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The potential of drug and gene therapy applied to orthodontic treatment

Carolina Duarte

Ras Al Khaimah College of Dental Science, UAE

Interceptive and comprehensive orthodontic treatments are characterized by the use of appliances that mechanically modify bone size and shape, and reposition teeth in the dental arches. The bone modifications and tooth movements done with these orthodontic appliances can be complex and painful, require long retention time and are subject to significant amounts of relapse. Orthodontic research has focused on optimizing the mechanics, materials and esthetics of orthodontic appliances which have made orthodontic treatment more predictable and acceptable to patients. However, less importance is given to therapeutic adjuvants that may optimize bone remodeling during orthodontic treatment and improve hard tissue adaptation after treatment is completed. Numerous reports have been published on the effects of drugs or hormone therapy during orthodontic treatment, as well as the genes involved in bone remodeling during orthodontic tooth movement. This basic knowledge could be translated to safe clinical therapies with the potential to reduce treatment and retention time, facilitate anchorage and control relapse. Gene therapy is trending in many areas of medical and dental practice but has been overlooked by orthodontists. It is only logical to wonder if orthodontic treatment will continue to grow as a purely mechanic therapy or will evolve to a hybrid practice using mechanics and gene therapy to optimize its progression and results.

Biography

Duarte did her pre-graduate training at the National Autonomous University of Honduras and obtained her PhD in Maxillofacial Orthognathics from Tokyo Medical and Dental University in Japan. She has studied the effect of hormones on bone metabolism and their application in orthognathic treatment, and presented and published her research internationally. She recently joined the faculty at Ras Al Khaimah College of Dental Science.

caroline@rakmhsu.ac.ae