Reviewer's report

Title: Discordance in diagnosis of osteoporosis using spine and hip bone densitometry

Version: 1 Date: 4 December 2004

Reviewer: Bo Abrahamsen

Reviewer's report:

General

Moyayyeri et al have reviewed bone densitometry results and clinical information in a university hospital osteoporosis database, containing data from 4229 referred patients, in order to examine the presence of discrepancy between T score based diagnoses. The study also aimed to identify predictors associated with particular diagnostic discordance. The authors conclude that T score discordance is a prevalent finding, and that a strategy must be developed to aid in patient management in this situation.

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

1) The stated objective of the study includes evaluating "risk factors for T score discordance" (p. 4). This is an important focus, which is not pursued sufficiently in the manuscript. Thus, the authors mention collecting information on a large number of important risk factor information, such as use of medications, prior fractures, smoking etc (p. 5). However, these important risk factors are only presented as a few selected baseline demographics, not as predictors of diagnostic T score discordance. Age and sex are briefly mentioned as associated with the degree of discordance. Were the other risk factors examined and what were the results? The paper would be much more useful to the reader if odds ratios and 95% CI were given for each risk factor, using major (or possibly minor) discordance as the outcome.

2) The possibility of referral bias is discussed and I think the discussion of this point is balanced and reasonable. Menopause is mentioned as the most frequent indication for referral. It would be useful for the description of the study population to include the referral reasons, with percentages. E.g. "Menopause (70%), glucocorticoid use (10%), low energy fracture (9%), ... etc." The reader will need this information to know if the findings may be extrapolated to his clinic.

3) State if all patients were untreated. Specifically, did some of them have osteodensitometry done to assess the effects of anti-resorptive medication?

4) The tables are hard to follow. Readers will need explanations of the numbers given. Which are percentages and which are absolute numbers? What do the parentheses signify?

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) T-score definition (page 3, line 5). T score is not a ratio but an absolute difference, which is then scaled by division with the population SD.
Discretionary Revisions (which the author can choose to ignore)

1) In the discussion (page 7) - consider if any of the patients were using drugs against osteoporosis, as an additional explanation for T score discordance. Most pharmaceutical interventions have more pronounced effects at the spine than at the hip.

2) Is it appropriate to mention compression fractures as a reason for discordance (p. 8)? Should they not lead to exclusion of the vertebral body in question from analysis?

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Needs some language corrections before being published

Statistical review: No

Declaration of competing interests:

I declare that I have no competing interests