Reviewer's report

Title: Inflammatory biomarkers in serum in subjects with and without work related neck/shoulder complaints

Version: 2 Date: 14 November 2013

Reviewer: Gwendolyn Sowa

Reviewer's report:

This manuscript is an interesting study describing serum inflammatory biomarkers in subjects with musculoskeletal pain. It is timely and would be of interest to the scientific community. However, several points should be addressed.

Major Compulsory Revisions:

1. The authors conclude that the serum biomarker profile is related to neck and shoulder complaints, and include this in the title of their manuscript. However, they also report that other MSK complaints from other regions of the body are reported in their subjects, and the relationship with these other pain complaints is not reported. Although the average number of pain complaints is noted to be 4, additional data regarding the pain complaints and correlations with the biomarkers should be presented to allow the authors to conclude that the biomarker profile is related to neck/shoulder.

2. The number of subjects included is relatively small for such a large number of cytokines to be examined, and no mention of correction for multiple comparisons is made. This should be stated as a limitation.

3. The use of a control group with and without repetitive tasks is confusing, and should be further justified. Although the authors present data showing no pattern indicating a difference between the groups, an analysis should be performed in which the individuals with pain are compared to a similar pain free group (ie the cashiers), and/or compared to a pain free group without repetitive tasks. Combining these two groups in the control group limits the conclusions that can be drawn from the data. It is recommended that the control group be increased to overcome this significant limitation.

4. The methods state that subjects reporting pain "often" were recruited- were subjects with pain "very often" also included? Similarly, the difference between "often" in the cases and "sometimes" in the controls is subtle, representing another limitation in interpreting the data that should be cited. In fact, this may have resulted in an underestimation of the difference between groups.

5. The statistical analysis states that comparisons with t test were done based on means, but the mean values are not reported in the data table.

6. The authors note a correlation of CRP with BMI as well as patient symptoms. It should be established if BMI is correlated with patient symptoms, since this could explain the relationship independent of CRP.
The authors note in the discussion that adjusting for BMI in the statistical model did not affect the results, but this data is not included in the results section.

Discretionary Revisions:
1. The authors should consider comparing/contrasting with the prior published article by Carp to establish the unique contribution to the literature.
2. Page 3, end of paragraph 1 regarding the mechanism of inflammation and tissue repair is highly speculative, and should be modified or deleted.
3. The explanation for why CRP and MIP-1b represent "true findings" is somewhat weak, as a pathophysiological explanation for the other cytokines could also be surmised.

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

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:
I declare that I have no competing interests