

Journal Club: 29 November 2013

Chairmen: Mr BA Rogers & Mr DM Ricketts
Brighton & Sussex University Hospitals NHS Trust

Theme Hip Fractures

Parker M, Cawley S, Palial V. Internal fixation of intracapsular fractures of the hip using a dynamic locking plate: two-year follow-up of 320 patients. *Bone Joint J* 2013;95-B:1402-1405.

Reviewers: Mr Daniel Wilson & Mr Neil Chotai

Summary

Investigate the clinical results of fixed angle locking plate for management of intracapsular fractures of the femoral neck

Purpose

- Targon Femoral Neck (TFN; Aesculap B. Braun, Tuttlingen, Germany)
- Up to 4 proximal 6.5mm telescopic cancellous screws crossing fracture site, to allow rotational control
- 2 distal cortical locking screws

Methods

- Consecutive series 320 patients
- Closed reduction under image intensification and fixation with TFN
- Between 2 and 4 proximal screws
- FWB post op (PWB 6/52 for young displaced #NOF)
- Followed up in hip fracture clinic until 1 year where possible/telephone
 - Union assessed radiographically (union/non-union/AVN)
 - Pain score
 - Mobility
 - Change in residential status
 - Complications (revision, periprosthetic fracture, etc)

- Further telephone consultation at 2 years

Results

- 320 patients
 - 208 displaced
 - 118 undisplaced
- Mean age 76
- 130 male (40.6%) 190 female (59.4%)
- 109 patients died during follow up (34.1%)
- Lead author surgeon 84% cases
 - Other consultant 3%
 - Trainee 13%
- Mean surgical time 48mins
- 175 patients (55%) had 4 proximal telescrews
 - 143 patients (47%) 3 proximal telescrews
 - 2 patients (0.6%) 2 proximal telescrews

Conclusion

- For undisplaced fractures: AVN 4.5% and non-union 2.7%. Revision surgery to hip replacement in 4.5%.
- This compares to revision rates of 7.7 to 9% in other studies utilising internal fixation.
- For displaced fractures: AVN 11% and non-union 15%. Revision surgery to hip replacement 20.7%
- AVN 9.5% and nonunion 30.1% previously described with revision rates 20-30%.
- 'Might represent an advance in the treatment of this difficult and common fracture'

Critique

Overview

- TFN may be an advance for internal fixation of intracapsular #NOF
- No clear hypothesis
- Prospective series, no randomisation, no controls
- No comment on reduction of displaced fractures
- Clear outcome measures

Strengths

- Prospective trial
- Relevant study population
- 2 year follow up

Methodological Concerns

- Was there any randomization?
- No control group
- Mean age population 76. other studies younger group.
- Bias – the author ‘was involved in design and development of the TFN’
- Exclusion of basicervical fractures¹
- None of the other studies defined AVN
- Differing follow-up times^{5,6}
- Questionnaire

Conclusion of Critique

- Paper adds little to our current knowledge.
- It may be a superior device to other forms of fixation in undisplaced fractures.
- Methodological issues such as no comment on reduction give cause for concern.
- Needs further RCT to evaluate before change in practice

Kendrick BJL, Wilson HA, Lippett JE, McAndrew AR, Andrade AJMD. Corail uncemented hemiarthroplasty with a Cathcart head for intracapsular hip fractures. *Bone Joint J* 2013;95-B:1538-1543.

Reviewer: Mr Kebba Marenah

Summary

Retrospective case series study of 306 uncemented Corail femoral stem inserted for patients who had suffered fracture neck of femur.

Purpose

To assess the outcome of patients undergoing cementless hemi-arthroplasty with the Corail stem for intracapsular hip fractures at 30 and 365 days post-operatively

Methods

- Retrospective study
- April 2010 to July 2012
 - All pts with displaced IC # NOF
 - Cementless hemi-arthroplasty (collared)
 - N = 306 (216 F / 90 M)
- Pt demographics recorded - table
- Surgical parameters recorded
 - Grade of surgeon
 - Operative time
 - Intra-op complications
 - Post-op complications
- Primary outcome measure
 - No of pts returning to own home at 30 days
- Secondary outcome measure
 - Mortality at 30 & 365 days
 - Mobility status

- Additional analysis of effect of surgical grade on the primary and secondary outcome measures

T-test used to compare data with p-value of <0.05

Results

- 46.5% return to own home @ 30 days
 - 51.4% of those from own home
- 30 day mortality – 5.8 %
- 1 yr mortality – 11.1%
- 60.7% of age <85 achieved mobility with 1 stick or less at 1 year
- Complications:
 - 24 intra-op calcar fractures (7.8%)
 - 5 deep infections (1.6%)
 - 2 dislocations (0.7%)
 - 2 late revisions
- 2.9% re-operation rate (9 of 306)

Conclusion

- Comparable 30day mortality, but no peri-operative deaths
- Acceptable re-operation rate of 2.9%
- High iatrogenic fracture rate likely due to learning curve – not assoc with poorer outcomes
- “modern uncemented hemi-arthroplasty can provide a satisfactory result”

Critique

Overview

- Level IV Evidence
- Data collection and exclusions not fully explained
- Difficult to understand results and poor correlation with tables and figures
- No statistical analyses to back up conclusions drawn

Strengths

- Controversial topic – seeking to add weight to argument for use of cementless stems in trauma
- Some limitations of the study identified including size and short follow-up
- Identify lack of comparative data
- Study population representative

Methodological Concerns

- Were all stems collared?
- No comparison of outcomes with “control” group
- No statistical analyses of results
- Unclear data collection methods, exclusions and follow-up
- Minimal evidence for conclusions drawn
- No details of morbidity/mortality figures for cemented group for comparison
- Outcome measures do not correlate with perceived complications of using cemented stems promoting their switch

Conclusion of Critique

- Aims of the study unclear
- Results are confusing and misleading
- Unable to advocate use of uncemented over cemented stems without comparing outcomes from the two groups
- The high complication rate is explained by a learning curve. Are the authors suggesting:
 - that these operations should be undertaken only by hip surgeons?
 - that a learning curve is acceptable?
 - cementing technique does not have a similar learning curve