Guidance on Saliva Control in Patients with Motor Neurone Disease

TARGET AUDIENCE	Board Wide- Information for Professionals
PATIENT GROUP	Patients with Motor Neurone Disease. (May be helpful for other neurological conditions)

Clinical Guidelines Summary

- Excessive drooling of saliva (sialorrhoea) is common in neurodegenerative disorders. The cause is usually impaired swallowing of saliva rather than excessive saliva production.
- Consider a trial of an antimuscarinic agent for pharmacological treatment for sialorrhoea
    - **Hyoscine hydrobromide** 1.5mg (Scopoderm®) patches are routinely initiated and used by generalists.
    - For subcutaneous administration and continuous subcutaneous infusion **Hysocine Butylbromide** is most commonly prescribed.
    - In patients with **cognitive impairment** consider Glycopyrronium Bromide if oral route preferred and Hyoscine Butylbromide if parenteral route required to minimise central nervous system side effects.

Where there is thick, tenacious saliva:

- review all current medicines, especially any treatment for sialorrhoea
- consider treatment with humidification, sodium chloride 0.9% nebulisers and carbocisteine

- If treatment for sialorrhoea is not effective or not tolerated, consider referral to the specialist palliative care team or the patient's specialist team.

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Saliva Control in Motor Neurone Disease

Introduction

This guideline outlines the general management of patients with motor neurone disease (MND) who require pharmacological management of hypersalivation. The guideline is based on experience of treating MND hypersalivation however it may also be helpful for other conditions.

Hypersalivation is the excessive production of saliva, whilst sialorrhoea is the involuntary loss of saliva from the mouth i.e. drooling. Although a normal amount of saliva is produced by those with MND, around two to three pints every day, sialorrhoea is a commonly reported symptom. In most cases, saliva problems are the result of increasing weakness of muscles in the mouth, tongue and throat. This can make it difficult to manage saliva, both in the mouth and during swallowing. Drooling is worse if the person has a poor lip seal, neck weakness or swallowing difficulties (dysphagia).

Patients may complain of excessive, watery saliva or thick, tenacious saliva and it is important to distinguish between the two symptoms as they are both managed differently.

Research has highlighted the clinical saliva score for MND (CSS-MND) to be an easy-to-use tool to assess and reflect the impact of saliva problems. Visit http://bit.ly/CSS-MND for further information and to access the tool.

Historically, a range of drugs with antimuscarinic actions have been used in an attempt to control hypersalivation. Blockade of cholinergic muscarinic receptors reduces salivary volume, but a lack of selectivity may result in widespread and undesirable central and peripheral effects, including drowsiness, restlessness, irritability, urinary retention, constipation, and flushing.

Cochrane reviewed four RCTs involving 110 participants with MND who were described as having intractable sialorrhea or bulbar dysfunction. Of the medicines listed in the following tables only Xeomin® (Botulinum toxin type A) is licensed for chronic sialorrhoea due to neurological disorders: all others are off-label use. It is common practice within treatment of MND patients to use a licensed drug for an unlicensed indication. This is supported by experience in clinical practice. Prescribers should consider effectiveness, potential side effects and available routes of administration when choosing between them. Prescribers should be aware of and reference the NHS Lanarkshire Unlicensed Medicine Policy. click here

NICE guidance on MND was updated in 2019. For sialorrhoea, this guideline recommends an anticholinergic as first-line treatment and referral to a specialist for botulinum toxin type A where first-line treatment is not effective, not tolerated or is contra-indicated. No specific antimuscarinic is recommended except where the patient has cognitive impairment and glycopyrronium should be used first-line as it has fewer central nervous system side effects.

Treatment of Hypersalivation

Sialorrhoea

Non pharmacological

Strategies and equipment that may help:

- Multidisciplinary team approach – physiotherapy, occupational therapist, speech and language therapy.
- Advice should be given on swallowing, diet, posture, positioning and oral care.[1]
- Portable oral suction units.
- Protect surrounding skin with a barrier cream.
- Clothing may be adapted to include a discreet waterproof insert to protect clothes and prevent skin irritation.
- Encourage a well-supported head position. A slightly reclined chair, and a collar or chin support may be used.
- At night, consider a side lie so saliva doesn't collect in the throat. This may not be an option if the patient has postural or respiratory needs.

