Reviewer's report

Title: Relative and absolute functional gain and rehabilitation efficiency index: Three different measures of physical rehabilitation effectiveness in elderly patients: a prospective longitudinal study

Version: 1 Date: 16 June 2015

Reviewer: Fabio Guerini

Reviewer's report:

- Major Compulsory Revisions

1. Methods, functional status 1st par., and Table 3: although literature reports a RFG score >35% as a point of clinical rehabilitation effectiveness, in this study population the stratification in four classes with RFG scores <35, 36<RFG<99, and RFG=100 is arbitrary and lead to non-homogeneous groups

2. Tables 1-2-4: Barthel Index has been divided in four categories (0-20, 21-40, 41-60, 61-100) in an arbitrary way with non-homogeneous groups; you should explain the choice of that cut-offs classes. Furthermore, in the multivariate analysis you used different Barthel Index classes (<10, 11-25, >25), without justifying this choice.

3. Methods, statistical analysis, table 6: the study explored the capacity of three different RIIIs to measure rehabilitation effectiveness and predictive factors involved. It is not clear why you chose to create a multivariate logistic regression model only for RFG.

4. Results, last paragraph, and table 6: it is debatable to consider as a predictor a variable (Barthel Index) already included in the formula of the same outcome variable (RFG). Furthermore, it is known that Barthel Index explores functional status in a referred way; it should be interesting to test the power of these RIIs scores with other performance scales (such as a Tinetti score).

5. Conclusion paragraph: although focusing interesting points, need to be reviewed on the basis of previous considerations.

- Minor Essential Revisions

1. Abstract methods paragraph: “the population was represented by”.

2. Abstract conclusions paragraph: specify the meaning of RII also in the abstract

3. Methods, data collection, 2nd par: specify cut-offs of protein, albumin and cholesterol used to define undernutrition.

4. Methods, functional status, 2nd par: You divided REI in a negative group, 0.5 to 1 and >1 group. Where do you allocate patients with 0<REI<0.5?

- Discretionary Revisions
1. Title: should be simplified as follow “Three different measures of physical rehabilitation effectiveness in elderly patients: a prospective longitudinal study”

2. Methods 1st par: it should be useful to clarify the definition and the evaluation of “sufficient clinical stability to begin rehabilitation” and “physical, mental, and social or family conditions to support a proposed discharge within two weeks”, because the actual definition is too vague.

3. Methods, data collection, 2nd par: how patient consent has been collected in demented patients?

4. Results, 2nd par: description of table 3 should be allocated in the first paragraph where you have already cited this table.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests