Pharmacological Management of Hypersalivation in Adults

Surrey & North West Sussex Area Prescribing Committee

Scope: Parkinson's disease, MND, MS, post CVA, acquired brain injury, neurodisability, cerebral palsy, long term ventilation with drooling and other neurological conditions, and drug-induced hypersalivation.

ASSESSMENT OF SEVERITY/RESPONSE TO TREATMENT:

Severity of drooling can be assessed subjectively via discussion with patients and their carers/parents and by observation. Amount of drooling can be quantified by measuring the number of bibs required per day and this can also be graded using the Thomas-Stonell and Greenberg scale:

- 1 = Dry (no drooling)
- 2 = Mild (moist lips)
- 3 = Moderate (wet lips and chin)
- 4 = Severe (damp clothing)

CONSIDERATIONS FOR PRESCRIBING/TITRATION

No evidence to support the use of one particular treatment over another. Drug choice is to be determined by individual patient factors. When prescribing/titrating antimuscarinic drugs to treat hypersalivation always take account of:

- Coexisting conditions (for example, **history of urinary retention, constipation, glaucoma, dental issues, reflux etc.)**
- Use of other existing medication affecting the total antimuscarinic burden
- Risk of adverse effects.
- Route of administration- consider suitability of medications via enteral tubes or use alternatives e.g. topical

Titrate dose upward until the desired level of dryness, side effects or max. dose reached.

Take into account the preferences of the patients and their carers, and the age range and indication covered by the marketing authorisations. (see individual **summaries of product characteristics**, BNF for full prescribing information).

Green DRUG TREATMENT OPTIONS FOR ADULTS

•Amitriptyline tablets ('off-label')
25mg once at night; titrate by 25mg at weekly intervals to a maximum tolerated/effective dose (maximum 100mg once at night).

•Ipratropium bromide nasal spray 0.03% ('off-label')
2 sprays sublingually at night titrate as necessary/tolerated up to a maximum of 2 sprays three times a day

•Ipratropium bromide CFC free inhaler 20micrograms / dose ('off-label')
1-2 puffs sublingually once at night titrate as necessary/ tolerated up to a maximum of 2 puffs four times a day

•Hyoscine hydrobromide 300microgram tablets **'off-label'** or 300microgram/5mL oral suspension (Special).
300micrograms once daily at night; increase by 300 micrograms every 2 to 3 days to a max of 300micrograms three times daily

•Hyoscine hydrobromide (Scopoderm®) 1.5mg patch ('off-label')
1 patch applied behind ear every 72 hours; if concerned about cognitive side effects, start at ¼ patch every 72 hours (Max dose 1 patch every 72 hours)

Blue DRUG TREATMENT FOR ADULTS

•Procyclidine
5mg daily, then increased in steps of 5 mg adjusted according to response; maintenance 5–15 mg daily in 1-3 divided doses

•Atropine 1% eye drops ('*off-label*') - *Use minims as most cost effective option (patient information leaflet available on PAD)*
1-2 drops sublingually once daily in the morning; titrate as necessary/tolerated by 1 drop every 2 days up to a maximum 2 drops four times daily.

•Trihexyphenidyl (Benzhexol)
2mg daily, then increased in steps of 2 mg every 3–5 days, adjusted according to response; maintenance 5–15 mg daily in 3–4 divided doses

Caution - Risk of overdose

•Glycopyrronium bromide liquid 1mg/5ml (Colonis) ('*off-label*')
0.5mg once daily increase by 0.5mg increments to a maximum of 2mg TDS

•Glycopyrronium bromide 1mg or 2mg tablets **('unlicensed')**
0.5mg once daily increase by 0.5mg increments to a maximum of 2mg TDS

NICE guideline [NG71] Parkinson's disease in Adults "Drooling of saliva"

1.5.26 only consider pharmacological management for drooling of saliva in people with Parkinson's disease if non-pharmacological management (for example, speech and language therapy) is not available or has not been effective.

1.5.27 Consider glycopyrronium bromide to manage drooling of saliva in people with Parkinson's disease.

1.5.28 If treatment for drooling of saliva with glycopyrronium bromide is not effective, not tolerated or contraindicated (for example, in people with cognitive impairment, hallucinations or delusions, or a history of adverse effects following anticholinergic treatment), consider referral to a specialist service for botulinum toxin A.

1.5.29 only consider anticholinergic medicines other than glycopyrronium bromide to manage drooling of saliva in people with Parkinson's disease if their risk of cognitive adverse effects is thought to be minimal. Use topical preparations if possible (for example, atropine) to reduce the risk of adverse events.