Pharmacological

There are various pharmacological treatments which have been used in the management of sialorrhoea. The choice of drug should be based on its pharmacological and adverse effect profile. The table below aims to provide consensus based recommendations from the MND specialist team, Scottish Palliative Care Guidelines and Palliative Care Formulary in the absence of a strong evidence base.

These medicines can be used in combination for additive effects. Monitor patient for side effects e.g. constipation, urinary retention, dry mouth, sedation, delirium.

Refer to Summary of Product Characteristics (SPC) for each drug for full list of adverse effects, cautions and contraindications

First line options (choose according to availability, side effect profile, disease trajectory, route preference)

Note all medication options and / or routes of administration (aside from Botulinum toxin type A which is not available currently locally) are used off-label and reference should be made to the NHSL Unlicensed Medicines Policy
https://www.nhslanarkshire.scot.nhs.uk/download/availability-of-unlicensed-medicines-policy/

Note caution with use of antimuscarinics in patients with cardiovascular disease and balance the potential for harm with patient benefit on an individual basis.

Medicine	Route	Dose	Administration	Comments
Hyoscine hydrobromide 1.5mg (Scopoderm®) patches (1mg in 72 hours) **NB limited supply currently**	Transdermal patch	1– 2 patches every 72 hours Patches may be halved if side effects occur with full patch	Apply to hairless skin behind the ear and replace patch after three days behind the other ear Please refer to Practice Points for prescriber and patient/carer advice on administering half a patch	Steady state concentrations allow for a low incidence of systemic side effects Remove before medical scans e.g. MRI (patch contains aluminium) Routinely initiated and used by generalists
Hyoscine butylbromide (Buscopan®) injection	Subcutaneous injection	20mg, hourly as required (max 120mg/24 hours)	Maximum volume 2ml as subcutaneous bolus injection	1st choice parenteral route, non-sedative Routinely initiated and used by generalists

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Glycopyrronium 1mg/5ml (Colonis Pharma®) oral solution	Oral, nasogastric or gastrostomy	200 micrograms every 8 hours, titrated according to response and tolerability to 1mg every 8 hours. Occasionally doses of 2mg every 8 hours required. A subsequent reduction in dose may be possible	Available as a pharmaceutical "special" product	First line oral choice in cognitive impairment Long acting and does not cross blood brain barrier, therefore central side effects minimal Normally initiated by a specialist but may be used by generalists
Glycopyrronium 1mg tablet			Tablets are scored and can be halved or crushed if required. Tablets expensive and only available in higher doses	
Hyoscine butylbromide 10mg (Buscopan®) tablets	Oral, nasogastric or gastrostomy	10 - 20mg three or four times daily	Tablets can be crushed but sugar coating may block nasogastric feeding tubes	Absorption from gastrointestinal tract is poor, but readily accessible

Second- line options				
Medicine	**Route**	**Dose**	**Administration**	**Contents**
Amitriptyline tablets	Oral, nasogastric or gastrostomy	10 – 25mg at night	Oral solution available Tablets can be crushed and dispersed in water (may taste bitter)	Sedative properties may limit use to night time. Caution in patients already on antidepressants or antimuscarincs
Atropine 1% eye drops	Sublingual or on the tongue	1- 4 drops up to four times daily	Potential for accidental over/under dosing if patients have difficulty using drops	Avoid in cognitive impairment, dementia and hallucinations. Do not administer into the eyes for this indication Normally initiated by a specialist but may be used by generalists
Botulinum toxin type A (Xeomin®)	Salivary gland injection	N/A (specialist use only)	Invasive procedure requiring specialist expertise for administration	Xeomin® is the only botulinum toxin licensed for hypersalivation however is not available currently clinically in NHS Lanarkshire
Hyoscine hydrobromide 0.15mg (Joy-rides®) tablets	Oral (chewable tablets)	300 micrograms up to three times daily	Tablets should be chewed and swallowed	Tablets may be dissolved and given via enteral tube but absorption may be variable

