Reviewer's report

Title: Instrumented gait analysis and individually tailored interdisciplinary interventions for children with cerebral palsy: A randomised controlled trial protocol

Version: 2
Date: 2 June 2015

Reviewer: Merel Brehm

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Instrumented gait analysis and individually tailored interdisciplinary interventions for children with cerebral palsy: A randomised controlled trial protocol

Major Compulsory Revisions

1. Clearly written manuscript with an interesting study aim. Please find below several suggestions for further improvement of the manuscript. One major concern I have, relates to the standardisation of the interventions. To what extent will these be standardized? Are they described in a protocol (how and what to do exactly both when information of IGA is provided and when not) and will people be trained to perform the interventions? Or is it up to the therapist/surgeon to decide what to do? Standardization (at least to so some part) and training seem important since the interventions will be performed in 26 difference settings.

Minor Essential Revisions

Title:

1. Suggestion for revising: Instrumented gait analysis for individually tailored interdisciplinary interventions in children with cerebral palsy: A randomised controlled trial protocol

Abstract:

2. General: rather lengthy abstract.

3. Page 1, line 25: “From the text is does not become clear what is meant with the ‘CP follow-Up Program’. A clarification would be helpful for the reader.

4. Page 2, line 29: ...result in improved gait pattern… should be: result in an improved gait pattern...

5. Page 2, line 32 ... to those in ‘care as usual’... should be: …to those following ‘care as usual’.

6. Page 2, line 32 + 38: what is meant with ‘care a usual’? Is that any interdisciplinary individually tailored interdisciplinary intervention addressing impairments though not identified by instrumented 3-dimensional gait analysis? Please clarify. From the abstract it does not become clear.

7. Page 2, lines 39-40: Information on the instruments/tests for assessing the secondary outcome measures should be provided (between brackets).
Introduction:
8. Page 3, line 66: remove ‘their’ from the sentence.
9. Page 3, lines 70-71: The relevance of identifying features in the gait pattern reflecting underlying neuro-musculoskeletal impairments with IGA is not described. E.g. is IGA expected to (better) guide clinical decision-making compared to the information gained from the GMFCS, GMFM and FMS? This should be addressed.
11. Page 4, lines 81-83: suggestion for revising: For example, the gait Deviation Index (GDI) and Gait Profile Score summarize the overall gait pattern into a single score for each patient, whereas Gait Variable Score...
12. Page 4, in lines 87-89 it is stated: However, whether interdisciplinary interventions directed towards impairments identified by IGA in children with CP result in improvements in the gait pattern compared with ‘care as usual’ without IGA has not been investigated. It seems that Lofterod (reference 19) also compared the results of treatment on gait when following gait-analysis recommendations in children with CP. What is the added value/relevance of the current study? This should be stated more convincingly.
13. Page 4, line 90: suggestion for revising: ….which of the two modalities (i.e. interdisciplinary intervention directed towards impairments identified with or without IGA)….etc.. In addition, when changing the text as such, the following sentence can be removed: line 93: The two modalities differ in the use of IGA.
14. Page 4, in lines 93-95 it is stated: An overview of the two modalities of individually tailored interdisciplinary interventions is described in Figure 1. This information should not be part of the purpose statement of should be described in the methods section.

Methods:
17. Page 5, lines 116-119: suggestion for revising/condensing: A prospective, single blind, parallel group, balanced randomisation [1:1] study will be conducted, performed in accordance with guidelines of the CONSORT statement [20, 21].
18. Page 6, line 131: was there a specific reason for the small age range for children (5-8) in term of the applicability of IGA in children aged 5 and generalizability of the results to older children?
19. Page 6, line 139: Will the IGA only be performed in one center (the Motion Analysis Laboratory at Odense University Hospital)? How practical that for patients?
20. Page 7, lines 155-163: To what extent will the interventions be standardized?
Are they described in a protocol (how and what to do exactly, etc.) and will people be trained to perform the interventions? Standardization and training is important since the interventions will be performed in 26 difference settings. This should be addressed/described as such in the study and manuscript.

21. Page 7-9: rather lengthy description of the IGA protocol. This should be condensed.

22. Page 9, line 210: For all interventions, a follow up period of 52 weeks is chosen. For surgery and BTX this seems appropriate. However, for orthoses and physical therapy, effects may be present earlier (and they may even disappear over time (e.g. because of growth). For that reason, why not incorporate a gait analysis and 1-minute walk test assessment at 26 weeks?

23. Page 9-12, Measurement: very lengthy description of the outcome measures. This should be condensed.

24. Page 10, line 229: from the IGA gait cycles, kinematic data, and spatio-temporal parameters will be derived. Why not kinetic data? For clinical decision-making this information will also be useful.

25. Page 13, lines 307-312: adverse events are reported. Could some examples of adverse events (per intervention) be given in the text?

26. Page 14, line 318: How realistic is the 10% change based on Schwartz et al, as found in diplegic children with CP, aged 3.1 to 43.3 years, who only underwent orthopedic surgery, compared to the children in the current study (GMFCS I and II, aged 5-8, and undergoing different types of interventions)?

Figures en tables
No comments

Level of interest: An article of importance in its field

Quality of written English: Acceptable

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

Declaration of competing interests:
I declare that I have no competing interests