Reviewer's report

Title: Vestibular asymmetry predicts falls among elderly patients with multisensory dizziness

Version: 1 Date: 17 April 2013

Reviewer: Jorunn Helbostad

Reviewer's report:

The manuscript assesses fall risk related to vestibular asymmetry, sensory status, balance performance, postural sway and self-perceived handicap in 55 older people with multisensory dizziness, by using a prospective study design. Results demonstrated that vestibular asymmetry assessed by the headshake test gave the highest odds for experiencing a fall in the one year follow-up (OR=3.4).

Major compulsory revisions
1. The patients included were defined to have a multisensory dizziness assumed to be multifactorial. The authors include vestibular function and somatosensory function in the assessment. Impaired vision, which is highly prevalent in older people, and highly affects balance and fall risk, is however not included, neither as a part of the multifactorial dizziness syndrome or as an assessment. This needs to be discussed as a limitation of the study.
2. The Method chapter says that patients with multisensory dizziness who had been referred to physiotherapy at a Primary Health Care Centre specialized in vertigo and dizziness. However, neither inclusion nor exclusion criteria are described. Which diagnostic criteria or functional criteria are needed to define the patients as having multisensory dizziness? Could it be that the sample included patients not having multisensory dizziness??
3. The sample size is very small, and the inclusion criteria are very loosely defined, making it difficult to conclude very strongly on which factors that increases the chance of falling. This needs to be discussed, and the conclusions on implications for practice should be moderated.
4. One of the risk factors for falling that are assessed is self-reported dizziness. The manuscript gives no information on whether self-reported dizziness previously has been found to increase risk of falling.
5. Sample size calculation is loosely described. More details are needed here: Which rational has been used to say that use 50% more falls among patients with poor standing balance? Which power and which alpha levels have been used to calculate sample size?

Minor essential revisions
1. Background
a. Line 4: remove “Consequently” from the sentence
b. line 7: “age” should be change to “high age” or “increasing age”

2. Method
a. Sensory status: use the term vibration sense instead of sensory status when describing the test, as sensory status is a much wider concept. Also the criteria for regarding the test as normal needs to be added. This is used as criteria in Table 1.

b. Clinical balance measures: more precise information about walking in a figure of eight, heel to toe on a line, and walking as fast as possible, is needed. A modified figure of eight: what was the size of the circles, and what were the instructions? For heel to toe walking: what was the length of the walk, and what were the instructions to the participants? For the 30 m walk, did you use a manual stop watch?

c. Falls: Some more information about the OASIS system for registration of fall is warranted.

d. Ethics: It is described that participants and no participants were taken care of. The “non-participants” have not been described earlier, and who were they? Were they those not included, and for which rationale?

3. Discussion:
a. Falls have been collected retrospectively at different time points, using interviews. The limitations of using such collection on falls should be discussed, compared to using falls calendars.

b. Paragraph 4, starting with “The epidemiology”: the meaning of the paragraph is unclear.

c. Paragraph 6, starting with “Dizziness can also..”: This argument is not related to falls or the aim of the study.

d. Paragraph 7: It is referred to the Dix-Hallpike test which has not been used in the present study. If this test is to be used to argue for useful tests, more information and a reference is needed.

4. Conclusion:
a. The conclusion said that “all patients who reported three falls or not”, which was only 3 persons!!! This should be removed from the conclusion.

5. Tables:
a. Table 1: SD of age should be added

b. Table 2: Interquartile ranges needs to be added to the different outcomes reported in the table.

Discretionary Revisions
1. The title uses “prediction of falls” as concept, while in the objectives and in rest of the manuscript the focus is on “risk of falling”. I would argue that the study is about prediction of falls, as falls are the main end point, and not factors previously associated with falls (fall risk factors, like e.g. balance problems). The authors are asked to look carefully on how the concepts are being used.
Level of interest: An article whose findings are important to those with closely related research interests

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

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

Declaration of competing interests:

No competing interests