Author's response to reviews

Title: Outcome and upper extremity function within 72 hours after first occasion of stroke in an unselected population at a stroke unit. A part of the SALGOT study.

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Author's response to reviews: see over
Author's response to reviewers

Title:
Less impaired than anticipated; the frequency of upper extremity function within 72 hours after first occasion of stroke in an unselected population. A part of the SALGOT study.

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Version: 4
Date: November 21, 2012
Author's response to reviews: see the following pages.
Dear Editor,

Journal of BMC Neurology

Object: MS: 8754108673611165; Less impaired than anticipated; the frequency of upper extremity function within 72 hours after first occasion of stroke in an unselected population. A part of the SALGOT study. 
Hanna C Persson, Marina Parziali, Anna Danielsson and Katharina S Sunnerhagen

Thank you for consideration of our manuscript for publication in your journal.

We have reviewed the above manuscript according to your reviewers’ comments, see below. We believe that the manuscript has been improved by this process.

Hope that you agree on this and looking forward to hear from you soon,

Yours,

Hanna C Persson
Reviewer 1. Francesco Corea

Major remarks
The title: “Less impaired than anticipated; the frequency of upper extremity function within 72 hours after first occasion of stroke in an unselected population. A part of the SALGOT study.” The first sentence seems misleading and not in the style of the journal; I suggest to shorten it to “Prevalence of upper extremity function within 72 hours after first-ever stroke in an unselected population. A part of the SALGOT study.” or similar

RESPONSE: As suggested, the title is changed to:
“Outcome and upper extremity function within 72 hours after first occasion of stroke in an unselected population at a stroke unit. A part of the SALGOT study.”

Please highlight the NIH related results, also in the abstract. This will add extra interest to the paper since all health care authorities, EMEA included, consider this scale as standard benchmark

RESPONSE: This we have tried to do; in the abstract a sentence of the results from NIHSS-scale is added. “According to the National Institutes of Health Stroke Scale (NIHSS), the patients had a mean score of 5.6, median 3.0, at arrival to the hospital.”

“...Sweden has an especially good position for studies with a special geographical catchment area, as all acute in-patient based care is tax funded and different social groups are offered care under the same conditions...” at my knowledge in continental Europe all political systems provide an universalistic approach to major health troubles, this is true for sure in France, Germany and Italy for personal experience. The extra values of Sweden for me is the tracking of patients, the system guarantees complete follow up to citizens. Re-arrange the sentence in the discussion section.

RESPONSE: This is true and the paragraph is changed to: “The study includes all patients, from different socioeconomic groups, who are offered care on the same conditions, additional to ensure a well defined group; patients not living in the geographical catchment area were excluded. This improves the results for the present study and makes them more generally applicable to other stroke populations.”

“...In this perspective, our data that showed fewer subarachnoid haemorrhages (1%) than expected in a stroke population are not surprising and can be explained by the hospital organization...” subarachnoid bleedings may not lead to stroke according to WHO criteria, to verify you should see all CT scans done for headache in Sahlgrenska in the same time. I fear you can’t speculate on SAH trends with the SALGOT data. Remove the sentence or explain

RESPONSE: This is again true. To make the paper more comparable to others, all patients with subarachnoid haemorrhages have been excluded. The material is re-calculated following this.

Minor remarks
“...M MAS-UAS-95 ...” I do not recommend to start a paragraph with an acronym or number.

RESPONSE: In the discussion, this sentence is changed to:
“However, our evaluation of upper extremity function seems more accurate than prior studies in which BI was used to estimate upper extremity function. The M MAS-UAS-95 assesses at a body functional level…… “

I suggest to change bamford subtypes in the text TACI instead od TAC PACI instead of PAC and so on as was done correctly in the table section

RESPONSE: All TAC and PAC are now changes to TACI or PACI and so on.

Reviewer 2. (Nijasri Suwanwela)
1. Research Question
1.1 The research question is not clear and not well expressed on the title. For example, on page 4 “The aim of the study was to describe the baseline characteristic….., and also to investigate the frequency of impaired arm and hand function“, but the title only focuses on arm function. Also, the two main questions are not quite relevant.

RESPONSE: To better explain the contents of the manuscript we changed the title to:
“Outcome and upper extremity function within 72 hours after first occasion of stroke in an unselected population at a stroke unit. A part of the SALOGT-study.”

2. Methods:
2.1 The authors stated that this study is a retrospective study. However, on page 5, it is described that “independent evaluations of arm and hand function were performed by the 2 authors”. Is this being done as a routine practice?

RESPONSE: Data were retrospectively gathered from the hospital data system as well as from charts. As a routine practice, the M MAS-UAS-95 should be performed within 72 hours and 80% of the patients were documented with the scale. We wanted to include the remaining 20% of the patients; where M MAS-UAS-95 was not recorded in the chart. Reading the patients medical charts, the two authors HCP and MP, individually and independent, evaluated documented information of upper extremity function by a physiotherapist, occupational therapist or physicians.

We have tried to clarify the evaluation of arm and hand function both in the method section and also in the discussion section.

2.2 Please clarify about the study population. It is stated in the material and methods section that all first ever stroke who were admitted at one of the stroke units were studied. Nevertheless, the result section, 26 were in other hospital and 12 were hospitalized in another country. These patients should have been excluded already.

RESPONSE: In order to explain that we have screened all patients with first ever stroke who have received care in the stroke unit at any time during the hospital process we wanted in figure 1 to show to the readers
this process. We have shorted the text in the result section trying to make it clearer for the readers.

