the Elbow and Hand

1. **Robinson CM, Court-Brown CM, McQueen MM, Wakefield AE.**

Estimating the risk of non union following non operative treatment of a clavicular fracture.

J Bone Joint Surg [Am] 2004;86-A:1359-65.

2. **Hovellius L, Eriksson K, Fredin H, Hagberg G, Hussenius A, Lind B, Thorling J, Weckström J.**

Recurrences after initial dislocation of the shoulder; Results of a prospective study of treatment.

J Bone Joint Surg [Am] 1983;65-A:343-49.

Estimating the risk of non union following non operative treatment of a clavicular fracture.

Reviewer: Mr D Howie

Summary

1. Purpose

To evaluate the prevalence of and risk factors for nonunion in a cohort of patients who were treated non-operatively after a clavicular fracture.

2. Methods

860 clavicular fractures (662 with complete follow-up), managed non-operatively (collar and cuff 2 weeks, then mobilised as able) Putative risk factors noted. Followed up at 6, 12 and 24 weeks, X-rayed at each point and x-ray features categorised. Survivorship and multivariate analysis was performed.

3. Results

Diaphyseal Fractures had increased risk of non union if they were displaced, comminuted, female, and/or older. Lateral 1/5 fractures were only found to have increased risk of non union if they were displaced and/or older. They use a cox regression model to predict fracture non-union on the basis of the patient's risk factors and provide tables to calculate prognostic index which can then be plotted on a graph predicting non-union at 6,12 and 24 weeks. Separate tables and graphs for diaphyseal and lateral fractures.

4. Conclusions

Non union remains uncommon at 24 weeks. 90% of diaphyseal fractures that are unhealed at 12 weeks unite by 24 weeks (80% for lateral). A useful model for predicting non union based on patient risk factors is proposed.

5. Critique

Strengths

Well executed prospective observational cohort study into predicting the risk of clavicle fracture non union. Good numbers of patients especially compared to other studies. Excellent mathematical modeling and analysis.

Methodological Concerns

No mention of Ethical approval being sought. Relatively low predictive power - given that most unite; they found overall non union was 6.2% of 662 - therefore actual non unions may only represent 41 patients in this study.

Data is presented in a very mathematical manner making interpretation and potential application of their model more cumbersome than it could be, with the important equations to calculate risk hidden in the tables, and a combination of a two tables and two graphs being required.

Recurrences after initial dislocation of the shoulder; Results of a prospective study of treatment.

Reviewer Mr Nicholas Holloway

Summary

1. Purpose

To compare treatment of 1st time anterior shoulder dislocation with either immobilisation or early mobilisation in a group of patients aged 12-40 years

2. Methods

In 1978, 263 patients recruited in 27 Swedish Hospitals, randomised by day of the week in 6 largest hospitals and to one treatment only if a small hospital. 3 groups created, immobilisation for 3-4 weeks (112), early mobilisation as pain allowed (104), and a group for

patients who failed to comply (41). Patients were contacted in group 1 at 1-2 months to ensure compliance. All patients contacted at 2 years and asked regarding new dislocation events, whether an operation was planned or had occurred, and whether the shoulder had resolved or was symptomatically unstable. Pre and post-reduction radiographs were also analysed for fractures. Statistical analysis was performed with use of the Chi-squared test.

3. Results

There was no significant difference in recurrence rates between the different treatment groups. There was, however, a significantly increased rate between age groups, less than 22yrs, 23-29yrs, and 30-40yrs, with lowest rates occurring in older patients. A significant proportion of patients received no analgesia or sedation prior to manipulation. Greater tuberosity fracture has a zero re-dislocation rate vs 32% dislocation rate without ($p < 0.001$). Young patients 12-22 don't get tuberosity fracture (3% vs 43% and 30%). Impression fractures no significant difference in dislocation rates.

4. Conclusions

The researchers concluded that there was no difference between immobilisation and early mobilisation. They also concluded that greater tuberosity fracture 'protected' the shoulder from re-dislocation, ie that a soft tissue injury produced greater residual instability than a fracture. They also expressed the desire to follow the patients for longer to further examine instability trends, and that a longer period of immobilisation may improve stability in the younger shoulder and the desire to explore this in further studies.

5. Critique

Strengths

Multicentred, randomised trial

Few patients lost to follow up (6 in total)

Methodological Concerns

Randomisation was conducted with a poor method; a patient could essentially choose their treatment by attending a particular hospital.

Were the treatment groups that different, a sling was provided to all the early mobilisation patients and instructions given to mobilise as pain allowed. How long before patients mobilised?

Inclusion and exclusion criteria for each group were convoluted

Further results were presented in the discussion