Reviewer's report

Title: The effect of a pre- and postoperative orthogeriatric service on cognitive function in patients with hip fracture: randomised controlled trial (Oslo Orthogeriatric Trial)

Version: Date: 22 February 2014

Reviewer: Ian D Cameron

Reviewer's report:

General comments

This is an important paper that reports selected outcomes from a randomised trial of orthogeriatric care following hip fracture. There have been a number of publications from this trial and more are likely to be published in the future.

This report is an analysis of cognitive outcomes. There is also a report of a selected mobility outcome which does not necessarily fit with the rest of the paper. The authors argue that its inclusion is a process measure to show that the intervention has been successfully implemented and this argument is accepted.

As the authors point out, it can be hypothesised that an intervention of the type provided might have an impact on the incidence of delirium, and also possibility its severity and duration. As a result, the intermediate and longer term cognitive outcomes of the hip fracture patients might be improved by the intervention. Therefore the question posed by the investigators is highly relevant to the provision of clinical treatment following hip fracture.

The design of the study is a pragmatic randomised trial, which is appropriate. The methods used including masking of outcomes assessors and the approach to the statistical analyses are also appropriate.

In general the measures used are suitable. The use of the combined primary outcome measure is novel. It probably has reasonable validity. The authors have also reported that there is no difference between the intervention and control groups on each of the components of the primary outcome measure separately.

The intervention and control groups are well matched. A good rate of follow-up has been achieved and, in a hip fracture population, death should not be considered a loss to follow-up.

The analyses appear to rule out an effect of the intervention on cognitive outcomes. The authors could consider further sensitivity analyses to determine what sample size would have been needed to rule out a clinical significant difference in cognition with the intervention. Another approach would be to provide confidence intervals with reference to the between group differences at the 4 and 12 month follow-ups for the primary outcome and major secondary
outcomes.

The multivariate analysis of predictors of cognitive outcome is not directly relevant to the main hypothesis but this analysis is of interest more broadly and therefore it is reasonable to include it.

With reference to the protocol paper for this study the analyses performed appear to match the published protocol.

Minor Essential Revisions

The only specific point about which the authors could respond is the issue of the precision of the estimates of the between group differences in outcomes and whether the possibility of clinical important differences have been ruled out.

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

No known competing interests.