Reviewer's report

Title: Visually assessed severity of lumbar spinal canal stenosis is paradoxically associated with leg pain and objective walking ability

Version: 1  Date: 1 May 2014

Reviewer: Christy C Tomkins-Lane

Reviewer's report:

- Major Compulsory Revisions

1. Inclusion criteria: Were patients required to have low back and lower extremity pain, or were patients with just back pain included?
2. Was there a standard for the imaging for inclusion?
3. Is a previous spine surgery not a confounding variable?
4. Where did the method for visual analysis come from? Is it a recognized/published reliable method? If not reliability analysis should be conducted.
5. You did not indicate specifically where on each image the quantitative measurements were taken. Please include.
6. Where did the cut points for the VAS and ODI come from? Are these published?
7. Was the treadmill test validated for use with LSS patients?
8. Why did you choose a ramped protocol? Ramped protocols are meant to test cardiovascular fitness and not walking capacity.
9. A self-selected speed is much more appropriate for this population given that speeds of 0.67m/s -1m/s may be too slow (or too fast) for some participants. Why did you select these speeds?
10. The first paragraph of the discussion requires some clarification. Please indicate which type of assessment (visual or quantitative) was used to obtain the stated results.
11. Table 1. You compare results of moderate and severe stenosis as assessed visually. If the method for visual assessment is flawed or unreliable then these results are also flawed and unreliable.
12. The most important results of this study are the correlations between outcomes and the objectively measured canal. Please highlight these results. They are much more powerful than a comparison of two groups created through visual assessment.

- Minor Essential Revisions

1. Spelling of central in Table 2. (spelled Sentral)
Discretionary Revisions

1. In the introduction you state that most previous studies on this topic have had major methodological errors. I do not believe this is the case. The issue is more that the relationship you are investigating remains unclear. I suggest re-wording the 2nd paragraph in the introduction to reflect this.

2. Recent research suggests that measurement of provoked pain is more appropriate in LSS patients. Is it possible that if you had measured provoked pain a more clear relationship would have emerged?

3. It is apparent from this study and previous studies that we need a standardized method for visual assessment of LSS. Consider discussing the future of this endeavour.

4. Did you control for BMI? The average BMI is almost 30 which is considered obese. Do you think this had an effect on your results?

- Needs some language corrections before being published (I would suggest consulting an editor given that there are numerous grammatical, spelling, and syntax errors. I was able to understand the writing, but more work is definitely required to produce a polished English language manuscript.)

**Level of interest:** An article of importance in its field

**Quality of written English:** Needs some language corrections before being published

**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.