



## Saliva Control

This information has been compiled to assist professionals working with people affected by motor neurone disease (MND) and represents suggestions only. It should not replace individual assessment for treatment.

Although a normal amount of saliva is produced, around two to three pints every day, excessive saliva is a commonly reported symptom of MND. People who have MND may have weak muscles around the mouth, tongue and throat, which compromise the management of saliva, both in the mouth and during the swallowing mechanism, making it difficult to swallow.

Some people find they have copious amounts of thin watery saliva, which can cause drooling. This is known as sialorrhoea, which can be especially troublesome if lip closure is poor.

Others complain more of phlegm or thickened mucus in the mouth and throat, which is difficult to swallow, or in the airways which is difficult to cough up due to weakened respiratory muscles and an ineffective cough.

A speech and language therapist can help to identify any problems that may be present. These may include poor lip seal and/or weakness in oral and facial muscles or the tongue, which can all contribute to problems with saliva management.

The speech and language therapist can also advise on different swallowing techniques which may make swallowing easier. Occasionally devices to improve lip seal may be helpful.

In some cases improving posture may help to control the flow of saliva. A drooping posture can cause the head to tilt forward enabling the saliva to flow through the lips. A physiotherapist can give advice on posture problems as well as head supports. Ask the GP or consultant for a referral.

The physiotherapist can also give advice on cough management techniques which may help to cough up thick tenacious saliva.

## Medication

The GP may be able to prescribe a medication to 'dry' up or reduce watery saliva. If mucus is the problem, other medication may be more appropriate. However, medication to dry watery saliva can lead to thick tenacious saliva.

**Note:** Always consult a doctor before taking any medication as there may be contra-indications.

**Note:** before putting any medication through the PEG check with the pharmacist that it won't harden and clog the tube.

## Excessive watery saliva

Some relief for this condition can be given with the following:

*Please note: for drug dosages please refer to the British National Formulary (BNF).*

Medication	Application	Comments
<b>Atropine</b>  <i>May cause confusion in the elderly</i>	eye drops	sublingually (unlicensed for oral intake)
	tablets	
	sulphate suspension	
<b>Hyoscine</b>  <i>May cause confusion in the elderly</i>	Kwells	orally or sublingually
	subcutaneous or intramuscular	
	Hyoscine Hydrobromide	injections or oral
	Hyoscine Butylbromide 'Buscopan'	Syringe driver, tablets, oral or subcutaneous infusion
	nebulized	or use saline
	tablets	
	Scopoderm patches	try cutting the patch to reduce size if an over-drying effect is experienced. Moving the patch from behind the ear to the upper arm or torso is another option, particularly if an allergic reaction occurs behind the ear

	Transcop patches	unlicensed drug
<b>Glycopyrronium Bromide (Glycopyrrolate)</b>	subcutaneous or syringe driver	
	orally or via a PEG in an unpreserved suggested solution (watch for constipation)	
<b>Tricyclic antidepressants</b>	Amitriptyline as tablets or oral solution	side effect – dries mouth
<b>Antihypertensive medication</b>	Clonidine as injectable solution, tablets or patches. Can also be administered via a PEG	

The following natural products may also assist with excessive watery saliva:

- Sage (capsules, tea or tincture)
- Dark Grape Juice

Or try these additional suggestions:

- Alter the person's position to make it easier for them to swallow
- Consider a collar to support the head (see physiotherapist)

### **Thick Tenacious Mucus/Saliva**

Dehydration, mouth breathing and evaporation of saliva can cause thick mucus to build up in the mouth and at the back of the throat. This may produce stringy mucus and cause airways to become blocked, which can be very distressing. It may be more troublesome after meal times.

Some relief for this condition could also be given with the following:

*Please note: for drug dosages please refer to the British National Formulary (BNF).*

Medication	Application	Comments
<b>Beta blockers</b>	Propranolol and metoprolol	in tablet form (there is limited evidence that beta blockers may reduce secretions)
<b>Mucolytics</b>  <i>These break down protein in mucoid secretions</i>	Carbocisteine - 'mucodyne'	as capsules or oral liquid non-NHS
	Potassium iodide SSK1	as drops in water and may take 1-2 weeks to be effective
	Bromelaine	non-prescription, from health food stores
	Papain tablets or Papaya plus (or papaya fruit)	From health food stores. Take all papaya derived treatments at time of day when mucus is most troublesome. An enzyme in papaya helps to break down the protein in tenacious saliva, helping to lift it from the mouth. Wipe around mouth to dilute saliva or drink the juice.

The following may also assist with Thick Tenacious Mucus/Saliva:

- Meat tenderiser powder, available from supermarkets, to help break down mucus (mix with a little water and spread around the mouth and over the tongue)
- Rehydration – Increase fluid intake, eg with jelly/ices
- Reduce intake of dairy products
- Reduce Alcohol/Caffeine
- Do not use Alcohol based mouthwashes (try 1 tsp salt/1tsp baking soda/4 cups of warm water as an alternative)

The following natural products are easily available and can help:

- Butter – small amount in the mouth loosens adhering mucus
- Drink pineapple juice, papaya juice or other citrus juice before/with a meal (contains proteolytic enzyme ie Bromelaine) which helps to break down the protein in mucus)

- Suck sugar free citrus lozenges to encourage saliva production (if safe to do so).

