Reviewer's report

Title: Associations between body composition and lifestyle factors with bone mineral density according to time since menopause in women from Southern Brazil: a cross-sectional study

Version: 3  
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Reviewer: Bart Clarke

Reviewer's report:

Summary: This original cross-sectional study reports that postmenopausal women without clinical evidence of disease from Southern Brazil who have low bone mass have shorter time since menopause, and lower lean and fat mass, and that calorie and macronutrient intake and habitual physical activity did not affect bone mineral density. The authors recruited 99 women of mean age 55.2 4.9 years and mean duration since menopause of 6.8 1.0 years and evaluated anthropometry, body composition and bone mineral density (BMD) by DXA, resting metabolic rate by indirect calorimetry, dietary intake by validated food frequency questionnaire, and habitual physical activity by pedometer. Women in the cohort less than 5 years since menopause who had normal BMD had higher body weight, body mass index, lean and fat mass, and resting metabolic rate compared to women less than 5 years since menopause with low BMD. No differences were seen in women in the cohort more than 5 years since menopause with normal or low BMD. Women more than 5 years since menopause had lower BMD at all sites and higher risk of osteoporosis than women less than 5 years after menopause. Intake of calories, protein, carbohydrate, fat, and micronutrients was no different between subsets of the cohort. After adjustment for time since menopause, the odds ratio for low bone mass was 5.2 for women with BMI <25, for low lean mass <37.5 kg 4.4, for low fat mass <26.0 kg 3.4, and for low vitamin A intake <700 mcg/day 3.0. Low meat and egg intake or low protein intake did not affect the odds ratio for low bone mass. The study concluded that postmenopausal women without clinical evidence of disease from Southern Brazil who have low bone mass have shorter time since menopause, and lower lean and fat mass, and that calorie and macronutrient intake and habitual physical activity did not affect bone mineral density.

Major points:

1) Page 6, lines 116-120, methods: Were samples run immediately after collection, or stored for future assay? If stored, what were the storage conditions?

2) Page 11, lines 233-234, discussion: Why were the variables evaluated not different between the women with normal and low bone mass more than 5 years postmenopausal? One might think that later postmenopausal life might magnify the effects on the same parameters seen in earlier postmenopausal life.
Minor points: None.
Discretionary points: 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.