Author's response to reviews

Title: The Impact of Extended Electrodiagnostic studies in Ulnar Neuropathy at the Elbow

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Author's response to reviews:

To

BMC Neurology

Dear Andrea Bucceri PhD
Scientific Editor
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BioMed Central

Thank you very much for the second review of our manuscript.

Please find enclosed the revised manuscript MS: 1309534307263980 entitled “The Impact of Extended Electrodiagnostic studies in Ulnar Neuropathy at the Elbow"

Our detailed response to the associate editor and the reviewers concerns is as follows:

Associate editor:

"Although most of the reviewers were content with the changes, from the methodological point of view I have to agree with Dr. Caliandro (and also with Dr. Shakir's previous comments) that if a diagnostic method is evaluated, not only sensitivity but specificity should be addressed as well.

The other issue is the comparison of this technique to the inching technique - an issue raised by 3 of the 6 reviewers during the review process.

So I recommend for the authors to emphasize, as a limitation of their study in a more clear way than it is in the current revised manuscript, that specificity of this method should be evaluated in a further study (if they do not already have such
Response: We have expanded the discussion about the limitations in our study design, clearly stating the need for evaluating the specificity in another study, as we do not have these data presently.

“My other recommendation is to put it more clearly what is the place of the present method in comparison with the inching method. The authors have a sentence regarding this, but this should be more clearly stated”.

Response: We have expanded the discussion and emphasize the value of inching in the evaluation of UNE.

“Overall, as the diagnostic approach presented in the manuscript may have clinical importance in the future (better do a screening test to prove UNE than perform surgery "blindly" in equivocal cases!), I think, even with the current methodological flaws, the method can help make better clinical decisions, therefore should be published - but with presenting the limitations more clearly”.

Response: We agree. It was a major motivation for our work to search for a sensitive and efficient (not too time-consuming) set of electrodiagnostic parameters to be applied in the diagnostic pre-operative work-up before surgery.

Reviewer: Pietro Caliandro

“I have to say that the authors have not answered to my main concern on sensitivity and specificity. First, when you evaluate sensitivity you have to evaluate specificity too; if you have a high sensitivity but a low specificity a new diagnostic tool is not useful.

Second, also in the impossible hypothesis that we could accept the aim to calculate sensitivity and not specificity as the authors say in their cover letter: “Our aim was, however, to study only the sensitivity of the neurophysiological methods.”, to me it is really unclear how it is possible to calculate the sensitivity of a new neurophysiological diagnostic method, in a sample of patients with a neurophysiological evidence of UNE. It is necessary to evaluate also patients with a clinical picture suggestive of UNE but without neurophysiological evidence of entrapment.

If I have reached the diagnosis using “an extended protocol” why I need to use another technique too? And again if the new technique is able to diagnose UNE in 96% of patients in whom the diagnosis was putted by the “old protocol”, it means that 4% of patients were diagnosed by the old protocol and not by the new one therefore why I have to use the new approach?”

Response: We agree with this reviewer that it would have been a better protocol to evaluate also patients with a clinical picture suggestive of UNE but without
neurophysiological evidence of entrapment and also in patients with other symptoms and in healthy controls. We recommend to perform such studies in the future. We added a new third paragraph before the Conclusion on page 14: "Inclusion of patients with a clinical picture suggestive of UNE without neurophysiological evidence of entrapment (using the standard protocol) would have enabled us to also estimate specificities. However, it should be noted that interpretation of specificity is somewhat ambiguous when a definite gold-standard does not exist. Indeed, it will be difficult to differ between true and false positives in a population with symptoms suggesting UNE. Accordingly, specificity should also be calculated in a healthy control group and preferably, in a group with different symptomatology, for instance carpal tunnel syndrome. The lack of such control groups is a weakness of the present study. Accordingly, we recommend to perform such controlled studies, as well as prospective studies, in order to estimate specificities for our extended electrodiagnostic parameters in different groups as well as the prognostic value of the extended parameters."

Note also that the inclusion criterium was clinical and AT LEAST ONE abnormal value in the standard protocol. It is allowed and useful to compare sensitivities among the SINGLE parameters (our main focus, see Tables 2 and 3) and to compare the sensitivity for selected combinations of single parameters to test for redundancy. 96% sensitivity refers to motor conduction at the elbow (compared to 80% when we calculate sensitivity from the motor subset of the standard protocol), suggesting that adding a third stimulation site will increase the number of single abnormal parameter. This will improve the diagnostic certainty. If we add sensory parameters, the combined sensitivity is of course 100% for both the standard and the extended protocol (due to the study design).

In short, the strong part of our study is that we identified some sensitive new parameters which may strengthen the diagnostic certainty and we identified some other parameters (FDI-recordings) which usually seem to yield redundant information. These parameters can and should be tested further in controlled studies and in future prospective studies.

Reviewer: Eszter Hidasi

“I'm working in a clinical electrophysiological lab, and my opinion didn’t change in that point of view, that the inching technic is a very sensitive, and not time-consuming method to diagnose precisely the ulnar nerve entrapment”

We agree with the reviewer that the inching technique is a long used sensitive method with considerable merit. We have elaborated briefly on this issue from different points of view in the second paragraph, page 11. We have removed the sentences about the time and accuracy needed for inching because this is not a problem in experienced hands and because we did not compare our technique with inching, and hence we have no actual data. We have also added the following: “However, this study did not aim to compare the new protocol and the well known inching technique. Inchng is also a superior technique in experienced hands for precise localization of ulnar entrapment at the elbow”.

Reviewer: Ali Shakir
“The points I have raised in my initial review of the paper have been adequately addressed.”
This reviewer had no more concerns for this manuscript.

Ethical considerations
The text on this issue is located in the Methods section after Clinical neurological examinations, page 7. The study was performed according to the Helsinki declaration. We examined patients referred with suspicion of UNE with our usual electrodiagnostic method which encompass both the standard and the extended measures reported in the present paper. No additional invasive, painful or time-consuming method was applied. The study was possible because we recorded the results in a systematic way, in order to compare few parameters with a higher number of parameters. This study started in 2002 in accordance with the local institutional requirements. Such studies did not need a reference number from the Ethical committee in our hospital.

Thanks for your consideration.

St.Olavs Hospital, Trondheim, September 27, 2009

With best regards,
Kari Todnem