



Question: What are the treatment options in the management of sialorrhea?

December 2018

Summary

Sialorrhea (excessive drooling) is a term used to describe the leakage of saliva from the mouth¹. This symptom may impact on a patient's mood and result in social isolation and embarrassment.¹ All underlying causes of sialorrhea should be ruled out prior to initiating pharmacological treatment.¹ There is limited information on pharmacological management options for sialorrhea and the initiation of a treatment option would be a clinical decision. The patient should be monitored closely to ensure that they are receiving therapeutic benefit from the medicines administered and that they are not experiencing intolerable adverse effects.

Evaluation of the underlying cause

There are a number of causes of sialorrhea including dysphagia, ill-fitting dentures and neurological and psychiatric disorders.¹ Sialorrhea may also be drug-induced and drug regimens should always be reviewed to identify any possible drug causes prior to the initiation of pharmacological treatment for sialorrhea.¹

Palliative Meds Info: Terms and Conditions

The information outlined above is intended for healthcare professionals only. The information outlined above is believed to accurately reflect the medical literature at the time of writing. Healthcare professionals must use their own judgment to determine the accuracy and relevance of the information. See www.olh.ie for full terms and conditions.

Medications associated with sialorrhea¹

Class	Medication
Analgesics	Buprenorphine, mefenamic acid, ketamine
Antibacterials	Gentamicin, tobramycin
Anxiolytics/hypnotics	Alprazolam, clonazepam
Cardiac	Amiodarone
Cholinergic agonists	Pilocarpine, acetylcholine
Other (psychotropics)	Clozapine, haloperidol, lamotrigine, risperidone, venlafaxine
Other (general)	Anticholinesterases (neostigmine, pyridostigmine), Iodides, levodopa, rivastigmine

Management

Non-pharmacological options

- Exercises to improve the oral musculature.¹
- Adjusting the head position (avoiding a flexed neck and preventing jaw/chin drop).¹
- Chewing gum or sucking a hard sweet to increase the frequency of swallowing (however this will also stimulate saliva production).¹
- Suctioning.¹

Pharmacological options

The muscarinic receptors in the salivary glands are very responsive to antimuscarinics and inhibition of saliva occurs at lower doses than required for other antimuscarinic effects. This reduces the likelihood of undesirable effects.¹

Local application of antimuscarinics has been trialled but with disappointing results.¹ The following oral/transdermal pharmacological treatment options are not in any particular order in terms of recommendation strength.

Palliative Meds Info: Terms and Conditions

The information outlined above is intended for healthcare professionals only. The information outlined above is believed to accurately reflect the medical literature at the time of writing. Healthcare professionals must use their own judgment to determine the accuracy and relevance of the information. See www.olh.ie for full terms and conditions.

1. Glycopyrronium

Although absorption of oral glycopyrronium is poor, there is limited information available to suggest that glycopyrronium (oral and sublingual) may be used to reduce drooling in Motor Neurone Disease (MND) and Amyotrophic lateral sclerosis (ALS), head and neck cancer, and oesophageal cancer.² It has also been given by nebuliser.² The Palliative Care Formulary (PCF) advises that glycopyrronium 200–400microgram PO TDS produces plasma concentrations associated with an antisialogogic effect lasting up to 8 hours.²

Dosage:

The following dose is recommended for drooling:

- start with 200microgram PO stat and every 8 hours.²
- if necessary, increase dose progressively every 2–3 days to 1mg every 8 hours.²
- occasionally doses of up to 2mg every 8 hours are needed.²

Available preparations:

- Sialanar® (contains glycopyrronium 320micrograms/mL = glycopyrronium bromide 400 micrograms/mL). Sialanar® is licensed in the symptomatic treatment of severe sialorrhoea in children and adolescents aged 3 years and older with chronic neurological disorders.³ Its use in adult patients would be unlicensed.
- Glycopyrrolate 1mg and 2mg tablets are available to order, although they are unlicensed in Ireland and in the UK. They are available from the specialist wholesaler Idis and are licensed in the USA.
- Glycopyrronium injection can be given enterally when diluted to an appropriate volume, usually with 30-60mL of water.^{4,5} The oral administration of glycopyrronium injection would be unlicensed.

2. Hyoscine hydrobromide

There is limited information to support the use of transdermal hyoscine hydrobromide (Scopoderm®) in the management of sialorrhoea. Please note that the use of

Palliative Meds Info: Terms and Conditions

The information outlined above is intended for healthcare professionals only. The information outlined above is believed to accurately reflect the medical literature at the time of writing. Healthcare professionals must use their own judgment to determine the accuracy and relevance of the information. See www.olh.ie for full terms and conditions.