"During the study period 969 patients with first ever clinical stroke (55.9% men) 18 years and older were admitted to the stroke unit and screened for inclusion to the study. The results of this process are described in Figure 1."

2.3 Please explain why the term “unselected” and “non-selected” are used for the study population since they are “selected”.

RESPONSE: The unselected term was used since apart for those that are sent for possible thrombolysis and interventional radiology, the ambulance drives to the hospital where there is an open bed. Thereby, there is no selection of the population in the area for a specific stroke unit. To make the paper more comparable to others, all patients with subarachnoid haemorrhages has been excluded. The material is recalculated following this.

In addition we also screened charts for patients with stroke taken care in the intensive care unit/neurosurgery within the hospital during the inclusion period. We found that, during the same period, 27 patients were taken care of at the intensive care unit/neurosurgery. These patients are not a part of this study, and are not mentioned in the manuscript.

3. Results
3.1 How was upper extremity impairment prior stroke assessed? What are the causes of the impairment since all were first ever stroke cases.

RESPONSE: To make it easier for the reader, we tried to make this clearer in the text. We choose to have “no prior upper extremity impairment” as inclusion criteria instead, and we also tried to better describe how this was assessed. This is described in the text as follow:

“5) no prior upper extremity impairment"

“Also from the patient’s charts, documented by physicians or physiotherapists at the stroke unit, prior impaired upper extremity function limiting functional use of the affected arm and hand, such as orthopaedic, rheumatologic or neurological impairments was reviewed.”

3.2 Factors influencing the impairment of arm and hand function should be analyzed in detail. Univariate and multivariate analyses should be performed.

RESPONSE: Univariate analyses have been performed and are presented in the result section.

“Age was significantly associated with impaired arm and hand function (p<0.004), i.e. older patients had more often impaired arm and hand function. In this study, no significant difference was noted regarding upper extremity function between those patients who received thrombolysis (8.8%) compared to others. Nor did time of arrival to hospital significantly associate with the arm and hand function. No significant difference between men and women regarding impaired upper extremity function was seen. However, impaired arm and hand function was significantly more frequent in patients with total anterior
cerebral infarct (TACI) as compared to lacunar anterior cerebral infarct (LACI) \( (p < 0.0001) \) and also among patients with TACI as compared to partial anterior cerebral infarct (PACI) \( (p < 0.028) \)."

Multivariate logistic regression analyses have been performed to analyse the factors influencing the upper extremity function. In analysis including all patients, where age and sex was combined, the \( R^2 \) was 0.017, and levels of significance were 0.002 for age and 0.773 for sex. These two variables increased the classification of correctly identified the patients with only 2.5% compared to the observed distribution of impaired arm and hand function.

When analyses the patients with ischemic stroke \( (n = 575) \), we added the Bamford classification in the analysis and then the \( R^2 \) was 0.021, and the levels of significance were 0.981 for sex, 0.562 for Bamford classification and 0.001 for age at admittance to hospital. These three variables increased the classification of correctly identified patients with less than 1% compared to the observed distribution of impaired arm and hand function. The multivariate logistic regressions are not included in the manuscript, as we do not think that they provide the knowledge.

3.3 Tables are redundant and not so informative.

RESPONSE: We re-organized the tables to improve the readability and to increase the information value. In the first table the “pre stroke” characteristics are described first, followed by “at arrival to hospital” and “at discharge from stroke unit”. Instead of a large number of abbreviations, the explanations are now found within the table. The information in the tables of the patients’ baseline characteristics, care pathway and discharge status are not given elsewhere.

4. Discussions

4.1 The authors should discuss more about the reasons why this study found a relatively lower number of patients with arm and hand impairment. Does the study population have milder form of stroke than previous studies? Also, patients admitted in ICU were excluded. Would this cause selection bias, therefore, the result might not represent the real stroke population.

RESPONSE: Following your suggestions, we have tried to alter the text, see below:

“The study includes all patients, from different socioeconomic groups, who are offered care on the same conditions, additional to ensure a well defined group; patients not living in the geographical catchment area were excluded. This strengthens the results of the present study and makes them more generally applicable to other stroke populations. The study covers one stroke unit, where patients had to be admitted within 72 hours of the stroke event, which mainly excludes patients at intensive care units or neurosurgery wards. The fact that less than 50% of patients with acute stroke had an impaired arm and hand function was to some extent surprising. Reasons may be that the stroke care has changed in recent years; all patients with suspected stroke should be examined in hospital (including minor stroke) and both the rehabilitation and the medical treatment have
improved. Also the primary prevention has changed, with better
treatment for hypertension and dyslipidemia and fewer persons are
smoking compared to the early 1990s. Earlier studies [1, 2] are based
on data gathered more than 15 years ago, include assessment of both
upper and lower extremities [2], or are based on a later time for
evaluation of motor function [1-3] and may not be representative of
today’s patients. Furthermore, the current study includes only first ever
stroke, which is not the case in previously mentioned studies [1, 2],
(personal communication with Skyhoj Olsen [1]). A limitation of the
present study is the retrospective data collection, which may leads to
incomplete data sets. For example,…”
The study includes all patients, from different socioeconomic groups, in
a well defined geographical catchment area, who are offered care on the
same conditions. To ensure a well defined group, patients not living in
the geographical catchment area were excluded. The study covers one
stroke unit, where patients had to be admitted within 72 hours of the
stroke event, which mainly excludes patients at intensive care units or
neurosurgery wards.