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Epithelial expression of vanilloid and cannabinoid receptors: a potential role in burning mouth syndrome pathogenesis

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Burning mouth syndrome is an intraoral burning sensation in which the oral mucosa has a normal appearance and no medical or dental causes can be found. It remains an unknown disease for which long-term treatment is still lacking. The aim of this study is to assess in epithelial human tongue the expression of three receptors involved in pain transmission, such as a transient receptor potential vanilloid receptor type 1 (TRPV1) which mediates the sensation produced by chilli peppers, cannabinoid receptors type 1 (CB1) and type 2 (CB2), which are pathway-related to TRPV1. Epithelial cells express TRPV1, CB1 and CB2 receptors suggesting a role for these cells in sensory transduction. The study was performed on 8 healthy and 9 BMS patients. All patients underwent a 3-mm punch biopsy at the anterolateral aspect of the tongue close to the tip. Specimens were included in paraffin and serially cut to obtain 6um thick sections. The sections were processed for TRPV1, CB1 and CB2 immunohistochemistry. The analysis showed an altered expression of the studied receptors. In particular we observed an increase of TRPV1, a decrease of CB1 and an increase of CB2 expression in epithelial cells of the tongue with a change in morphological localization. So, these receptors seem to be correlated with BMS. These data could be useful for future characterization of BMS markers and specific therapies.

Keywords: burning mouth syndrome, vanilloid receptor, cannabinoid receptors