Effect of antiresorptive drugs on bony turnover in the jaw: denosumab compared with bisphosphonates.

Osteonecrosis of the jaw as a result of treatment with receptor activators of nuclear factor kappa-B ligand (RANKL) inhibitors (denosumab) is a new type of bony necrosis, the exact pathogenesis of which is unknown. Our aim was to find out whether the turnover of bone in the jaw is increased after denosumab has been given compared with other skeletal sites, and if that turnover might have a role in denosumab-related osteonecrosis of the jaw (DRONJ). Bone scintigraphic images of 45 female patients with breast cancer and bone metastases were analysed retrospectively, and divided into 3 groups: those given denosumab, those given a bisphosphonate, and a control group (n=15 in each). All patients had bone scintigraphy before treatment (T0) and during the course of treatment after 12 (T1) and 24 (T2) months. The data were analysed quantitatively using 6 preset bony regions of interest. There was similar turnover of bone in the mandible compared with other skeletal sites (such as the femur), while the maxilla showed significantly higher turnover. None of the bony regions investigated showed any significant changes after the bisphosphonate had been given. There was a tendency to increase bone turnover in those patients taking denosumab. The bone turnover of the jawbone is not overtly changed either by a bisphosphonate or denosumab,
so it seems unlikely that oversuppression of bony turnover in the jawbones plays an important part either in the pathogenesis of DRONJ or in the bisphosphonate-related osteonecrosis of the jaw (BRONJ).

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