LETTER

Validation of cross-sectional studies with longitudinal meta-analysis

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Dear Editor,

In a meta-analysis of 10 articles that included 217,295 participants and 26,525 cases of osteoporotic fractures (OF), Wang et al. [1] found that women with one or more live births had a lower risk of hip fractures (HP) compared to nulliparous women. The pooled RR of OF were 0.89 (95 % CI 0.85–0.94) for one live birth, 0.81 (95 % CI 0.74–0.89) for two live births, 0.78 (95 % CI 0.71–0.85) for three live births, 0.76 (95 % CI 0.69–0.84) for four live births, 0.75 (95 % CI 0.67–0.84) for five live births, and 0.84 (95 % CI 0.64–0.85) for six live births when compared to nulliparous women. This meta-analysis coincides with our findings in a cross-sectional retrospective study in a large population of postmenopausal women from Barranquilla, Colombia, where we found a similar lower risk of fracture in multiparous when compared to nulliparous women, with a pooled RR of OF of 0.81 (95 % CI 0.32–2.05) for one, 0.45 (95 % CI 0.19–1.03) for two, 0.40 (95 % CI 0.24–0.88) for three, 0.55 (95 % CI 0.3–1.02) for four, and 0.52 (95 % CI 0.31–0.88) for five or more live births [2]. In our study, we also found that the bone mineral density and total bone and calcium contents increased as the number of deliveries increased which could be considered a “gestational bone mass peak” analogous to the bone mass peak observed during puberty [3]. The vali-

dation of cross-sectional studies with long-term longitudinal studies has been documented [4] and can be confirmed here. The similarities in our results with the results obtained by Wang et al. highlight the importance of well-designed cross-sectional studies as an early, reliable, and cost-effective source of information. Of further interest would be to analyze similar cross-sectional studies in a meta-analysis and compare those results with the results of this longitudinal meta-analysis.

Compliance with ethical standards

Conflicts of interest None.

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A response to these comments can be found at doi: 10.1007/s00198-016-3589-4.

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