



## ■ GUEST EDITORIAL

# The unexpected role of dental practitioners in the prevention of hip fractures and related deaths

The future was promising. The introduction of nitrogenous bisphosphonates was the start of a new era in the prevention of the common and serious problem of hip fractures related to osteoporosis. Consequently, in the US, the incidence of hip fractures declined from 931 new hip fractures per 100,000 individuals in 2002 to 764 per 100,000 in 2012; this 1.8% reduction per year was considered a major public health achievement.<sup>1</sup>

However, according to the American Medicare data from over 2 million women, published recently, the steady decline in the number of new hip fractures observed between 2002 and 2012 among American women plateaued at higher than expected levels (by projection of the curve) between 2013 to 2015. In individuals aged 65 to 74 years, there was an increase in the incidence of hip fracture after 2012. The authors estimated that this shift resulted in an incidence of about 11,500 additional hip fractures, with approximately 2,300 deaths within 1 year of the fracture event (assuming a 20% 1-year mortality rate). Moreover, an additional expense of US \$460,000,000 may have resulted (assuming a cost US \$40,000 per hip fracture).<sup>1</sup>

The plateau of hip fracture incidence since 2012 was caused by a drop of more than 50% in oral bisphosphonate use between 2008 and 2012, after increased use for over a decade. The decline in bisphosphonate use is due to two main processes. First, fewer women underwent dual-energy x-ray absorptiometry (DXA) testing because of reduced reimbursements, which resulted in a reduction in the diagnosis of osteoporosis.<sup>2</sup> Therefore, many osteoporotic patients remained undiagnosed, and preventive measures, including oral bisphosphonates, were not recommended to them. Second, there was increased fear of the side effects of the medication, especially osteonecrosis of the jaws (ONJ). Thus, the poor understanding of the general population of the balance between the benefits and risks of the treatment may have led to a decline in the use of the medications.<sup>3</sup>

The plateauing and subsequent decline in oral bisphosphonate use coincided with reports of safety concerns of bisphosphonates.<sup>4</sup> For example, an Australian Broadcasting Corporation's television program about bisphosphonates and ONJ aired in December 2007 and later received a wide follow-up. According to an estimation by the Australian Drug Utilisation Sub-Committee of the Department of Health and Ageing, in the 9-month period after the show, the number of prescriptions filled for bisphosphonates in Australia declined by about 30,000, resulting in 130 fractures (70 hip fractures and 60 other bone fractures) and 14 deaths that may have been prevented by taking antiresorptive medications.<sup>5</sup>

Dental practitioners should educate community members, both healthcare providers and the public, and provide the updated data regarding ONJ in osteoporosis patients (eg, prevalence of 0.0004% to 0.2% among osteoporosis patients treated with oral bisphosphonates,<sup>6</sup> with median time to onset of 6.0 years<sup>7</sup>). Dental practitioners should offer adjusted dental treatment to these at-risk patients and regular examination (ie, every 4 to 6 months) for maintenance (including scaling and fluoridation of the dentition) and early diagnosis of dental/periodontal diseases or osteonecrotic lesions, which may facilitate conservative rather than invasive interventions.

Familiarity with the real risks and taking these preventive measures will enhance the confidence of osteoporotic patients to adhere to the bisphosphonate regimen, thereby reducing their own risk for hip fracture and related complications including death. The dental practitioner should alert but not alarm the public regarding ONJ. ■

Yehuda Zadik, DMD, MHA  
Oral Medicine Clinic for Hematologic and Oncologic Patients,  
Department of Oral Medicine, Sedation and Maxillofacial Imaging,  
Hebrew University-Hadassah School of Dental Medicine, Jerusalem, Israel;  
and Department of Oral Medicine, Oral and Maxillofacial Center,  
Medical Corps, Israel Defense Forces. Email: Yehuda.Zadik@mail.huji.ac.il



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**Yehuda Zadik**