Reviewer's report

Title: Age-related bone turnover markers and osteoporotic risk in native Chinese women

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Reviewer: Parvis Farahmand

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This study evaluates the correlation between a broad variety markers of bone formation (Osteocalcin, bone-specific alkaline phosphatase) and markers of bone resorption (serum cross-linked N-terminal telopeptides of type I collagen (sNTX), cross-linked C-terminal telopeptides of type I collagen (sCTX), urinary NTX (uNTX), urinary CTX (uCTX) and total urinary deoxypyridinoline (uDPD)) with bone density measured by dual energy x-ray absorptiometry in a cross-sectional setting in a female Chinese population. The authors investigated 490 premenopausal and 401 postmenopausal women between 20 and 80 years of age, which were recruited between 2007 and 2010.

The authors show very detailed, that both markers of bone formation as well as markers of bone resorption are inversely correlated with bone density. The authors investigated serum and urinary markers in this cohort.

All bone turnover markers were found to be significantly and negatively correlated with BMD T-scores at different skeletal sites, after adjustment for age and body mass index, the partial correlation coefficients between OC, BAP, sNTX, sCTX and uCTX, and bone density at various skeletal sites were still significant.

Major Compulsory Revisions

1. The correlation between bone turnover markers and bone mineral density has been shown before in both premenopausal and postmenopausal women: Ravn P et al. High bone turnover is associated with low bone mass in both pre- and postmenopausal women. Bone 1996 Sep;19(3):291-8. This reference should be included.

2. The authors investigated two groups: one group of premenopausal women and a second group of postmenopausal women. High bone turnover has been shown to correlate with low bone density pre- and postmenopausally in other populations, but predictability of bone loss rates is different perimenopausally and postmenopausally. Additionally, the levels of bone turnover markers differ significantly between pre- and postmenopausal women as shown by the same author (Wu XY et al. Reference intervals of bone turnover markers determined by using their curve-fitting valley for adult females in China. Osteoporos Int. 2013 Jul 23. [Epub ahead of print]).

In this context it would be of great interest to present bone turnover data and the
correlations to bone mineral density of premenopausal and postmenopausal women separately, too.

3. The authors state, that healthy individuals were included, patients with kidney diseases were excluded. What was the cut-off for creatinine-clearance?

Minor Essential Revisions
1. Page 13 Line 9: Missing word “of”: The prevalence of osteopenia…

**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.