Missing key factors in nutritional assessment and bone density in children with eczema

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To the Editor—With clearly outlined prospects for research, I congratulate Dr Leung and his colleagues[1] for the interesting study of "Assessment of dietary food and nutrient intake and bone density in children with eczema" in the October 2017 issue of the *Hong Kong Medical Journal*. There are two aspects worth mentioning.

As a nutrition scientist, I wonder why the authors have not integrated the consumption of beverages (water, tea, coffee, fruit juices, soft drinks, and others) and the intake of dietary magnesium into the nutritional assessment of children with eczema. One of the seven broad categories of the used food frequency questionnaire by Woo et al is 'beverages'.[2] In the local validation studies in children and adolescents cited by Leung et al, intake of beverages and magnesium was also analysed.[3] It is well established that tea consumption and magnesium intake are significantly associated with bone mineral density in children and adults. It is possible that dietary intake of magnesium is also connected to protection against eczema.[4]

A recent analysis of the 'Child and Adolescent Health Measurement Initiative' with 91 642 study participants showed a positive association of severe eczema with bone problems in children. The adjusted odds ratio was 6.08 (95% confidence interval, 1.94-19.12; P=0.002).[5] Therefore, I cannot agree with Leung et al[1] about the implication for clinical practice that "Bone mineral density assessment is unnecessary for the majority of children with eczema". Further research is required here. I think this good study by Leung et al[1] can be strengthened by additional data analysis and discussion.

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Authors' reply

To the Editor—Dr Hofmeister asked why we did not report the consumption of beverages and dietary magnesium intake. We recently reported a higher beverage intake in Chinese children with eczema, and a significant association between soft drink consumption and higher systolic blood pressure in these patients.[1] This study collected data on these two items using a modified food frequency questionnaire for local Chinese population. Our analyses revealed similar intakes of magnesium, magnesium adjusted to total calories and beverage between patients with eczema and reference groups (respective P values of 0.980, 0.149, and 0.345 by Mann-Whitney *U* test). Thus, we did not include these items in our article.[2]

Dr Hofmeister cited a study[3] about the possible protection afforded by dietary magnesium intake against eczema. Nonetheless, this article neither assessed personal intake of magnesium in eczematous children nor measured serum levels of magnesium and other antioxidants in mothers and their offspring to verify the consequences of respective dietary intake. Instead, the authors analysed possible associations between maternal antioxidant intake and the occurrence of eczema, asthma, and rhinitis in their offspring. We do not think that this is relevant to our study.

Dr Hofmeister cited another paper[4] that described an association between self-reported eczema and bone problems in children. Table 1 revealed that only 1% of the subjects had "current bone problems", the nature of which could not be verified by any objective outcome. It remained unknown if bone problems were related to diminished bone density. A more recent study of 3049 children and adolescents from the 2005-2006 National Health and Nutrition Examination Survey suggested that eczema was independently associated with low bone density at the femur and/or spine.[5]

Vitamin D deficiency, which was prevalent in local children,[6] was a significant covariate for this finding.

In our study, eczema severity and bone density of the participants were assessed by objective SCORAD and non-invasive ultrasound methods.[2] As most eczematous children in the community setting had mild-to-moderate disease, it was justifiable for us to propose that "bone mineral density assessment is unnecessary for the majority of children with eczema". Of course, our message did not preclude the need for bone density measurement in patients with skeletal symptoms or those with extensive dietary restriction. We also fully agree with Dr Hofmeister that further research is needed to examine the relationship between eczema and bone density impairment.

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