



Carnegie Dental Group

XEROSTOMIA

Every day, over a 24 hour period, the average person produces at least 500ml of saliva. This material, which is a very complex fluid, is secreted mainly by three paired salivary glands. The largest, the parotid glands, are situated just behind the ear and behind the angle of the lower jaw. The sub-mandibular glands are sited just in front of the angle of the lower jaw on its inner surface and the sub-lingual glands, which are situated toward the front of the minor salivary glands under the mucosal surface throughout the oral cavity. Salivary flow current physiological status, for example:

Unstimulated/resting flow rate – 0.3ml/min [18ml/hour]

Flow rate during sleep – 0.1ml/min [6ml/hour]

Eating/chewing – 4.0 – 5.0ml/min [240-300ml/hour]

Xerostomia is the subjective feeling of dryness in the mouth. This can range in severity from a temporary reduction in salivary flow rate, which is relatively common, to a more permanent absence of saliva. Individuals usually detect they have a “dry mouth” when the flow of saliva decreases to around half the normal unstimulated rate (0.3ml/min).

This decrease in saliva flow rate is the result of hypofunction of the salivary glands. The glands source their fluid from the circulating blood, process it and secrete it into the gland, damage to its secretory function or interruption of stimuli can lead to reduced salivary production.

Physiology: saliva plays a vital role in dental health. Saliva is an important component of the environment of the oral cavity for many reasons. It is a natural cleansing agent of the teeth and gums helping to wash away accumulated food, debris, bacteria and plaque. It lubricates the soft tissue of the mouth including the gums, tongue, palate, floor of the mouth, cheeks and lips and, more importantly, the throat enabling swallowing to easily occur.

Saliva contains numerous proteins such as amylase [one of the digestive enzymes which starts the break- down of starch in some foods] and immunoglobulins, which helps to counteract infections and the stickiness of bacteria adhering to the teeth and soft tissue. In xerostomia [pronounced zero-stow-meeuh] some proteins may be missing or may be altered in their composition and function.

Saliva contains many inorganic elements, such as calcium and phosphate, which helps to remineralise the teeth making the less susceptible to dental decay.

Saliva also contains buffering [‘acid soaking up’] systems which neutralise and inhibit the effects of acid produced by oral bacteria or which are included in the diet.

PROBLEMS

Xerostomia and hyposalivation [less salivary flow than normal] may be a most unpleasant and devastating problem. Decreases in the quantity as well as alterations in the composition of the beneficial constituents of saliva predispose the patient to many problems.

The lips may become dry, sore and cracked. A common complaint is a dry burning tongue. Swollen, tender salivary glands and angular cheilitis [a cracking of the corners of the mouth] can be unpleasant. All the soft tissues of the oral cavity may have a thinner layer of cells than normal and, therefore, may be more susceptible to damage. Taste sensation can be altered because there is inadequate liquid to dissolve tastants in the food so that the taste buds can be activated.

Sjogren's patients may be prone to secondary oral infections, principally from the yeast-like organism, *Candida albicans*, which produces the condition candidosis [thrush]. Candidosis inflammation of the mucosal [skin] surface of the mouth and tongue on which there can be small superficial whitish patches. These may be removed leaving a red area underneath which often bleeds easily. The corners of the mouth may be infected [angular cheilitis] and this is a common problem especially in the denture wearers. Candidosis may be associated with a tender/burning sensation, which can be aggravated by hot or spicy foods.

Lack of saliva may affect the nutritional status of the individual because eating and swallowing becomes such a time-consuming ordeal, while talking and conversing may become impossible without frequent sips of water or alternative lubricants.

Denture wearing may become difficult because dry mouth can significantly add to the problem of retaining and eating with the dentures, which invariably become loose.

Of particular importance is the problem of greatly increased dental decay which can occur in patients who have their own natural teeth.

WHAT CAUSES XEROSTOMIA?

Xerostomia is a very common condition. It can occur at any time for a variety of reasons. Studies have shown that as many as one in four people complain of having a dry mouth. This may be temporary, due to dehydration, anxiety or an acute infection such as mumps. It could be the result of radiation treatment for oral cancer or indicate the presence of systemic disease such as;

- Rheumatoid conditions, for example Sjogren's syndrome
- Endocrine disorders, such as Diabetes mellitus
- Neurological disorders, including Parkinson's disease
- Dysfunction of the immune system like HIV/AIDS

However, Xerostomia is far more prevalent as a side effect of drug therapy. There are more than 400 commonly used drugs that can cause oral dryness and induce salivary gland hypofunction including:

- Analgesics
- Anti-histamines
- Anti-hypertensives
- Anti-depressants
- Diuretics
- Appetite suppressants

MANAGEMENT

Xerostomia and its sequelae are managed according to severity.

1. First, if there is some secretory glandular tissue working, it can be stimulated by chewing gums or sucking sweets. This may be sufficient to maintain adequate lubrication in the mouth between meals for talking and normal activities. However, it is vital that if you have your own natural teeth, such gums or sweets are sugar free (otherwise dental decay via conversion of sugar to acids by the microflora in the mouth will occur).
2. The drug Pilocarpine appears to be a useful sialogogue (salivary stimulant) but, as with all drugs, there are side effects.
3. Water sipped frequently as desired.
4. Saliva replacement. Generally these are compounded from methylcellulose (the base which contains the lubricant) plus a variety of other compounds designed to mimic true saliva as much as possible. These saliva substitutes are not suitable when eating and at present there is little available except to increase fluid intake during meals.
5. In patients with dry mouth denture wearing can be a major trial because retention of dentures relies considerably on the good fit of the prosthesis but also on surface tension effect of the viscous saliva under the denture. The saliva 'seals' the edges of the denture preventing air from getting under the appliance, which would allow it to drop. In xerostomia this component of denture retention can be largely absent. There are some aids for retaining the dentures which rely on the application of a thick sticky material which causes a semi-adhesion of the denture to the underlying tissues.
6. Avoid acid juices and avoid oral swabs. Many people resort to using fruit juices or carbonated fizzy drinks to make the mouth feel nice and to keep it damp. Unfortunately, if used habitually, all of these drinks will demineralise the teeth.
7. Infections of the salivary glands require antibiotic therapy or, if persistent, consideration may need to be given to surgical removal of the gland/s. Candidosis may require prolonged courses of antifungal agents.