



## LETTER

# Response to Comment on “Xerostomia and Salivary Gland Hypofunction in Patients with Oral Lichen Planus Before and After Treatment with Topical Corticosteroids”

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Dear Editor,

We thank the letter's author for the interest in our study [1]. In response to the points raised:

1. We agree that the lack of histopathological confirmation of our clinical diagnosis is a limitation of our study, and we have acknowledged this point in our manuscript. Regarding the specific concerns raised surrounding the differentiation of Oral Lichen Planus (OLP) from oral lichenoid reactions, it is noted that the histopathological features are known to greatly overlap between OLP and lichenoid reactions and there is currently a lack of established, standardized diagnostic criteria for the diagnosis and differentiation of these conditions [2, 3].
2. While the majority of our participants were taking medications which have been associated with mouth dryness, we monitored our participants for any changes to their medical conditions and their medication use. As, over the course of this study, none of the participants reported any changes to their medical conditions nor any changes to their medications (including dose changes), we have controlled for this variable. While we did acknowledge that the high prevalence of xerostomia and salivary gland hypofunction in our study population was in part attributed to the participant's comorbidities, the only variable changing during the course of the study was the treatment of OLP and OLP activity. Hence any corresponding changes in mouth dryness during the course of the study have been attributed to the treatment of OLP as opposed to the comorbidities, which remained unchanged.
3. While salivary flow rates have been reported to exhibit a circadian rhythm, this has been questioned in the more recent literature, suggesting that salivary flow rates can in fact be measured during normal clinic hours [4].
4. All the participants in our study were treated with a high potency topical corticosteroid. The duration of treatment and frequency of application varied among the participants, depending on disease severity. The intention of the study was to compare the salivary flow rates and xerostomia at two points in time *i.e.*, **1** - when the disease was active (as was determined by the presence of symptoms and / or oral mucosal ulceration) and **2** - when the disease was controlled *i.e.*, the subject was completely asymptomatic and entirely free of any oral mucosal ulceration. All study participants achieved complete disease control, meaning that they were asymptomatic and exhibited no oral mucosal ulceration. To ensure that the topical corticosteroid was not a confounding factor, we assessed all patients prior to starting topical corticosteroid treatment and we allowed a washout period post treatment completion prior to undertaking repeat assessments of the salivary flow rates and xerostomia.

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In our study, treatment with a topical corticosteroid was not associated with statistically significant differences in stimulated or unstimulated whole salivary flow rates, unstimulated salivary pH or buffering capacity. This result was expected as OLP is not primarily a disease of the salivary glands. We did however note a statistically significant improvement in xerostomia following treatment completion on VAS ( $P = 0.03$ ). Xerostomia is a complex, multifactorial and, overall, a poorly understood phenomenon [5]. The relationship between salivary flow rates and xerostomia is equally complicated [5, 6]. In the case of xerostomia, factors besides salivary volume seem important, which is why increasing salivary flow rate in an individual with xerostomia does not necessarily resolve the xerostomia, and why individuals with normal salivary flow rates may also complain of xerostomia [6 - 8]. Thus, absence of statistically significant differences in stimulated or unstimulated whole salivary flow rates, as occurred in our study, does not rule out changes in xerostomia.

Ours was a small study investigating the very common problem of mouth dryness, yet one that remains largely unexplored in the context of OLP. Although novel, our study is associated with a number of limitations which future work must address. Clearly further research is required in this area.

We again sincerely thank the letter's author for the interest in our study.

Kind regards,

Agnieszka Frydrych

#### Editor's Note

OLP, oral ulcers, and mucositis often intensify the perception of xerostomia. Treatment of such lesions reduces the pain and discomfort, which explains the observed improvement in the VAS score. It is rather simplistic to consider that the medication used to treat the lesions can be used for the treatment of xerostomia.

#### CONSENT FOR PUBLICATION

Not applicable.

#### CONFLICT OF INTEREST

The author declares no conflict of interest, financial or otherwise.

#### ACKNOWLEDGMENTS

Declared none.

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