

## Dental notes

### Bone turnover markers

Bisphosphonate-related osteonecrosis of the jaw is a serious long-standing painful complication of bisphosphonate therapy for benign and malignant bone pathology. It is of particular interest to the dental profession as dental extraction is the most common trigger for the condition.

We note Dr Thomas' careful analysis of the role of bone markers but disagree with her conclusions on the role of C-terminal telopeptide in the management of dental extractions and the less common issue of dental implants for patients with osteoporosis treated by oral bisphosphonates. This disagreement is based on the current literature and Australian studies at the University of Adelaide and South Australia State Pathology.<sup>1</sup>

Firstly, although bisphosphonate-related osteonecrosis of the jaw was initially considered rare, current Australian<sup>2</sup> and international studies<sup>3</sup> confirm the incidence at 1 in 500 to 1500 overall. When extractions are performed in high-risk, older, medically compromised patients the risk is probably of the order of 1 in 200. Given the huge number of patients on oral bisphosphonates worldwide this is a serious health issue.

This is where blood tests may have a role. Although it is agreed that numerous factors alter the values, if C-terminal telopeptide is measured fasted, first thing

in the morning, in postmenopausal females over the age of 55, then the standard error of the test is low.

In Australian,<sup>1</sup> US<sup>4</sup> and Israeli<sup>5</sup> studies, all patients with bisphosphonate-related osteonecrosis of the jaw were found to have low bone turnover as measured by C-terminal telopeptide, at the time of onset. When bisphosphonates were ceased the concentration increased and the condition slowly improved.

Similarly, the test can be used to monitor 'drug holidays' to take the patient to a higher, safer level of bone turnover. The concentration increases at a rate of 25 pg/mL per month.

In an Adelaide study of over 200 consecutive extractions, C-terminal telopeptide concentrations were found to be of value as a predictor of bisphosphonate-related osteonecrosis of the jaw.<sup>1</sup> Similarly trends are being shown in a much larger study currently being undertaken.

It is agreed that the test will not predict exactly who will develop bisphosphonate-related osteonecrosis of the jaw, but if the concentration is above 200 pg/mL the risk is low and if below 200 pg/mL then the patients are at risk.<sup>4</sup> No clinician relies totally on a single test but a skilled clinician does not disregard a test which might improve the chances of a safer outcome for the patient.

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