Reviewer's report

Title: Cervical spine kinematics after anterior cervical discectomy with or without implantation of a mobile cervical disc prosthesis; an RCT

Version: 3 Date: 7 January 2015

Reviewer: Huajiang Chen

Reviewer's report:

Major Compulsory Revisions:
1. The primary objective of this RCT study is to ascertain whether a mobile cervical disc prosthesis restores/preserves physiological motion of the cervical spine. Motion in the cervical spine was evaluated by sequence of segmental contributions. This is a novel method that have been proved to be a more consistent parameter. Patients are allocated to either arthroplasty or simple discectomy by randomly. For the simple discectomy group, the fusion rate of operated segments can be up to 80%. Fusion is defined as < 2° range of motion. Which means that motion of the cervical spine will be different to that is present in healthy controls no matter what method was used for evaluation, include sequence of segmental contributions. In other words, the sequence of segmental contributions in this group will be definitely abnormal. Then, cervical spine motion of arthroplasty group evaluated by sequence of segmental contributions was compared to this abnormal group. How can you come to conclusion that a mobile cervical disc prosthesis restores/preserves normal motion of the cervical spine or not? Design should be more detailed. And I think arthroplasty group compare to a healthy controls can be better.

2. Because there is no comparability between your two groups, sample size calculation based on this compare lead to a small sample size.

3. About The last sentence of radiological data processing part, it is compared to ten healthy controls, and a historical control group. Which group compare with that? What is the objective?

Minor Essential Revisions
None.

Discretionary Revisions
None.

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.