Xerostomia and Hyposalivation
Causes, Consequences and Treatment in the Elderly

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Contents

Abstract .......................................................................................................................... 103
1. Subjective Complaint of Dry Mouth: Xerostomia ...................................................... 104
2. Regulation of Salivary Flow and Composition ............................................................ 105
3. Medication and Saliva in the Elderly ......................................................................... 107
4. Measurement of Saliva Flow Rate ............................................................................. 108
5. Clinical Signs and Consequences of Xerostomia and Salivary Gland Hypofunction (SGH) .............................................................................................................. 109
6. Treatment of Xerostomia and SGH .......................................................................... 110
6.1 Prevention of Complications .................................................................................... 110
6.2 Symptomatic Therapy ............................................................................................. 111
7. Conclusions ............................................................................................................... 112

Abstract

Xerostomia and salivary gland hypofunction (SGH) are prevalent in elderly populations, causing much discomfort and even difficulties in eating. SGH also increases the occurrence and severity of oral diseases and makes the patient susceptible to candidiasis. The principal causes of SGH and xerostomia are systemic diseases and drugs used daily. The diagnosis of SGH and xerostomia is based on simple methods, of which measuring both unstimulated and stimulated salivary flow rate is the most important. Treatment calls for proper management of underlying disease, avoidance of all unnecessary medications, and topical remedies such as artificial saliva substitutes. However, good hydration is essential in the elderly with SGH and xerostomia, and water is the drink of choice. In extremely difficult cases, for instance in patients receiving radiotherapy for cancer of the head and neck regions, parasympathomimetic drugs may be administered if no contraindications exist.

The presence of saliva is hardly ever noticed, but the lack of it can seriously damage the quality of life for those experiencing a subjective sensation of oral dryness, especially when it is related to salivary gland hypofunction (SGH).[1-3] Xerostomia has frequently been considered synonymous to impaired salivary flow. However, it only describes the subjective complaint of dry mouth and may have both salivary and nonsalivary causes.[1] It is important to identify the individuals whose xerostomia is related to true secretory hypofunction, as these individuals are at risk for oral diseases.
A sensation of oral dryness (xerostomia) is a frequent complaint among the elderly. More than 50% of elderly have been reported to have noticed occasional oral dryness, while 10 to 25% experience it constantly. Recently, as the absolute number of the elderly as well as their percentage in the population has increased, this complaint has gained better recognition.

The critical role of saliva is clearly observed among individuals whose salivary flow is prevented. Such insufficiency occurs frequently in the elderly population because of systemic diseases and immunological disorders, and as an adverse effect of medicines and of radiotherapy for head and neck cancer. Insufficient saliva enhances the accumulation of microorganisms to oral surfaces. It has been clearly demonstrated in patients with radiotherapy-induced SGH that microbial growth increases dramatically and the incidence of caries soars. The functions of saliva can easily be compared with the functions of tears. Both have antimicrobial actions and act as a lubricant for the movements of mucosa. Saliva also has digestive properties and is essential for the remineralisation of dental hard tissues. The oral cavity can be a source of serious systemic infections and since the mouth is an important pathway for many microorganisms entering the human body, saliva has an essential role in first-line defence in general.

Because of the age-associated changes in salivary gland structure, older people deplete their secretory reserve. Adequate secretory function can still be maintained as long as no further stress, such as drugs causing hyposalivation, is placed on the secretory system. This literature review highlights the causes, consequences and treatment of xerostomia and SGH in the elderly. Primary literature selection was conducted using MEDLINE on campus network with the year limits 1965 onwards to the update April 1999. The literature search was expanded using the reference lists of originally selected articles.

### 1. Subjective Complaint of Dry Mouth: Xerostomia

Subjective sensation of oral dryness (xerostomia) may occur despite normal salivary gland activity. Certain complaints such as dryness at night or on waking, or dryness during the day, are not necessarily indicative of objective SGH. Mouth breathing, for instance, can cause sensations of oral dryness. Xerostomia is related to mucosal dehydration, and since saliva does not necessarily wet the whole mouth uniformly, it is possible that even in the presence of a sufficient amount of saliva, localised areas of dryness could trigger the sensation of dry mouth. Nevertheless, whatever the original salivary flow rate, sensation of oral dryness occurs when the flow rate is diminished by 50%. Dryness while eating, difficulty in swallowing dry foods or the need to sip liquids to aid swallowing have been considered as symptoms indicating true SGH. Absence of saliva when palpating salivary glands and the total number of decayed teeth together with dry lips and oral mucosa are also clinical signs of SGH.

In addition to several other oral symptoms of dryness, xerostomia is frequently associated with non-oral complaints (table I). The use of dental prostheses may be difficult for patients with xerostomia. A potential contribution of xerostomia to the prevalence of malnutrition has also been suggested, but so far the evidence for xerostomia-related malnutrition in the elderly is weak.

Xerostomia per se is not a serious condition, even if it may cause much subjective discomfort to the patient. However, because of the possibility of underlying systemic disease, such as rheumatoid dis-

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<thead>
<tr>
<th>Oral symptoms</th>
<th>Non-oral symptoms</th>
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<tbody>
<tr>
<td>Itching or burning sensation in oral mucosa and tongue</td>
<td>Dry throat</td>
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<tr>
<td>Difficulty in speaking</td>
<td>Dry nose</td>
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<tr>
<td>Difficulty in eating dry foods</td>
<td>Dry skin</td>
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<tr>
<td>Difficulty in swallowing</td>
<td>Dry eyes</td>
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<tr>
<td>Taste impairment</td>
<td>Dry vaginal mucosa</td>
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<td>Dry lips</td>
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