COMMENT

Letters to the editor

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Oral health

The impact of intermittent fasting on oral health

Sir, having recently delved into the insightful paper by Yoldaş *et al.*, which explores the connection between blood biochemical parameters and oral health in children, particularly those with obesity/overweight,[1] we are drawn to the broader spectrum of health interventions. Intermittent fasting (IF), a subject of increasing interest, has demonstrated potential health benefits, encompassing metabolic regulation, weight management, and potential reversal of insulin resistance and hypertension.[2] This practice, highlighted in various studies, has also shown positive effects on the gut microbiome[3] and a reduction in risk factors associated with cardiovascular diseases such as atherosclerosis.[2]

IF has been rooted in diverse cultural and religious practices such as Ramadan and Lent, spans centuries, with a historical presence evident in early twentieth century health literature and modern approaches like the 5:2 and '16/8' methods. Beyond metabolic benefits, it intertwines with oral health by reducing sugar intake, thereby lowering the risk of dental caries and limiting oral bacteria substrate. Fasting periods, accompanied by hydration, enhance saliva production, promoting enamel remineralisation and maintaining optimal oral pH. For individuals with Type 2 diabetes, intermittent fasting's potential to regulate blood sugar levels becomes crucial in mitigating risks of oral infections and periodontal diseases.[4] Additionally, its anti-inflammatory effects and impact on the gut microbiome offer avenues for reducing periodontal complications exacerbated by excessive sugar consumption.[5]

In conclusion, intermittent fasting presents a promising, non-pharmacological strategy to improve oral health in overweight and diabetic individuals, addressing a range of issues from dental caries to periodontal diseases.

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Antimicrobial resistance

The importance of rational chlorhexidine use

Sir, for many years chlorhexidine has represented the most widely used antiseptic in mouthwashes for the prevention of bacterial biofilm formation and it is considered the gold standard for the treatment of biofilm-related oral diseases. In recent years, more and more practitioners have been using chlorhexidine within their clinical practice at varying concentrations and for long periods of time without any conditions to justify its use. This behaviour can lead to increased bacterial resistance to chlorhexidine.

There are several sources in the literature demonstrating the existence of resistance mechanisms of oral bacteria to antiseptics in ways similar to antibiotic resistance. Specifically, bacteria subjected to repeated courses of chlorhexidine treatment develop resistance mechanisms thanks to the presence of multidrug efflux pumps (MDR). These structures are acquired by the bacterial cell in response to the presence of drugs able to penetrate the phospholipid layer of the cell membrane. Following drug identification, the trans-membrane protein proceeds to eliminate the harmful molecule from the cytoplasmic environment.[1,2]

This type of bacterial resistance is mediated at the genetic level by specific genes that code for these specific transmembrane proteins. In many cases, the genes that confer the microbial resistance phenotype are located in mobile genes that can, through extracellular transmission mechanisms of genetic material, transfer from bacterium to bacterium resulting in resistance via horizontal gene transfer. In addition, according to many studies, the oral cavity would appear to be an extremely rich environment for antibiotic resistance genes (AGR).[3,4]

In light of this evidence, it is also important to consider, for the management of these cases and in the field of prevention, the use of other antiseptics whose effects are widely demonstrated, such as ozone; CPC; hydrogen peroxide and natural substances. This is to reduce the use of CHX only in clinical cases of strict necessity thus reducing the risk of bacterial resistance development. The creation of good practice on the rational use of chlorhexidine would be necessary in the dental world. In addition, the relationship between resistance of bacteria to antiseptics and that of resistance to antibiotics, which may have a possible correlation, needs to be further investigated.

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