Scopoderm® in the management of sialorrhea would be unlicensed.⁶ Each patch contains a reservoir with 1.5mg hyoscine, with an average of 1mg of hyoscine released over 72 hours.⁶

Dosage:

- The recommended dose is 1mg/3 days by transdermal patch.⁷
- If necessary, two patches (2mg/3 days) may be used concurrently.⁷

Available preparations:

- Scopoderm® transdermal patches.
- Hyoscine hydrobromide injection can be given enterally when diluted to an appropriate volume.^{4,5}

Please see our document on Scopoderm® patches for further information.

3. Atropine eye drops

There is very little information available regarding the use of atropine eye drops in the management of sialorrhea. The administration of atropine eye drops orally, buccally or sublingually is unlicensed. However, the PCF advises that atropine (e.g. 1% ophthalmic solution) may be considered as an antisecretory agent in the management of drooling.⁸

Dosage:

- The recommended dose is 4 drops to the tongue or sublingually, on a four hourly PRN basis.⁸
- Drop size varies with applicator and technique, and accordingly the dose per drop may vary from 200-500 micrograms. It is advised that the dose can be titrated upwards until there is an adequate effect noted.⁸

4. Amitriptyline

The antimuscarinic effects of amitriptyline may be of benefit in the management of sialorrhea. In the management of drooling the PCF advises that doses such as those used for neuropathic pain should be used.⁹

Palliative Meds Info: Terms and Conditions

The information outlined above is intended for healthcare professionals only. The information outlined above is believed to accurately reflect the medical literature at the time of writing. Healthcare professionals must use their own judgment to determine the accuracy and relevance of the information. See www.olh.ie for full terms and conditions.

Dosage:

- Start with 10mg PO at bedtime.⁹
- if tolerated, increase to 25mg after 3–7 days.⁹
- if necessary, increase by 25mg every 1–2 weeks.⁹
- if successive increases are well tolerated *and bring additional benefit*, increase up to a maximum of 150mg at bedtime (seldom required).⁹

5. Propantheline

Propantheline is a quaternary antimuscarinic which does not cross the blood brain barrier.¹⁰ Propantheline has been used in the management of drooling in MND/ALS, however other options are generally preferred.¹⁰

Dosage:

- The recommended dose is 15mg BD-TDS PO, taken on an empty stomach.¹⁰

Reimbursement in the community

Medication	Reimbursed under the GMS/DPS
Sialanar oral solution 320microgram/ml	Yes
Glycopyrronium injection 200microgram/ml	Yes
Glycopyrrolate tablets 1mg and 2mg	No
Hyoscine hydrobromide injection	Yes
Scopoderm transdermal patch	Yes
Atropine eye drops 1%	Not under GMS but covered under DPS
Amitriptyline 25mg tablets	Yes
Propanetheline 15mg tablets	Yes

Adverse effects

The use of lower doses reduces, but does not eliminate, the likelihood of undesirable effects. Adverse effects associated with antimuscarinic medications include constipation, blurred vision, urinary retention and drowsiness.

Palliative Meds Info: Terms and Conditions

The information outlined above is intended for healthcare professionals only. The information outlined above is believed to accurately reflect the medical literature at the time of writing. Healthcare professionals must use their own judgment to determine the accuracy and relevance of the information. See www.olh.ie for full terms and conditions.

References:

1. Twycross R., et al. Symptom management in advanced cancer, 4th Edition. 2009.
2. Monograph Glycopyrronium. Palliative Care Formulary. Available from www.palliativedrugs.com. Accessed on the 04/10/2018.
3. Summary of Product Characteristics Sialanar 320 micrograms /ml oral solution. Available from www.medicines.org.uk. Accessed on the 04/10/2018.
4. Drug administration to patients with swallowing difficulties or enteral feeding tubes. Palliative Care Formulary. Available from www.palliativedrugs.com. Accessed on the 04/10/2018.
5. The NEWT Guidelines for administration of medication to patients with enteral feeding tubes or swallowing difficulties. 3rd Edition. 2015
6. Summary of Product Characteristics Scopoderm 1.5mg patch. Available from www.medicines.org.uk. Accessed on the 04/10/2018.
7. Monograph Hyoscine. Palliative Care Formulary. Available from www.palliativedrugs.com. Accessed on the 04/10/2018.
8. Monograph Antimuscarinics. Palliative Care Formulary. Available from www.palliativedrugs.com. Accessed on the 04/10/2018.
9. Monograph Amitriptyline. Palliative Care Formulary. Available from www.palliativedrugs.com. Accessed on the 04/10/2018.
10. Monograph Propantheline. Palliative Care Formulary. Available from www.palliativedrugs.com. Accessed on the 04/10/2018.

Palliative Meds Info: Terms and Conditions

The information outlined above is intended for healthcare professionals only. The information outlined above is believed to accurately reflect the medical literature at the time of writing. Healthcare professionals must use their own judgment to determine the accuracy and relevance of the information. See www.olh.ie for full terms and conditions.