

# Letters to the Editor

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## Seasonal variation in dry mouth symptoms of Sjögren's syndrome patients: A clinical follow-up study

Sirs,

The prevalence of xerostomia is estimated to vary from 6.2% to 46% of the population (1-3). Generally subjective symptoms of dry mouth correlate with decreased salivary flow, even though this is not necessarily true on the individual level (4, 5). Because there are no longitudinal clinical studies on the seasonal variation in symptoms of oral dryness, our aim was to evaluate xerostomic symptoms in a clinical follow-up study monitored with subjective visual assessment (VAS) scoring.

Twenty-seven volunteers, 25 women and 2 men with a mean age of  $52.9 \pm 13.1$  years, participated in the study group; 26 completed the study. They all suffered from subjective symptoms of dry mouth; however, they had macroscopically normal oral mucosa. All xerostomic subjects had one or more

systemic diseases; the most common diagnosis being Sjögren's syndrome (SS) (15 subjects). The unstimulated saliva flow (UWS) was normal in 5 subjects, low in 14 subjects (0.1-0.25 ml/min) and very low in 8 subjects (<0.1 ml/min).

We also recruited 25 controls (24 women and one man) without any symptoms of dry mouth. The mean age of the control subjects was  $52.4 \pm 17.2$  years; 18 completed the study. All subjects signed an informed consent form. The Ethical Committee of the Faculty of Medicine, University of Turku, approved the study protocol.

This study was a clinical follow-up of subjective symptoms of oral mucosal dryness. The appointments were set at 12-week intervals. During the first appointment the subjects received information about the study, and underwent the baseline examination. They were given a mildly flavoured, detergent-free toothpaste to be used during the study. The examination included an interview about general health and medications, evaluation of subjective dry mouth symptoms and visual inspection of oral mucosa. During the following appointments, the evaluation of subjective dry mouth symptoms (VAS; scale 0-10) was made using ten questions (Table I) and the changes in general health and medication were recorded. The statistical evaluations of the variables recorded at each appointment in VAS-scored symptoms of dry mouth were carried out using parametric repeated measurements analysis of variance (RANOVA; SPSS 10.0; level of statistical significance  $p < 0.05$ ).

For all four seasons, the normal, low and very low UWS groups reported the severity of most VAS-scored symptoms to be of similar magnitude. The VAS scores were constantly highest for lip dryness, dryness during daytime, need to drink during daytime and swallowing difficulties. All con-

trol subjects reported VAS values lower than 2 on the 10 questions in the interviews. The xerostomic group (VAS range of means 1.2-6.0) and control group (VAS range of means 0.1-1.8) differed significantly from each other with regard to all ten VAS-scored symptoms ( $p = 0.015$ ).

No statistically significant seasonal variation for any of the dry mouth symptoms was detected in the normal and low UWS groups. However, there was statistically significant, season-related variation in 4 symptoms in the very low UWS group (Table I). For the need to drink during daytime the VAS values were higher in winter than in summer and fall ( $p < 0.05$ ). The VAS scores were found to be higher for swallowing difficulties in summer than in spring ( $p < 0.02$ ), and for talking difficulties, higher in summer than in fall ( $p < 0.04$ ). Oral pain was evaluated higher in summer than in spring and fall ( $p < 0.05$ ), though rather low VAS scores were detected for oral pain throughout the study. Thus, the lowest VAS scores were registered either in spring and/or in fall. The differences were not related to the use of medication affecting the salivary flow.

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**Table I.** The VAS-scored symptoms of xerostomia in very low UWS group (mean  $\pm$  SD,  $n = 8$ ). P-values for seasonal variation are also listed (RANOVA). For statistical significances in individual symptoms between the seasons, see text.

Symptom	Winter	Spring	Summer	Fall	RANOVA for seasonal variation
Dry mouth during daytime	5.1 $\pm$ 2.2	4.5 $\pm$ 3.1	4.8 $\pm$ 3.6	4.4 $\pm$ 2.3	n.s.
Need to drink during daytime	5.5 $\pm$ 2.5	5.0 $\pm$ 3.1	4.3 $\pm$ 3.5	3.7 $\pm$ 3.1	$p = 0.000$
Dry mouth during nighttime	2.6 $\pm$ 1.8	3.1 $\pm$ 2.9	3.2 $\pm$ 3.3	2.1 $\pm$ 2.8	n.s.
Need to drink during nighttime	2.0 $\pm$ 3.0	3.1 $\pm$ 3.1	2.7 $\pm$ 3.4	2.1 $\pm$ 2.7	n.s.
Oral pain and discomfort	1.3 $\pm$ 1.7	1.4 $\pm$ 1.5	3.1 $\pm$ 2.4	1.7 $\pm$ 1.3	$p = 0.001$
Lip dryness	4.9 $\pm$ 3.4	5.7 $\pm$ 3.2	5.0 $\pm$ 4.1	4.9 $\pm$ 3.2	n.s.
Swallowing difficulties	4.7 $\pm$ 3.6	4.2 $\pm$ 3.3	5.2 $\pm$ 3.7	3.7 $\pm$ 3.2	$p = 0.008$
Talking difficulties	4.2 $\pm$ 2.9	3.3 $\pm$ 2.7	4.1 $\pm$ 3.3	3.0 $\pm$ 2.6	$p = 0.03$
Eating difficulties	5.7 $\pm$ 3.6	4.2 $\pm$ 3.3	5.3 $\pm$ 3.3	3.4 $\pm$ 3.1	n.s.
Taste of food	1.9 $\pm$ 2.2	1.5 $\pm$ 1.8	1.7 $\pm$ 2.0	1.6 $\pm$ 2.2	n.s.