Reviewer’s report

Title: Epidemiology of Ossification of the Spinal Ligaments and Associated Factors in the Chinese population: a cross-sectional study of 2,000 consecutive individuals

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Reviewer: Takahito Fujimori

Reviewer's report:

Summary

The authors examined the prevalence of ossification of the spinal ligament in Chinese population with using whole body PET CT.

The study included 1335 men and 665 women. Mean age was 48.5 years-old.

Cervical OPLL was defined as 2mm thickness. OALL was defined as 3mm thickness both in cervical spine and thoracic spine. DISH was defined as consecutive 3 or more intervertebral disc levels.

In men, the prevalence was 4.1% in cervical OPLL, 1.6% in thoracic OPLL, 36.1% in T-OLF, 7.9% in C-OALL, 22.2% in T-OALL, 38.6% in ONL, and 4.9% in DISH.

In women, the prevalence was 4.1% in cervical OPLL, 4.1% in thoracic OPLL, 40.8% in T-OLF, 4.1% in C-OALL, 13.1% in T-OALL, 17.3% in ONL, and 1.8% in DISH.

The authors concluded that prevalence of ossification of the spinal ligament was nearly equal to that reported in the previous studies performed in east Asia.

Major comments

The study included a large number of Chinese patients with whole body CT. Although similar studies have been already performed in Japanese or Korean, there are little data about Chinese. This paper may be worth being published, however, there are some points that should be clarified.

Minor comments

Method
The author should mention more information about the area of the study performed.

As the author mentioned, there is no clear consensus about the diagnosis criteria of ossification of the spinal ligament. However, there have been several similar previous studies. As for cervical OPLL, many studies defined OPLL as 2mm thickness. However, as for OALL, 3mm thickness may be too small for satisfying the criteria of DISH. Originally, DISH mean large ossifications locating anterolateral vertebra in thoracolumbar spine. Why did the author choose 3mm thickness for criteria? Please explain it.

The author should also clarify the criteria of OLF.

Results

Cervical OPLL

Most of the study reported that cervical OPLL was more common in men than in women. However, this study showed the opposite result.

In this study, OPLL and OLF was more common in women, although OALL and ONL was common in men.

Did the author think that women had more ossification of the spinal ligament?

Please explain the result in discussion.

Thoracic OPLL

Thoracic OPLL is much more rare disease than cervical OPLL. It is incomprehensible that prevalence of thoracic OPLL and cervical OPLL was both 4.1% in women.

Multivariate logistic analysis

Only odds ratio of "gender" in DISH was 3.1. However, most of odds ratios of parameters were nearly 1. This mean the effect of these parameters were weak.
Recommendation

The authors may need to check more women objects.

The authors also need to show the examples of diagnosis of ossification of the spinal ligament.

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

Yes

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

No

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.

Yes

**Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?**
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

Not relevant to this manuscript

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Needs some language corrections before being published

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