Fluoride Toothpaste Containing 1.5% Arginine and Insoluble Calcium as a New Standard of Care in Caries Prevention

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Abstract
In spite of obvious achievements in prevention, caries remains a prevalent disease. Fluorides are effective by inhibiting enamel and dentin demineralization and enhancing remineralization, but have little or no influence on bacterial processes in dental plaque. Dental caries is a continuum of stages from reversible, early lesions to irreversible, pre-cavitated lesions and, ultimately, to cavities. Prevention should focus on strengthening protective and reducing pathological factors, and careful monitoring of the disease state. While fluoride and the mineral aspects of caries have been in focus for decades, new insights into the etiology of caries have generated novel concepts and approaches to its prevention and treatment. The observation that some plaque bacteria can produce alkali metabolites and, thus, raise pH or neutralize acid formed in plaque has long been known. Such pH rise factors are related to caries susceptibility. Nourishing the plaque with substrates that encourage alkali-producing reactions is a protective factor in the caries continuum.

This article reviews the results of clinical studies with a novel toothpaste containing 1.5% arginine, an insoluble calcium compound, and fluoride which have demonstrated superior remineralization of white spot enamel lesions and rehardening of root surface lesions, favorable effects on the de-/remineralization balance, as well as superior cavity prevention efficacy compared to toothpaste with fluoride alone. Studies have also confirmed formation of ammonia and elevated pH levels in subjects using the arginine-containing toothpaste. This novel toothpaste effectively combines the established effects of fluoride on de- and remineralization with reduction of caries-inducing pathological factors resulting from plaque metabolism.

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