Refer to anti-cholinergic burden guidance, example tool can be found on link below:
http://www.uea.ac.uk/documents/3306616/10940915/Anticholinergics/088bb9e6-3ee2-4b75-b8ce-b2d59dc538c2

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If not tolerated or is ineffective at maximum tolerated dose then refer any patient who fails to respond, to specialist

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OTHER CONSIDERATIONS

ANTIMUSCARINICS

HYOSCINE HYDROBROMIDE

- Hyoscine (Scopoderm®) patch may be advantageous over other treatments; ease of administration, maintenance of steady state concentrations and a lower incidence of systemic side effects relative to other antimuscarinics. It is useful for patients with intractable swallowing difficulties who may have problems with choking from normal saliva production

GLYCOPYRRONIUM BROMIDE

- Slower in onset but causes less tachycardia than hyoscine or atropine
- Has long duration of action and has lower incidence of CNS effects (e.g. sedation, restlessness) due to its inability to cross the blood-brain barrier

SUBLINGUAL ATROPINE 1% EYE DROPS

- Available as ready-made solution (eye drops), reversible/short duration of action
- Risk of overdose as bottle difficult to manipulate
- Avoid in patients with limited dexterity / support to administer correct dosage and patients with cognitive impairment, dementia and hallucinations.

TRIHEXYLPHENIDYL

- Side effects include tachycardia, constipation, hallucination and memory impairment

DRUG-INDUCED HYPERSALIVATION

- The main medication groups that are associated with drooling are antipsychotics, particularly clozapine, and direct and indirect cholinergic agonists that are used to treat dementia of the Alzheimer type and myasthenia gravis.
- The exact mechanism of clozapine-induced hypersalivation is unknown however it is paradoxical to its antimuscarinic action. The treatment of drug-induced hypersalivation is the same as other forms of hypersalivation, with antimuscarinics. Therefore, cumulative antimuscarinic burden (e.g. increased constipation, blurred vision, confusion, tachycardia and arrhythmia) is a particular risk in this patient group.

BOTULINUM NEUROTOXIN TYPE A, XEOMIN®- NICE TA605

Xeomin® (botulinum neurotoxin type A) is recommended, within its marketing authorisation, as an option for treating chronic sialorrhoea caused by neurological conditions in adults. NICE recommend Xeomin® should be considered as:

- an alternative first-line treatment to non-pharmacological management such as bibs, speech and language therapy and occupational therapy (referred to as standard care by the company) and to anticholinergics **AND**
- as an alternative second-line treatment to standard care (in line with existing NICE guidelines).

In patients whereby non-pharmacological or pharmacological options are not suitable, refer to the specialist.

Cost Comparison Costs based on Drug Tariff, January 2020; excluding VAT (Prices correct at time of publication, but please refer to current Drug Tariff for up to date prices)

Drug	Typical Doses	Cost per 28 days
Amitriptyline tablets	50mg at night	£1.86
Atropine 1% eye drops (NB-Not to be routinely used due to cost)	2 drops 4 times daily	£131.89
Atropine 1% eye drops 0.5ml unit dose preservative free	2 drops 4 times daily	£15.10 (20 minims)
Botulinum Neurotoxin Type A- Xeomin®	100 units (Max per treatment)	~ £746 (per annum)
Glycopyrronium bromide oral solution 1mg/5mL (Colonis)	1mg 3 times daily	£273.00
Glycopyrronium bromide oral solution 400micrograms/mL (Sialanar®)	1,600 micrograms (4ml) 3 times daily	£460.80
Glycopyrronium bromide tablets (NB-Not to be routinely used due to cost)	1mg 3 times daily	£645.99
Hyoscine hydrobromide 300micrograms tablets	300 micrograms 3 times daily	£12.88
Hyoscine hydrobromide 300 microgram/5mL oral suspension (Special)	300 micrograms 3 times daily	£88.55
Hyoscine patch 1.5mg (Scopaderm®)	1 patch every 72 hours	£64.35
Ipratropium bromide nasal spray 0.03%	1-2 sprays twice daily	£6.54 (180 dose)
Ipratropium bromide CFC free inhaler 20micrograms / actuation	1-2 sprays 4 times daily	£5.56 (200 dose)
Procyclidine 5mg tablets	5mg daily	£1.66
Procyclidine 5mg/5ml oral solution sugar free	5mg daily	£21.67 (150ml)
Trihexyphenidyl 5mg/5ml oral solution	5mg 3 times daily	£83.10
Trihexyphenidyl tablets	5mg 3 times daily	£17.91

References:

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14. NICE Evidence Summary (ES5) - Severe sialorrhoea (drooling) in children and young people with chronic neurological disorders: oral glycopyrronium bromide
15. NICE TA605. : Xeomin® (botulinum neurotoxin type A) for treating chronic sialorrhoea. 09 October 2019