Reviewer's report

Title: Surgery versus Plaster in the Treatment of Distal Radius Fractures

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Reviewer: Joseph Dias

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Review BMC DRF Cast versus surgery

This project seeks to answer whether distal radius fractures can be managed in a plaster cast or need internal fixation with a plate.

Population: 90 adult patients with this fracture. According to the authors these will be enough to address this question. However this is based on an assumption that there will be a 15 point difference between groups with those operated having a mean DASH score of 4. On what data do the authors base this expectation? This is a very big difference with an effect size of almost 1. The recently completed DRAFFT study on Distal Radius fractures judged that a very much larger sample size (n=390) was needed (Costa et al.).

The inclusion criterion of “acceptable closed reduction obtained according to current Dutch guidelines within 12 hours after presentation at the Emergency Department (ED)” is a bit confusing. Do authors mean that all displaced fractures will be reduced in 12 hours and then immobilized in a plaster slab until consent is obtained?

Exclusion criteria include disorders of “Bone metabolism”. This is a very wide definition so what precisely is excluded? Is Osteoporosis excluded, if so how is this defined? How will impaired wrist function before assessment of eligibility be defined? Would patients with fragility fractures be excluded if they have heberdens nodes or trapeziometacarpal joint OA?

How will patients be treated from presentation to consent ( a period of around 1 week) and what is the expected interval to surgery? Has the study set an outer time limit for the surgery? For example could surgery be done at 4 weeks after injury and/or presentation? Will patients who have surgery be left free or also immobilised in a cast or splint after surgery?

The anticipated attrition rate of 10 % is based on other studies? Or is this just an estimate?

The main outcome is the general upper limb DASH score rather than a wrist specific score although the authors are collecting the PRWE an a secondary outcome. What was the reason to choose a more generic score as the primary outcome measure?

The primary time point of 1 year is reasonable as many previous studies have
used this as a primary time point. The authors should provide references for this.

In addition pain, range and radiological measurements will be assessed. If the PRWE is being assessed this provides a pain domain so why is this being duplicated?

The outcomes are also assessed at 3, 6, 12, 26 and 52 weeks. What is the reason, with references, for this frequency?

The method of blinding of the observers is probably flawed as the observer could also possibly palpate a plate edge etc. It is probably not needed if conducted by independent clinicians and especially as the primary outcome is a PROM.

I have not addressed minor errors of language (e.g. medial nerve) but would encourage the authors to ask an expert to review the language.

The research question is worthy of careful investigation.

The superiority study is constructed on an estimation that surgery restores normality and so this assumption is likely to be incorrect, bearing in mind that the normal DASH score in a population is almost never 4 it would be unlikely that most patients after surgery will achieve this level (see papers on norms e.g. The DASH and the QuickDASH instruments. Normative values in the general population in Norway T. Aasheim and V. Finsen 2013).

The submitted protocol needs major revision before being considered for publication.

**Level of interest:** An article of importance in its field

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I have been one of the Principal Investigators of the UK DRAFFT study comparing K-wires and Plate fixation in Distal Radius Fractures but do not consider myself to have any competing interest