Reviewer's report

Title: Intensive, personalized multimodal rehabilitation in patients with primary or revision total knee arthroplasty: A retrospective cohort study

Version: 0 Date: 18 Nov 2019

Reviewer: Justine Naylor

Reviewer's report:

General
The issue under scrutiny is important. The idea - to provide intensive inpatient rehabilitation to people with complications 3 months post-surgery - is novel, but the design is very weak.

The discussion and conclusion should be shortened and tempered by the fact the conclusions must be interpreted with caution. As the authors say, the results can be used to inform a larger more definitive study (RCT hopefully), but at best they show a weak signal of possible effect.

The title is somewhat misleading. The intervention was given to those with complications. The patient may or may not have persistent pain as the title suggests. In fact, resting pain was not an issue as per Table 1. The title should reflect that this study was done using people with complications (and more problematic still, referred for unknown reasons as it is an assumption that all had a complication).

Ethical approval
It is unusual the study did not require ethical approval. I will leave it up to the Editor to decide whether this is fine.

Abstract
Change "Outcomes following total knee arthroplasty (TKA) are of high interest as recent…" to simply "Recent evidence has shown that many patients suffer from persistent pain and impaired function after their surgery.

In the Abstract, you need to add people were referred to inpatient rehabilitation about 3 months after surgery.

You also need to state this is a retrospective study

Introduction
Lines 49-54
This Needs rephrasing as things are around the wrong way - "Since end-stage 51 knee OA is often treated with knee replacement, the number of total knee arthroplasties performed 52 has drastically increased over the past years, and the increase is expected to continue due to a 53 growing elderly population, an increased prevalence of obesity as well as a sedentary lifestyle 54 among both elderly and young people (3).
Suggest start with "Rates of TKR are increasing due to increasing prevalence of knee OA….."

Lines 59-61 For this sentence - Only 33% of the patients reported no functional 60 disability after primary TKA and 20% of patients stated that their primary TKA was not successful 61 in allowing them to resume their regular physical activities (7). As" -

What is the context? That is, how many yrs after TKR?

Line 68 - change "regime" to "regimen"

Lines 76 - 78 - "A case study has proposed that patients with complications after TKA, such as chronic pain, lack of 77 effect from initial rehabilitation, infection or revision surgery, requires a more intensive 78 rehabilitation than standard treatment (4). The"

The sentence does not make sense

Line 85 - "Given the lack of knowledge within this patient population, it is"

Change to "Lack of knowledge about management of persistent pain,…." 

Methods 
Lines 107 - 108 - "Patients without complete follow-up 108 from baseline to re-test were excluded from analysis. Patients without complete follow-up 108 from baseline to re-test were excluded from analysis. Overall, 166 patients with primary TKA and 109 54 patients with revision TKA were included in the analysis (figure 1). Since all patients are 110 referred to rehabilitation and therefore, must receive the treatment, it is not possible to sample a 111 control group."

These are results unless you are saying this is a retrospective study and this is part of your inclusion criteria?

(If retrospective, you need to specify this)

Lines 167-176 - The technique to measure active knee extension seems odd. It is possible the clinician could not stabilise the femur in lying. I suggest results concerning this outcome be regarded with caution.

Lines 185-186 - when discussing effect size, what is the unit of measure ie 0.5 SD????
Discussion
Limitations
Add the following limitations –

1. Retrospective study

2. No control so the effect size could be an exaggeration of the intervention given time is not controlled for

3. People with complications comprised the population so you did not really target those specifically with chronic persistent pain. Thus, the angle of the paper needs to change - ie treatment for people with complications (unspecified complications) as opposed to those with persistent pain.

Additional comments -

a) Lines 247-248 - "The results indicate that patients with postoperative complications or lack of effect from initial rehabilitation can benefit from intensive, multimodal rehabilitation. Both."

The study does not show this. You have no data on what happened in the first 3 months post-surgery. All you can conclude is that people referred for late-stage intensive, inpatient-based rehabilitation after TKR or revision TKR improve significantly after 3-weeks of therapy. You do not know what would have happened without therapy and you do not know if this changes the incidence of persistent pain longer term.

b) Lines 248-250 - "Both the primary and revision TKA groups had significant improvement in all outcome measures, except pain at rest for the 250 revision TKA group."

c) The TKR gp did not change either (table 3?)

d) Lines 285-287 - The current study showed that a patient population with post-surgical complications could benefit from intensive, multimodal rehabilitation over a three-week period, although their previous rehabilitation often had only little or none effect. This"

Again you don't know what initial rehab did or did not do.

e) Lines 303-304 - you should provide a table comparing characteristics of people included and excluded to show if similar or not.
Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No

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

No

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

No

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I am able to assess the statistics

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