Reviewer’s report

**Title:** Longitudinal analysis of vertebral fracture and BMD in a Canadian cohort of adult cystic fibrosis patients

**Version:** 1  **Date:** 11 March 2008

**Reviewer:** Tuan V Nguyen

**Reviewer’s report:**

The authors examined the change in BMD and prevalent vertebral fracture (VF) in cystic fibrosis patients, and found that ~20% CF patients had at least one VF. This is an interesting study and represents a valuable contribution to the literature of osteoporosis. Nevertheless, because there was no control group in the study, the result should be interpreted with care.

I have a number of specific comments that I hope will help improve the manuscript:

1. In this age range (20-30) a vertebral fracture prevalence of 20% is indeed high. Presumably there is a way to compare with a “standard” or “referent” population (without CF) to see how high is the risk.

2. Because there was no control group, I think it is important to present the BMD data in terms of z-score for each patient group.

3. It is not clear how the percent change in BMD was calculated (Table 2). Was there any correlation between change in BMD and baseline BMD levels? Given that measurement of BMD is subject of measurement error, how many patients had changed BMD beyond the measurement error?

4. Was there any association between change in BMD and the risk of sustaining new vertebral fracture? It is not clear whether fracture risk was related to age and/or concomitant medication.

5. I consider that the present analysis could be improved. Because this is a longitudinal study, I think the analysis should capture this important aspect of the study. At the very least, one would like to know what was the actual incidence of VF in the population. I suggest the authors present the data on the transition between baseline and follow-up period as follows:

<table>
<thead>
<tr>
<th>Vertebral fracture at:</th>
<th>Baseline</th>
<th>Follow-up</th>
<th># patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>No VF</td>
<td>No VF</td>
<td>n1</td>
<td></td>
</tr>
<tr>
<td>No VF</td>
<td>VF</td>
<td>n2</td>
<td></td>
</tr>
<tr>
<td>VF</td>
<td>VF</td>
<td>n3</td>
<td></td>
</tr>
</tbody>
</table>
VF VF n4

6. Because there was 30% patients on oral corticosteroid, it would be useful to know whether there was an association between the incident VF and steroid use.

7. In the Discussion (page 11) the authors state that BMD loss tends to be stable with age. I don't think this is the case. Our study (Jones et al 1994, Nguyen et al JBMR 1998, Bone loss, physical activity, and weight change in elderly women) and the SOF study (Ensrud JBMR 1995, Hip and calcaneal bone loss increase with advancing age) showed that bone loss actually increased with advancing age.

8. Table 1: Please show actual p-values rather than “ns” or relative figures such as “<0.05”. Given the small sample sizes in the fracture and non-fracture group (n=41 vs n=8), I think the authors should show the confidence intervals for each parameter.

I am confused about the “valid n” in Table 1. Why, for example, the number of “valid” men (41/8) is exactly the same as the number of “valid” women (41/8)? Please clarify!

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, and I have assessed the statistics in my report.

Declaration of competing interests: I declare that I have no competing interests.