Reviewer’s report

Title: A pilot randomised clinical trial of physiotherapy (manual therapy, exercise and education) for early-onset hip osteoarthritis post-hip arthroscopy

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Reviewer: Gregory Parkin-Smith

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A pilot randomised clinical trial of physiotherapy (manual therapy, exercise and education) for early-onset hip osteoarthritis post-hip arthroscopy.

Joanne L Kemp, PhD, PT; Kate Moore; Trevor Russell; Marlene Fransen; Kay M Crossley
Pilot and Feasibility Studies

A much improved paper and, therefore, far closer to being published.

Some items just need a bit more attention by the authors to strengthen the paper and offer clearer recommendations for a future definitive trial.

Page 3 Line 44: The sentence "In addition,…was determined" would be reworded, something like this: "The research process was evaluated using interviews and an estimated sample size for a definitive study is offered."

Page 5 Line 77: The authors state that no level 1 evidence exists, but has does level 2 or other types of evidence say regarding possible outcomes of rehabilitation after hip arthroplasty. The authors may also insert and discuss current best practice or clinic policy despite the availability of level 1 evidence.

Page 6 Lines 94-99: This final section could be cleaned up by stating the aims and the objectives (objectives omitted in the paper) - the aims being the goals of the pilot study and the objectives of how the aims will be achieved. For example:
"The primary aims of this pilot study are to determine the feasibility of a future definitive study, estimate the sample size for such a definitive study, and offer recommendations regarding research design. To achieve these aims the objectives are to:

1. Interview participants and practitioners/therapists regarding (a) their willingness to participate in the study, and (b) their opinions on the research process;

2. Analyse collected data regarding (a) participant enrolment, (b) participant adherence with the intervention, and (c) participant losses to follow-up;

3. Estimate the sample size of a future fully-powered study via sample size calculations using the data from this pilot study; and

4. Offer a set of recommendations that would support the implementation of a definitive study.

The secondary aim is to offer insights with regards to the possible effect of the proposed intervention(s) post-arthroplasty for early hip OA based on the selected measurement outcomes. To achieve this aim the objectives are to:

1. Collect data at specified time-points using the selected outcome measures from the two intervention groups;

2. Analyse this data using the appropriate inferential statistical (ANCOVA), effect size calculations (Hedges g), and manually evaluate the change in scores within- and across-the two intervention groups."

Page 11 Line 217: The authors state that the recruitment rate was 35% (i.e. 65% non-recruitment rate), which seems very high, although the authors state later that this rate was good (line 268),
but then later also contradict themselves by saying that it would take a long time to recruit participants and more surgeons would be needed to participate to fulfil the sample size requirements. I think it would be fair to say that the recruitment rate is slow and that practical means would need to be explored to speed up recruitment e.g. include multiple clinical sites or practices, with each site recruiting participants. But, indicate how this would impact funding and participation. Also, in the Discussion section, offer the reader a summary of how long the whole study would take and why i.e. do some basic calculations and estimates based on recruitment rate.

Page 12 line 225: The effect sizes calculated (Hedge's d) seem quite high and I wonder if this is a good correlation with real-life practice - probably not. Particularly since the statistical analysis did not really show any significant differences between the intervention groups, nor were the differences in means between groups very high, it suggests that the true treatment effect size is likely to be lower. Probably in the order of around 0.25-0.45. Make sure that effect size calculation were done using between-group difference data and not within-group difference, since between-group difference is what this study is really interested in. Consequently, the sample size estimate is likely to be higher, possibly in the order of 120/group. My calculated estimates based on the data in this pilot trial is around 75-130/group, depending on the data chooses to use.

Page 14 Line 282: The authors state that the average age of participants was 31 years old, which seems very young for hip arthritis. In real-life practice, early/mild or Grade 1-2 hip arthritis is probably more a feature of the 50-55 age group. Of course, this different age group would have different outcomes with treatment. The authors should offer a deeper analysis on how the age will affect recruitment and outcomes, and make recommendations in the paper about the appropriate research design accordingly. These is some comments made by the authors in the Discussion but this is a bit thin.

Pages 15-16 Lines 297-327: the authors indicate that the data did not show promising results and the Tables do not show much change in the measurement outcomes both within- and between-the intervention groups. This suggests that the intervention are not likely to be useful in clinical practice. Although the purpose of this pilot study if not to offer definitive outcomes or inferences, but nonetheless, the results of this trial would dampen the enthusiasm for a future study if the expectation of outcomes is negative. How could the authors turn this impression
around? Is the study indeed feasible despite these negative insights? Did your pilot study sample itself need a slightly larger sample size to overcome this problem?

Page 18 Line 364: The authors could offer the reader a summary (a list) of the recommendations of the study linking these recommendations to the aims of the study as set out in the Introduction/Background section.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

An article of importance in its field

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Acceptable

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