Reviewer’s report

Title: Recovery of brachial plexus lesions resulting from heavy backpack use: A follow-up case series

Version: 2 Date: 3 December 2010

Reviewer: Eva M Andersson

Reviewer's report:

COMMENTS (divided into categories below)

The article deals with the recovery pattern of backpack palsy.

The time line is not clear: what is the baseline time for each person, what is the follow-up time for each person? As I understand, register data (conscripts, Centre for military medicine) are used to identify all those persons (among all prospective soldiers or among those doing service?) who suffered from brachial plexus compression and lesions of nerves (section Participants). It is not clear whether the examination leading to the diagnosis BPP was done at the time of enrolment or during ongoing military service, but I am assuming the latter. In that case, it would be all those seeking medical care during military service. In total 55 patients with BPP were treated 1998-2004.

I assume that “baseline” refers to the date of diagnosis, so that at the time the BPP diagnosis was set, the patients were instructed regarding proper hand use and exercises (section Intervention).

At baseline, the patients underwent a physical examination and EMG (section Interventions)).

I assume that the follow-up-time was not always e.g. “one year after end of military service”, since a median follow-up time is mentioned (section Intervention).

At follow-up, the patients filled in a questionnaire (which is the basis for exposure assessment), and underwent clinical neurological assessment, physiotherapeutic muscle test, EMG and genomic DNA. Six patients completed the questionnaire but not the clinical tests and the blood samples.

Outcome variables: symptoms at follow-up, muscle strength at follow-up, length of recovery period, level of physical activity at follow-up. As I understand from Recovery, 30 out of 38 reported to be symptomfree at the follow-up.

Did the authors consider analyzing “length of recovery period” using survival analysis, e.g. Kaplan-Meier?

EMG was available both at baseline and at follow-up: matched data from time of onset and time of follow-up (which for some was after recovery). Is this the same
as “electrodiagnostic findings” mentioned in section Tests? Was there a significant difference in the EMG results at baseline compared to follow-up so that an improvement could be verified?

The exposure assessment (weight carried) was, in some cases, made more than 4.5 years later than end of service – how reliable is it?

Table 1:
*I assume that all reported values in the table refer to the follow-up time. Please clarify this in the table caption.

*P-values for five tests are reported: for difference in weight of the load, for difference in distribution of affected nerves, for difference in distribution of most affected nerve, for difference in weight of the load and for difference in BMI. Please provide a footnote with which test is used. Regarding the tests of difference in weight of the load (normal/abnormal and symptoms/no symptoms) and test of difference in BMI (symptoms/no symptoms), the authors have checked for “skewness in data”. It is nearly impossible to judge the skewness from 8 or 5 observations. In with such small groups I would recommend to always use a non-parametric test, instead of a t-test. In the table a p-value of 0.267 is reported for BMI, whereas in the Result section a p-value of 0.395 is reported. Why?

*At follow-up (which could be between x and y years from the end of military service?), 79% reported no symptoms, etc. Please provide confidence intervals for these proportions.

*It would have been more reasonable to compare the distribution of affected nerves between “normal” (65%, 23%, 12%) and “abnormal” (67%, 33%, 0%). With one of the groups being so small (6 persons) the chi-square test is not appropriate. A Fishers exact test for RxC tables is available e.g. in SAS, using the algorithm of Mehta and Patel (1983), Journal of the American Statistical Association, 78, 427 - 434.

*Those who had normal muscle strength at follow-up (26 persons) were compared to those with abnormal strength (6 persons) with regard to the distribution of affected nerves. Should each person’s baseline value (number of affected nerves) be taken into account when comparing the groups? Again, chi-square might be inappropriate with the abnormal group being so small.

MINOR ESSENTIAL REVISIONS

It is not clear whether the examination leading to the diagnosis BPP was done at the time of enrolment or during ongoing military service.

Please clarify when follow-up was, in relation to end of military service.

Is EMG the same as “electrodiagnostic findings” mentioned in section Tests?

The exposure assessment (weight carried) was, in some cases, made more than 4.5 years later than end of service – how reliable is it?
It is nearly impossible to judge the skewness from 8 or 5 observations. In with such small groups I would recommend to always use a non-parametric test, instead of a t-test.

In Table 1 a p-value of 0.267 is reported for BMI, whereas in the Result section a p-value of 0.395 is reported. Why?

At follow-up 79% reported no symptoms, etc. Please provide confidence intervals for these proportions.

With one of the groups being so small (6 persons with abnormal strength) the chi-square test is not appropriate. A Fishers exact test for RxC tables is available e.g. in SAS, using the algorithm of Mehta and Patel (1983), Journal of the American Statistical Association, 78, 427 - 434.

DISCRETIONARY REVISIONS

Did the authors consider analyzing “length of recovery period” using survival analysis, e.g. Kaplan-Meier?

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Those who had normal muscle strength at follow-up (26 persons) were compared to those with abnormal strength (6 persons) with regard to the distribution of affected nerves. Should each person’s baseline value (number of affected nerves) be taken into account when comparing the groups?

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

**Quality of written English:** Acceptable

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

**Declaration of competing interests:**

I declare that I have no competing interests