“Socioeconomic deprivation predicts outcome following radial head and neck fractures” by Duckworth et al

Introduction

- 6 authors in total from the Edinburgh Orthopaedic Trauma Unit (didn’t realise at first)
- I chose this articles because:
  - Recent
  - Considering deprivation as a predictor of outcome sheds a different light on the epidemiology of orthopaedic trauma
- Article contributes a different stance to other articles and compliments the rest of the literature.
- They draw on prior evidence, using lots of references from credible sources
- Emphasise relevance of topic – 5% of all fractures at the proximal forearm
- They conclude that most deprived patients had the poorest outcomes

Study Design

- Aim made very clear – “to determine if socioeconomic deprivation influenced the short-term outcome following a fracture of the radial head or neck”
- However, no clear indication of hypothesis
- The study itself was a retrospective review of a prospective study, meaning that the authors revisited data they collected between 2003 and 2005
  - This study looked at functional outcomes and predictors more generally
  - Data was originally used to prove a different hypothesis
    - Removes some aspect of bias in the results
- Inclusion and exclusion criteria were appropriate and clear, however:
  - Concomitant fractures and patients with soft tissue injury were excluded and I wasn’t sure why
  - 8 patients lost and I’m unsure why
  - What about patients who didn’t attend hospital? – more likely to be deprived
    - Access problems
    - Fear of doctors
    - Distrust of medicine

Methodology and Results

- Classification of fractures was carried out by “two trauma-trained fellows”
  - Disagreements were settled by senior authors (NOT COMPLETELY BLINDED?)
  - Deprivation is difficult to hide – doctors may treat patients differently
- Assessed socioeconomic status using Index of Multiple Deprivation
  - Divides regions into specific class zones
  - SE status is not constant through regions
  - Deprivation is a dynamic concept
    - Degree of deprivation may change throughout study
    - Does not duration of deprivation
    - Does not consider past deprivation
- Other factors were clearly recorded – normal distribution of age, no gender predominance
- Patients were all managed according to consultant’s judgment – management strategy may vary between patients (social class considerations)
- Used short musculoskeletal function assessment (SMFA) to assess outcome – validated tool
  - Patient-reported outcome – subjective and variable
  - Rated according to function and bother to patient
  - Definitions of “bother” and “function” may change according to social position, functional needs (e.g. comparing runner and chess-player)
  - Maybe that’s what we need – patient-centred outcome
  - No baseline SMFA given – was there disability before hand
  - SMFA has shown some discrepancy with surgeons opinion in past (Dowrick et al, 2006)
- Quite a lot of variability in data (especially in least deprived group) but statistical levels confirmed significance
- Used multiple regression to reduce effect of confounding variables
- Results were clearly stated
  - no significant difference between deprivation quintiles 3 and 4
  - didn’t claim correlation

Discussion

- The authors were clear and open about the strengths and weaknesses of the study, outlining limitations:
  - Strengths
    - Large sample size
    - Prospective collection of demographic and follow-up data
    - Recognised method of categorising deprivation
  - Weaknesses
    - Acknowledge other factors that predict outcome (such as fracture classification)
    - Lack of additional data on confounding variables (smoking, employment status, physical activity, employment, ethnicity, treatment compliance)
    - Authors suggest room for improvement in this respect
    - Didn’t look at long-term outcomes
    - Error in interpreting radiographs
    - Co-morbidities among most deprived
- The discussion supports conclusion
- Conclusion answers aim and all results were included
- No conflicts of interest – did paper presenting primary data?

Impact

- Article brings different perspective to this field – first article on topic
- Authors indicate that further research is required to build on the findings, with the aim to influence future care planning