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LETTER

Undercarboxylated osteocalcin may be an attractive marker of teriparatide treatment in RA patients: response to Mokuda

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Dear Editor,

We would like to thank Dr. Mokuda [1] for the interest shown in our manuscript [2]. Under carboxylated osteocalcin (ucOC) is a bone matrix protein released from both osteoblasts and resorped bone extracellular matrix by osteoclasts (which peripheral acid environment decarboxylates intact osteocalcin), then γ-carboxylated by vitamin K in blood circulation [3]. We agree that serum ucOC levels and oral glucocorticoid dose are inversely correlated in rheumatoid arthritis (RA) patients [4], which may represent suppressed total bone turnover by glucocorticoid. In addition, we have previously demonstrated that oral glucocorticoid dose showed stronger negative correlation with serum ucOC levels than N-terminal type I procollagen propeptide (PINP) and isoform 5b of tartrate-resistant acid phosphatase (TRACP-5b) in RA patients [2]. Taken together, we speculate that ucOC is a sensitive biomarker which reflects total bone turnover of RA patients, especially under oral glucocorticoid use. Moreover, we are also trying to investigate whether monitoring ucOC is useful not only in bone-anabolic treatment, but also in bone-resorption inhibiting treatment of glucocorticoid-induced osteoporosis. Further investigation may be required to investigate the effectiveness of monitoring ucOC in high-dose glucocorticoid treated patients as Mokuda pointed out because the average prednisolone dose was no more than 4.4 mg/day in our study [2].

References

1. Mokuda S (2014) Undercarboxylated osteocalcin may be an attractive marker of teriparatide treatment in rheumatoid arthritis patients. doi: 10.1007/s00198-014-2958-0
2. Ebina K, Hashimoto J, Shi K, Kashii M, Hirao M, Yoshikawa H (2014) Comparison of the effect of 18-month daily teriparatide administration on patients with rheumatoid arthritis and postmenopausal osteoporosis patients. Osteoporos Int 25:2755–2765. doi:10.1007/s00198-014-2819-x
3. Booth SL, Centi A, Smith SR, Gundberg C (2013) The role of osteocalcin in human glucose metabolism: marker or mediator? Nat Rev Endocrinol 9:43–55
4. Mokuda S, Sawada N, Matoba K, Yamada A, Onishi M, Okuda Y, Jouyama K, Murata Y, Takasugi K (2012) Serum undercarboxylated osteocalcin level increases with 48 weeks of teriparatide treatment in pre-treated elderly rheumatoid arthritis patients who use anti-resorptive drugs. J Endocrinol Invest 35:796–799

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