Reviewer’s report

Title: Restoration of disk height through non-invasive spinal decompression is associated with decreased discogenic low back pain: a retrospective cohort study

Version: 1 Date: 27 January 2010

Reviewer: Leif Dahlberg

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Major Compulsory Revisions

In this retrospective cohort study, subjects with low back pain were treated with motorized non-invasive spinal decompression. CT scans were made before and after treatment. The main outcomes were changes in pain as measured on a verbal rating scale from 0 to 10 during a flexion-extension range of motion evaluation and changes in disc height as measured on CT scans. In 30 patients, low back pain decreased and disc height increased so that height and reduction in pain were correlated.

How many patients were treated with the intervention during the inclusion period? Only the 30 patients that fulfilled the per protocol in- and exclusion criteria?

Line 138: Please define discogenic low back pain (how would one know that pain comes from the disc and not from other structures).

line 142 Please define bulging, protruding or herniated disc (Size differences, mean and SD.)

line 143 Please define degenerative disc disease (is there consensus to what criteria should be used in CT scans?).

The second main outcome was the change in average disc height as measured by CT. Please provide information in the method part (not only in the discussion) regarding mean and SD for time points for CT scans.

How many observers did the CT height measurements?

How many times were the heights measured?

Are there any between observer variations?

Did the authors do any CT a couple of weeks after the treatment?

This is certainly not a “blinded” study so the accuracy of CT measurements is crucial.

In short, the protocol typically included 22 sessions of spinal decompression over a 6-week period with 28-minute active treatment.

Is this costly?
One limitation of this study is the lack of a control group.
In spite the fact that the authors objective was to demonstrate the correlation between increased disc height and reduction of pain, it still is interesting to consider if placebo would be a possible explanation for the decrease in pain. Specifically taking into account that the CT measurements seem not validated and that the correlation ($r=0.36$, $p=0.044$) between the increase in disc height and reduction in pain only showed a $r^2=0.13$. Please discuss this issue in a paragraph.

**Level of interest:** An article of limited interest

**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'