Reviewer's report

Title: Identifying Protective and Risk Factors for Injurious Falls in Patients Hospitalized for Acute Care: A Retrospective Case-Control Study

Version: 0 Date: 18 Apr 2017

Reviewer: Gabriele Meyer

Reviewer's report:

Thank you very much for the invitation to peer review the manuscript. I have read it with interest. The authors performed a case-control study at a single hospital center aimed to identify variables associated with injurious falls including age, bone/orthopedic conditions, anticoagulation (ABC).

Hospital falls represent a major patient-safety problem and may complicate a patient's care. Fall prevention, fall risk factors and prediction of falls have been intensively studied.

The manuscript is well written and follows the STROBE reporting statement.

There is some space for improvement of the transparency of reporting:

* The title should mention the design of the study according to the STROBE statement.

* More information is needed about the validity of the routine data collection on falls. What is known about its completeness? Does staff collecting the data apply a clear definition of accidental falls?

* Which medication does the category "psychotropic agent" imply? How were these medications classified, e.g. according to the ATC code?

* One could expect that the entire recent body of evidence dealing with the same topic is discussed. Please add the recent references, e.g. Hong-Ying et al. BioMed Res Int 2016; Toyabe Glob J Health Sci 2014).

* Claiming that this study provides the first evidence-based factors for identification of patients at risk in hospitals (page 13, line 16f) seems fully overemphasized to me.
Despite these more or less small issues, I have major concerns regarding the validity and appropriateness of the study question.

I do not agree with the authors' argument that current efforts to reduce falls focus on assessment instruments. First, the cited reference by Oliver et al. is from the year 2004, second it is particularly David Oliver who argues that "it is time to put falls risk prediction tools to bed" (Oliver Age Ageing 2008). These instruments do not work and it is not proven that using an instrument might be better than clinical judgement. Thus, to my opinion, it is not justified to spend any effort on development of fall risk assessment tools.

The authors presume that injurious falls can reasonably be prevented through the application of evidence-based interventions. However, falls in hospitals are often the result not of medical errors but of diseases, critical conditions and treatments. Thus, falls and fall-related injuries can occur even when hospitals provide the best possible care. The little evidence available on fall preventive measures is not encouraging regarding fall prevention and even less encouraging regarding fall-related injuries as clinically important outcome (Cameron et al. Cochrane Database Syst Rev 2012).

I am really skeptical regarding the authors' argumentation that creating a tool to assess risk of injurious falls and targeting interventions to a small group of patients might reduce in-hospital fall-related burden.

I agree with Inouye et al. (N Engl J Med 2009) who suggest that solely focusing on falls respective fall-related injuries does not make sense and "hospitals must recognize that given the burden of illness, multiple risk factors, and the short duration of hospital stays, multifaceted approaches will most likely be required to prevent falls while maintaining patients' mobility." Thus, falls are one critical event which might be prevented through comprehensive interventional approaches like the Hospital Elder Life Program.

Finally, I agree with Oliver who argues "… unless we have an understanding of the limitations of such tools (fall risk assessment tools) and the evidence for their use, this is a fool's paradise. If we look after all older people in hospital better, it is likely they will fall less."

If this manuscript gets published, it should at least acknowledge the debate about the poor evidence-base of risk assessment tools aimed at identifying people at risk for falls and fall-related injuries.
Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

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

Yes

Are the conclusions drawn adequately supported by the data shown?
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No

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I am able to assess the statistics

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