Photobiomodulation for Taste Alteration

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Photobiomodulation (PBM) therapy employs light at red and near-infrared wavelengths to modulate biological activity. The therapeutic effect of PBM for the treatment or management of several diseases and injuries has gained significant popularity among researchers and clinicians, especially for the management of oral complications of cancer therapy. This entry focuses on the current evidence on the use of PBM for the management of a frequent oral complication due to cancer therapy—taste alteration.

Keywords: dysgeusia ; cancer complications ; photobiomodulation ; oral mucositis ; laser therapy ; Taste altera-tion

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Taste is one of the five basic senses, which also include hearing, touch, sight, and smell [1]. The three primary functions of this complex chemical process are pleasure, defense, and sustenance [1][2]. It is the perception derived from the stimulation of chemical molecule receptors in some specific locations of the oral cavity to code the taste qualities, in order to perceive the impact of the food on the organism, essentially [1][2]. An alteration of this typical taste functioning can be caused by various factors and is usually referred to as taste impairments, taste alteration, or dysgeusia [3][4].

In cancer patients, however, the impact of taste alteration or dysgeusia on the quality of life (QoL) is substantial, resulting in significant weight loss, malnutrition, depression, compromising adherence to cancer therapy, and, in severe cases, morbidity [5]. Despite the contemporary thinking of taste alteration's pathophysiology, the exact mechanism of action in cancer patients is still not entirely understood [5]. Depending on both the cancer and the treatment's types, the reported prevalence of dysgeusia in cancer patients varies between ±56 to 76% [5][6]. Cancer therapy and, particularly, chemotherapy, radiotherapy, and their associations have been associated within different degrees to cause numerous oral complications, such as the inflammation of the oral mucosa (oral mucositis), the impairment of swallowing (dysphagia), taste alteration (dysgeusia), and the inflammation of the skin (dermatitis), trismus, lymphedema, osteonecrosis of the jaw and others [7]. Nevertheless, preventive and curative methods for the management of these oral complications are still limited, and international guidelines and recommendations are still in need [7][8]. In this entry, a promising and relatively new approach for the therapeutic and curative management of taste alteration will be assessed: photobiomodulation therapy.