### **Suction Pump**

A suction pump can help to remove mucus or food particles in the mouth or trapped at the back of the throat.

If suction pumps cannot be obtained via the GP or district nurse, they can be loaned from the MND Association. Ask the GP or district nurse to contact Equipment Loan on 01604 611802 (note: instruction for use will be provided by a nurse or physiotherapist).

### **Dry Mouth**

Preparations such as Oralbalance saliva replacement gel and Bioextra gel or spray can help to relieve dry mouth. These also help to inhibit odour causing bacteria. Swab around the mouth before meals or at bedtime.

Increase fluid intake orally or through the PEG.

### **Steam Inhalation/humidification/nebulisers**

Decreases viscosity of mucus and can help to loosen secretions.

### **Relief of secretions**

With an ineffective cough, the following may help to remove secretions and reduce the occurrence of respiratory infections:

- a manually assisted cough
- the use of an ambubag
- breath stacking
- the use of a 'cough assist' machine

These therapies need to be taught by a physiotherapist. Assessment is available through a respiratory consultant.

### **Botulinum toxin (Botox)**

Botulinum toxin is a nerve toxin which can be injected into the submandibular salivary or parotid glands to control sialorrhoea (drooling). Studies have shown that intraglandular application may significantly decrease saliva production. It works by interrupting the messages from the nerves to the glands telling them to secrete. Effects from a single dose can last up to three months. It can cause side effects such as swallowing problems, but is considered relatively safe.

## Radiotherapy

Radiotherapy is the use of X-rays to destroy part of the salivary glands. The effect can be temporary or permanent depending on the amount of X-rays used. Neppelberg et al (2007) found that single-dose radiotherapy significantly reduced sialorrhoea and is an effective and safe palliative treatment in patients with ALS.

## Saliva reduction studies

A list of saliva reduction studies can be found on the MND Association's website, (see the end of this sheet for contact details).

## Reference List

Lucas V et al (1998) *Use of enteral glycopyrrolate in the management of drooling*. Palliat. Med. May;12(3):207-8

Blasco PA and Stansbury JCK (1996) *Glycopyrrolate treatment of chronic drooling*. Archives of Paediatrics and Adolescent Medicine. 150:932-935

Newall Anthony R. et al (1996) *The control of oral secretions in bulbar ALS/MND*. Journal of the Neurological Sciences (Canada), supplement to Vol 139, (pilot study, 75% success rate on 16 pts.)

Zalin H, Cooney TC (1974) *Chorda tympani neurectomy - a new approach to submandibular salivary obstruction*. Br J Surg 61:391-394.

Geiss R, et al (1999) *Injections of botulinum toxin A into the salivary glands improve sialorrhoea in amyotrophic lateral sclerosis*. Neurol. Neurosurg Psychiatry 2000; 69:121-123

Shetty S, et al (2006) Botulinum toxin type-A (Botox A) *Injections for treatment of sialorrhoea in adults: a New Zealand study*. Journal of the New Zealand Medical Association Vol 119 No 1240

## Further Reading

Talmi Y P et al (1989) *Reduction of salivary flow in Amyotrophic Lateral Sclerosis with Scopoderm TTS*. Head Neck. Nov-Dec: VII (6).

Pinto Pereiro LM Dr (1996) *Atropine: Practical Procedures: The University of the West Indies* Issue 6 (1996) Article 5

British National Formulary (BNF) British Medical Association. Royal Pharmaceutical Society of Great Britain.

Postma AG, Heesters M, van Laar T. *Radiotherapy to the salivary glands as treatment of sialorrhoea in patients with parkinsonism*. MOV Discord. 2007; 22:2430-2435

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## **We welcome your views**

The MND Association encourages feedback about any aspect of the information we produce. Your feedback is really important to us, as it enables us to produce even more useful information for the benefit of people living with MND and those who care for them.

There are a variety of ways you can get involved. To find out more about how you can help shape our information development in the future, please contact us by email: [infofeedback@mndassociation.org](mailto:infofeedback@mndassociation.org)

Alternatively, write to Information Feedback at:  
MND Association, PO Box 246, Northampton NN1 2PR

## **Further information**

If you have any questions about the information on this sheet, please contact the MND Connect team.

MND Connect offers advice, practical and emotional support and signposting to other services and agencies. The service is for people living with MND, carers, family members, health and social care professionals and MND Association staff and volunteers who directly support people with MND.

Downloads of all our information sheets and most of our publications are available from our website. You can also order our publications direct from the MND Connect team, who will also be able to advise on individual needs:

### **MND Connect**

MND Association, PO Box 246, Northampton NN1 2PR  
Telephone: 08457 626262 (people living with MND, their families and carers)  
Telephone: 01604 611870 (health and social care professionals)  
Fax: (01604) 638289  
Email: [mndconnect@mndassociation.org](mailto:mndconnect@mndassociation.org)

### **MND Association website and online forum**

Website: [www.mndassociation.org](http://www.mndassociation.org)  
Online forum: <http://forum.mndassociation.org/> or through the website

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