Pathophysiology of hypercalciuria

Giovanni Gambaro and Cataldo Abaterusso
Nephrology, University of Verona, Verona, Italy

Worcester et al. (1) are to be praised for their recent contribution to an understanding of the pathophysiology of hypercalciuria. However, we would like to call their attention to potential pitfalls in their interpretation of three of their data.

1) They state that the overlap between normal subjects (N) and idiopathic hypercalciuria calcium stone formers (IHSF) is minimal with respect to fractional calcium reabsorption. However, in consideration of the fast-fed, at least 2 (of 10) IHSF behave exactly like N. The conclusion of the paper is that an anomalous tubule Ca reabsorption explains hypercalciuria. This is not true, for in the above-mentioned two subjects clearly the mechanism of hypercalciuria is different.

2) In Fig. 4, despite large SD (and consequent overlaps), which prevents robust conclusions, one feature impresses us, i.e. the higher natriuretic response after breakfast in N vs. IHSF. This seems to us a real difference between the two groups.

3) A large overlap also exists in parathyroid hormone (PTH) values in both conditions (fed/fast). However, the curves intercepting results in IHSF and N seem to be quite different. For the same fractional calcium reabsorption, they are a part of ≈15 pg/ml; furthermore, the average excursion fed/fast in IHSF is much higher than in N (≈10 vs. ≈4 pg/ml), suggesting a different PTH sensitivity of the tubule in the two groups and in this sense not excluding a role of PTH in the postmeal calciuria.

We speculate that a study on a larger number of subjects may not reach the same conclusions.

Finally, in reference to the mechanism(s) linking eating and reduction of calcium reabsorption, the meal composition in amino acids was not investigated. However, some amino acids are known to affect the activity of the calcium-sensing receptor, possibly in the tubule as well.

REFERENCE