Reviewer's report

Title: Association between adolescent idiopathic scoliosis prevalence and age at menarche in different geographic latitudes

Version: 1 Date: 1 April 2006

Reviewer: Toru Maruyama

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Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

1: The authors conducted two linear regression procedures, one between the prevalence of idiopathic scoliosis and the geographic latitude, and the other between the age at menarche and the geographic latitude. Why didn’t the authors directly inspect the correlation between the prevalence of idiopathic scoliosis and the age at menarche? Otherwise, they can not conclude that late age at menarche is parallel with higher prevalence of AIS.

2: Table 2 showed the results of linear regression between the prevalence of idiopathic scoliosis and the geographic latitude, if I understood correctly. What has become of the results of linear regression between the age at menarche and the geographic latitude?

3: In figure 1, fitted curve seems to be linear, not curvilinear.

4: In figure 2, there does not seem to be a linear correlation between age at menarche and the geographic latitude.

5: The results that the AIS prevalence decreases as the geographic latitude approaches the equator is interesting.

Patients with idiopathic scoliosis are known to have delayed menarche in comparison with normal girls. Delayed menarche may be one of the risk factors of AIS. The authors hypothesized that delayed age at menarche was caused by high levels of melatonin due to light insufficiency and that melatonin is pathogenetic factor of AIS. Their opinion is opposite to some researchers who attributed progression of idiopathic scoliosis to melatonin insufficiency.

Is there any evidence that melatonin level of the people living in northern country is elevated?

What next?: Accept after minor essential revisions

Level of interest: An article of importance in its field

Quality of written English: Acceptable

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