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Toxic metals, bone pathology and serum orosomucoid

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New biomarkers can improve the early detection of bone pathology (i.e.: osteonecrosis, osteomyelitis). We recruited 26 patients with a new diagnosis of radiolucent lesions of mandibular and maxillary bone. In adults, the reference range of alpha-(1)-acid glycoprotein is 0.4-1.0 AGP g/L (women), and 0.6-1.2 AGP g/L (men). A value at or above 0.70 grams per liter of orosomucoid was the best cutoff for assessing possible "low-grade" osteonecrosis, osteomyelitis in patients with inflammation of the bone. Mercury, palladium, and titanium were the most common metals associated with bone pathology. In 26 individuals with bone pathology associated with odontogenic infections, the mean (±SD) level of alpha-1-glycoprotein acid was 0.76 (±0.23) grams per liter (g/L). In four patients with no clinically visible radiolucent lesions, there was a decline in the mean level of alpha-1-glycoprotein acid was 0.64 (±0.12) grams per liter (g/L). Serum marker of inflammation – alpha 1 glycoprotein acid – is associated with the development of bone inflammation arising from odontogenic structures in patients with adverse events to metals.

Recent Publications:

1. Glueck C J et al. (2010) T-786C polymorphism of the endothelial nitric oxide synthase gene and neuralgia-inducing cavitational osteonecrosis of the jaws. Oral Surg. Oral Med. Oral Pathol. Oral Radiol. Endod. 109(4):548-553.
2. Croce M V, M R Price and A Segal Eiras (2001) Association of a alpha1 acidic glycoprotein and squamous cell carcinoma of the head and neck. Pathol. Oncol. Res. 7(2):111-117.
3. Adams W R, K J Spolnik and J E Bouquot (1999) Maxillofacial osteonecrosis in a patient with multiple "idiopathic" facial pains. J. Oral Pathol. Med. 28(9):423-432.
4. Gadsboll N, P F Hoilund Carlsen and A Widding (1985) C-reactive protein in femoral head necrosis. J. Trauma. 25(6):511-515.

Biography

Gianpaolo Guzzi is the President - Founder and Clinical Research Coordinator of the Italian Association for Metals and Biocompatibility Research – A.I.R.M.E.B., a Milan-based not-for-profit organization. His field of expertise is toxicology of mercury.

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