

Editorial

Osteonecrosis: what does it mean? One condition partly caused by bisphosphonates—or another one, preferably treated with them?

In both the scientific and the lay press (Kolata 2006), there have recently been many warnings about something called osteonecrosis of the jaw, a condition apparently related to cancer and chemotherapy in combination with bisphosphonates (Ruggiero et al. 2004, Marx et al. 2005). It is rare in relation to the widespread use of bisphosphonates, but has led to recommendations to pay attention to oral status in connection with cancer therapy when the bone contains, or will contain, bisphosphonates (Marx et al. 2005).

This condition appears to start with a wound (dental extraction, periodontitis) exposing the jawbone, which then contracts a chronic *Actinomyces* infection (Hansen et al. 2006). It is often speculated that the condition is the end stage of a development that starts with bone necrosis—caused in some unknown way by the bisphosphonate; hence its name. However, until proven otherwise, any pathogenetic speculation should regard the bone as living before it is infected, because living osteocytes are often seen within the lesion (Hansen et al. 2006). Moreover, the pathogenesis must involve an impaired immune system and a reduced but not absent bone resorption. It appears likely that chemotherapy impairs the ability of the gingival tissues to quickly cover the exposed bone after an injury. The absence of quick soft tissue coverage necessitates bone resorption for the lesion to heal. If the bone contains large amounts of bisphosphonate, this resorption is inefficient, and the chronic necrotizing infection ensues.

The term “osteonecrosis of the jaw” is unfortunate because osteonecrosis just means “dead bone”, which is far from describing the whole picture. More precise names for clinical conditions

tend to become acronyms. A suitable acronym for this rotting entity would be CIA (Chronic Infection due to Antiresorptives). Because the main function of acronyms is usually to keep non-specialists uninformed, even an unclear but understandable ordinary word is preferable. However, “osteonecrosis of the jaw” may also further confuse the orthopedic term osteonecrosis, which is already somewhat problematic. Osteonecrosis in orthopedics is unrelated to infection and includes all the events that follow upon bone death. The symptoms and problems of osteonecrosis that occur close to a joint are related to the spontaneous revascularization and resorption that follows. Words steer our thoughts, and it is possible that the term osteonecrosis is partly to blame for attempts to treat the orthopedic condition with revascularization procedures in spite of radiographic changes indicating the presence of bone resorbing or forming cells, which of course would not be there without blood supply. A more rational therapeutic approach would be to reduce resorption of the necrotic bone with bisphosphonates (Aspenberg 2006).

So we now have two different clinical conditions called osteonecrosis, none of which is well described by the term. It is striking that one of them is partially caused by bisphosphonates, whereas the other can be effectively treated with the same drugs. We can obviously live with that, but the unclear terminology emphasizes the need for awareness of the underlying pathophysiology.

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