Author's response to reviews

Title: Image-guided versus blind corticosteroid injections in adults with shoulder pain: A systematic review

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Version: 4 Date: 21 April 2011

Author's response to reviews: see over
Dear Dr Lee Herrington,

Thank you for giving us the opportunity to revise our manuscript.

Following on from this note is a summary of our responses to the peer reviewers. I have also attached separately the revised manuscript with highlighted tracked changes.

One co-author, W Chen, has had a change in employer on April 1, 2011. We have therefore updated her contact and employer details accordingly.

Yours sincerely,

Edmund Soh
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Summary of responses to peer reviewers’ comments

REVIEWER 1 EVALUATION

Version: 1  Date: 4 February 2011

Reviewer: Eric Hegedus

Reviewer's report:

The topic is an interesting one and worth doing. However, before this paper is worth an in-depth review, a major re-write is in order. I suggest the following:

1. Read the paper by Moher et al (BMJ August 2009) on PRISMA to learn how to structure a systematic review.

   RESPONSE: The Abstract and Methods sections have been re-written and structured to comply with the PRISMA report.

2. A complete re-write of the introduction is merited since the authors have not made a compelling argument for why this review is important (the review is important). They need to get deeper into the debate on guided vs unguided shoulder injections (see discussion section of Hegedus et al JSES 2010) and support your contention that guided is more costly with at least one citation. You then say that the conflicting evidence may come as a result of different study designs so you have decided to review RCT’s to help shed light on the debate.

   RESPONSE: The Introduction has been re-written to make a more compelling argument for why this review is important.

3. Methods section—Please see any number of works by Haynes RB on search strategies and either use the strategies or cite why you did not

   RESPONSE: We referred to the Cochrane Handbook for Systematic Reviews of Interventions (Higgins and Green 2008, Chapter 6 pp 95-147) in developing our search strategy.

You have components of a solid review here but the organization will be greatly improved by the use of PRISMA.
RESPONSE: The Abstract and Methods sections have been re-written and structured to comply with the PRISMA report.
REVIEWER 2 EVALUATION

Version: 1 Date: 11 February 2011

Reviewer: Ian Horsley

Reviewer's report:

I think this is a good piece of work, let down by the quality of the studies included - which is no fault of the authors

RESPONSE: Thank you for your evaluation.
Reviewer's report:

Review of article 2011 02 15

"Systematic review of image guided versus landmark injection of cortisone in patients shoulder".

This review paper is based on 2/9 chosen articles which fulfilled criteria as set by the authors.

The methodology used and data seem sound, but the authors have not scrutinized the chosen articles in such detail as one would expect, given the limited information available, and therefore conclusions made are not correspondingly critical.

Firstly the authors conclude that there were no significant differences in the adverse outcomes between the groups. Despite that, they conclude in Abstracts and Discussion that there were “more” side effects in the landmark group. This is not acceptable. You choose a significance level and stick to it. Either there is a difference or not, and in this case the conclusion must be changed. This is more humbly presented at the end of discussion than in Abstract where it is clearly misleading.

RESPONSE: The Abstract and Conclusion sections have been re-written to draw more attention to the lack of adequately-powered and well-executed studies available.

Secondly, it is not sound to conclude firmly from these two studies that the clinical outcome of image guided injections is better than landmark injections for a number of reasons and vaguely defined diagnoses. This will mislead the reader. Again, the text is more humble at the end of Discussion but less so in Abstracts.

RESPONSE: The Abstract and Conclusion sections have been re-written to draw more attention to the lack of adequately-powered and well-executed studies available.
Why do the authors not make a strong note of the obvious lack of firm evidence based data in the literature on this subject and make their conclusion related to that fact, expressing more clearly the limitations of available evidence at hand. There are several reasons for this rationale. Firstly the clinician who injected the shoulders at least in one article was most likely a clinical radiologist, not an orthopaedic shoulder surgeon or experienced rheumatologist. Clinical experience is very important to inject successfully and clinical radiologist mainly do guided injections, no offence to the radiologists in these two studies who may or may not be trained differently. Please comment.

RESPONSE: We agree that clinical experience can be a factor for successfully performing injections. All shoulder injections, blind (landmark-guided) and ultrasound-guided, were performed by clinicians in both reviewed articles, not radiologists. As such, we would expect them to have reasonable experience in, at least, blind (landmark-guided) injections. We have added a comment at the end of the Discussion section that proposes future studies with clinicians performing blind (landmark-guided) injections and radiologists performing image-guided injections.

What I could see the first article is published by a radiologist and an epidemiologist. I question the experience and skills by any of these to undertake landmark injections. Please comment also on the second article in this regard, I believe the clinician giving the injections was Radiologist as well?

RESPONSE: All injections in the two articles (Naredo et al. 2004, Ucuncu et al. 2009) included in the systematic review (Soh et al.; MS: 3244170334978510) were performed by clinicians and not radiologists. The authors of the systematic review (Soh et al.; MS: 3244170334978510) are radiologists and epidemiologists. The patients were not blinded in any of the studies, and the indicating diagnosis is not clear, neither is the investigations undertaken to reach these diagnoses.

RESPONSE: The patients were not blinded in the reviewed articles and we have noted this as a limitation in the Discussion section. Both reviewed articles state that diagnoses were
established by clinical history, physical examination and plain radiographs, with additional laboratory tests for Ucuncu et al. 2009.

The data on pain and function are not presented before and after treatment in real terms but are provided in the originals. Were symptoms matched between the groups? How were the patients matched/randomised before injection? Please provide that data.

RESPONSE: The available data from the reviewed articles indicate that all patients were grouped into one category – shoulder pain for at least one month due to soft tissue pathology. This is detailed in Table 1 of our systematic review. Patients were randomized but the specific randomization method and allocation concealment are unclear. This is detailed in Table 2 of our systematic review.

RoM before and after was not presented here but provided in the originals. Please provide that data. Where the groups matched for reduction in RoM before injection? If an injection is used and successful for a stiff shoulder which has not been used for a while, pain may actually stay or decrease less but function/movements improve and patient’s subjective assessment is affected either way. Thus, diagnoses, indications for the injections are important. Please provide such data.

RESPONSE: The primary outcome measures for shoulder function in our systematic review were validated scales (eg. Constant score) rather than ROM (range of movement) per se. Such scales are believed to be more responsive than individual ROM assessments (Tveita EK et al. BMC Musculoskeletal Disorders 2008,9:161) and, in our experience, are increasingly the assessment of choice in studies assessing shoulder function.

I believe that this article poorly highlight the main finding which in my view is the lack of evidence based data in the literature; there is no prospective blinded study where an experienced orthopaedic shoulder surgeon or similar compare his/her land mark injections with an experienced clinical radiologists US guided injections, both injections monitored afterwards by US to check the position of injected substance, with comparable indications (not just shoulder pain as given as explanation) and the need for such larger blinded prospective study.
With the lack of such controlled study clinical outcomes based on where injections are assumed to have been localised on vague defined diagnoses is pure guesswork.

RESPONSE: We have re-written the article to emphasise the lack of high-quality studies available for review. We also propose studies with clinicians performing blind (landmark-guided) injections and radiologists performing image-guided injections.