Reviewer's report

Title: Anatomically widespread sensory hypersensitivity of deep tissues in women with chronic non-traumatic neck-shoulder pain is related to psychological status

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Reviewer: Holger Ursin

Reviewer's report:

Major compulsory revisions

1. Nosology

This paper is on hypersensitivity in non-traumatic neck-shoulder pain. There is a reference to a paper on the same variables from the same authors in patients with a "traumatic" neck shoulder pain, which is given as under "revision" (misspelt) in Clin J Pain.

Many of the items discussed are based on the comparison between traumatic and non-traumatic neck/shoulder pain. This is an area of interest to many of the potential readers, some of which are not necessarily convinced that these two groups are very distinct groups. The theme is contaminated by the many litigation claims, some that are clearly unreasonable, some that may be reasonable, and some quite distinctly related to the trauma. Is this double reporting necessary, and does it lead to confusing the discussion?

2. Inclusion of patients

The patients are recruited from patients (number = ?) referred to a pain clinic with ICD diagnoses M 79.1, 54.2 or 53.1. This corresponds to ICD myalgia, cervicalgia (without disc disorder), and cervicobrachial syndrome. According to the authors, the selected patients should fulfil the diagnostic criteria of “trapezius myalgia”, there is no definition of what those are. This is complicated further by inclusion criteria that do confuse me. It is easy to understand that the patients should have pain in the neck and shoulder. However, why should they have pain in the descending part of trapezius, and why is there a time criterion (7 days) for this, and where did that come from? Finally, the neck and shoulder pain should have lasted for more than 90 days over the last 12 months: as a sum score? Is this the measure of “chronicity”?

The issue is even more complicated. After the initial inclusion the patients are now examined clinically and an additional number (not given) is excluded. This clinical examiner (one? Several? Quality control?) is the one that gives the diagnosis “trapezius myalgia” based on neck pain, feeling of stiffness reported by the patient and “palpable” tender parts in trapezius. If the examiner(s) found reason to believe that the tendons were painful the patient was excluded, also if there was “nerve compression” (how was that diagnosed?). The examiner was
not blinded as to which group the participant was assigned to- the only way I can make sense out of the statement is that the patients in the “traumatic” group was given the same examination – but that is in another paper?

A number (how many?) patients were then excluded according to a long list of criteria. Among these criteria there is on item on previous neck trauma. I find no other inclusion or exclusion criteria for the assumption that these are non-traumatic, likewise I do not know why the other paper deals with “traumatic”, or whether the papers discussed as evidence for “traumatic” neck pain are listed due to the attribution of the patient or the doctor or the research team.

Minor Essential Revisions

3. Original data
The use of measures of sensitivity is an important contribution. However, how well founded is your statement that there is a scarcity of research on the “non-traumatic” neck pain conditions? There is, for instance, a vast literature on myalgia, cervicalgia, and cervicobrachial syndrome, take the frozen shoulder or work related neck and shoulder pain, or at least attributed to work. The delineation between traumatic and non traumatic neck pain is difficult, and the whiplash literature is not necessarily on traumatic pain, even if some patients claim mechanical reasons for their complaints. One of the references you use to for “non-traumatic pain” carries “mechanical” neck pain in the title.

4. Sensitisation
In my opinion the strength of the paper is the use of a standardised test for pain sensitivity, and the interesting finding of sensitisation in other areas than the shoulder and neck. The use of injections of hypertonic saline is impressive, even if one might ask if the results obtained justify the pain imposed on the subjects.

The subject of sensitisation is of major interest from a clinical point of view, as well as for pathophysiology, psychology, and etiology of widespread and generalised pain. The paper does not treat much of this literature. The physiology of sensitivity of pain is much more than “central” sensitisation and altered descending control (of what?). The paper is almost chemically free of any reference or comments on the possible relations between CNS sensitisation and comorbid disorders, cognitive therapy, and cognitive perseveration of concern of the pain condition.

5. “Psychology”
Psychology seems to cover a rather unspecified package. It should be possible to be a little more specific in what you mean by “psychology” in the manuscript. This might help in clarifying your discussion. You deal partly with pain threshold, partly with pain responses. The standard wisdom in pain research appears to be that the threshold is a rather robust value, while the response and interpretation of the pain is easily affected by interpretation and expectancy in the individual. Since you have significant findings also on the threshold, you could perhaps make more of this interesting part of your findings.
6. Use of references
There are 74 references, about one third of the references are from the group itself. There are also other groups that appear to be presented somewhat redundantly. On the other hand, the selection may be too selective, there is a very large literature on whiplash as well as on neck shoulder pain, some specific, some unspecific.

It looks impressive when statements appear to be supported by several references. This is followed by disappointment when it becomes obvious that all references are from one group, even when the results are inconclusive. One example is the use of seven Sterling references for “evidence” for no or conflicting relations pain and psychological factors (Discussion para 5).

Discretionary revision

“Different” in English means different, not various. The Swedish term “olika” appears to carry both meanings.

**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'