				Caution in cognitive impairment - may cause drowsiness as crosses blood brain barrier
Hyoscine hydrobromide 300microgram (Kwells®) tablets	Sublingual, nasogastric or gastrostomy	300 micrograms up to three times daily	Suck, chew or swallow tablet	Tablets may be dissolved and given via enteral tube but absorption may be variable Caution in cognitive impairment - may cause drowsiness as crosses blood brain barrier
Ipratropium bromide 20 micrograms/puff inhaler:	Sublingual	1-2 puffs every 4 to 6 hours as required up to a maximum of 4 times a day	Spray under the tongue	Normally initiated by a specialist but may be used by generalists Consider patient dexterity with inhaler
Glycopyrronium bromide Injection	Subcutaneous injection	200 micrograms, 6 to 8 hourly as required	Maximum volume 2ml as subcutaneous bolus injection	2nd choice for parenteral route Non-sedative Longer duration of action than hyoscine butylbromide
	Continuous subcutaneous infusion (CSCI)	600 – 1200 micrograms over 24 hours	Dilute with water for Injection	
Hyoscine hydrobromide Injection	Subcutaneous injection	400 micrograms, 2 hourly as required	Maximum volume 2ml as subcutaneous bolus injection	3rd choice for parenteral route Caution in cognitive impairment - may cause drowsiness as crosses blood brain barrier Rarely used
	Continuous subcutaneous infusion (CSCI)	1200 micrograms over 24 hours	Dilute with water for Injection	

Practice Points

Hyoscine patches are often cut in practice, however the manufacturer cannot recommend this and state that efficacy and safety have not been evaluated when the patch is administered in this way. Patients and carers should be advised to report any leakage from the patch. Patches have also been occluded to prevent a portion of an intact patch coming into contact with the skin. Prescribers should be aware that cutting or occluding the patch would be off-label use of the medication. It is good practice to gain informed consent from patients. Patients and carers should wash their hands thoroughly after handling the patch to minimise the risk of transferring hyoscine to the eye.

Hyoscine butylbromide tablets are soluble in water and have been crushed however the manufacturer cannot recommend this. Prescribers should be aware that use would be off-label. It is good practice to discuss this with the patient where possible.

Thick, tenacious saliva can be very distressing for patients and may be caused by dehydration, mouth breathing, or saliva evaporating in the mouth.

For thick, tenacious saliva,

- Humidification, sodium chloride 0.9% nebulisers, carbocisteine 750mg three times daily (reducing to 750mg twice a day) or acetylcysteine effervescent tablets (600mg once daily) are recommended as first line options (caution in patients with poor cough).

If the patient is distressed, consider:

- Sublingual lorazepam 0.5-1mg as required three times daily for anxiety.

Dry Mouth

- Review medication including need for / dose of anticholinergics
- Multidisciplinary Team (MDT) input – dentist, speech and language therapy
- Ensure adequate hydration – 2 L/day (oral or feeding tube)
- Saliva stimulation (for example sugar-free chewing gum, sucking on sugar-free boiled sweets, pastilles, mints) may be helpful if the patient is able to do so safely
- Artificial saliva
- Reduce alcohol and caffeine intake – limited evidence that might reduce saliva production

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Removing Secretions

The NICE Guidelines[1] recommend:

- Unassisted breath stacking and/or manual assisted cough as first-line treatment. Breath stacking involves adding additional air to that already in the lungs to add force to a cough.
- Assisted breath stacking (e.g. using a lung volume recruitment bag with a one-way valve) for those with bulbar dysfunction or whose cough is ineffective with unassisted breath stacking.
- Mechanical insufflation - exsufflation device (MI-E – CoughAssist), if assisted breath stacking is not effective and/or during a respiratory tract infection. This machine clears secretions by gradually applying a positive pressure to the airway, then quickly shifting to negative pressure. This rapid change in pressure simulates a natural cough.

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Appendices

1. Governance information for Guidance document

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CHANGE RECORD			
Date	**Lead Author**	**Change**	**Version**
		e.g. Review, revise and update of policy in line with contemporary professional structures and practice	1
			2
			3
		.	4
			5

2.You can include additional appendices with complimentary information that doesn't fit into the main text of your guideline, but is crucial and supports its understanding.

e.g. supporting documents for implementation of guideline, patient information, specific monitoring requirements for secondary and primary care clinicians, dosing regimen/considerations according to weight and/or creatinine clearance