Authors’ Reply

We thank Gosmanova and Gosmanova\(^1\) for highlighting the potential of total alkaline phosphatase (tALP) to identify patients with abnormal bone turnover. We agree that tALP is inexpensive and more readily available, but it measures alkaline phosphatase from various sources, including the liver, bone, intestine, and placenta.

In our study, ten of 43 patients who had bone biopsy had tALP level above the reference range. Only one of these patients had elevated \(\gamma\)-glutamyl tranferase but with normal transaminases. Hence, our finding is applicable to patients with CKD without liver disease. Even so, we found that tALP had area under the curve (AUC) of 0.67 for identifying high bone turnover, whereas intact parathyroid hormone (iPTH) had AUC of 0.76.\(^2\) Both AUCs were <0.80, but iPTH had higher specificity and positive predictive value. Hence, in this situation, we would still use iPTH to identify those with high bone turnover.

For identifying low bone turnover, tALP had AUC of 0.753 and was not significantly better than iPTH AUC. However, we agree that the predictive values were comparable with those for bone alkaline phosphatase. Hence, tALP could be used with the caveats that liver disease has been excluded and the clinician accepts that the test is not as robust as bone alkaline phosphatase.

For reporting diagnostic accuracy, strictly only bone turnover markers with AUC>0.80 can be labeled as the tests robust enough to be an alternative to bone biopsy. As pointed out in the editorial relating to our article, these bone turnover markers were not perfect tests to replace bone biopsy, and we must continue our search for better noninvasive tests.\(^3\) Using tALP in clinical setting will need to be balanced between the availability of the tests and its suboptimal diagnostic accuracy.

DISCLOSURES

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REFERENCES


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