

## Disease-related Drooling Saliva in the Elderly

**SUMMARY:** Drooling is a pathologic condition that is associated with neurodisability and poor quality of life. An elderly dementia patient was visited by her compounding pharmacist who noticed her excessive salivation. After consulting with her physician, the patient was prescribed Glycopyrrolate 0.5 mg Sorbitol Lollipops (#13174). As a result, her drooling severity and frequency decreased by 50 and 67%, respectively. This case study demonstrates the importance of the triad relationship in meeting the individual patient needs.

*Submitted by: Kelechi E. Agbi, PharmD, CGP, RPh, Owner of Agbi's Compounding Pharmacy*

### Introduction:

Drooling or excessive salivation (sialorrhea) is defined as saliva beyond the margin of the lip. It is a normal condition in infants but it is considered to be pathologic after four years of age. In adults, the most common etiology is Parkinson's disease. Drooling is a noteworthy condition with physical and psychosocial consequences that may have a significant negative impact on the patient's quality of life. It may cause dehydration, facial chapping and maceration, and it may lead to hygienic problems such as malodorous and secondary infection. Because of the physical appearance of excessive saliva (Figure 1), patients and family members experience social embarrassment, which leads to isolation, dependency and increased burden of care [1].

Treatment approaches of problematic drooling include the use of anticholinergic medications, such as glycopyrrolate (glycopyrronium bromide). The efficacy and acceptability of this drug was recently tested in a multicenter, randomized controlled trial and it was concluded that glycopyrronium liquid should be the first-line medication in prescribing practice [2].



**Figure 1.** Nurse wiping mouth of senior woman in nursing home (adapted from kzenon/istockphoto.com).

### Case Report:

A 95-year-old Caucasian female, diagnosed with dementia, was experiencing difficulties opening and closing her hands as a result of arthritic pains. Her family contacted their local compounding pharmacist who, in collaboration with the physician, prepared a transdermal pain cream to alleviate the patient's symptoms. During the course of treatment, the compounding pharmacist visited the patient at her home and noticed that she was drooling constantly. The patient was concerned with the embarrassment caused by her condition and the family reported that drooling had been a problem for her for the past 2 years. Currently, the excessive salivation was so severe that the patient was dehydrated from the incessant loss of fluid.

The compounding pharmacist decided to search out a way to help alleviate her suffering and shared the idea of trying glycopyrrolate lollipops with her physician. The lollipop was to be lightly sucked and swabbed in the oral cavity once or twice daily, as needed to control drooling. The physician agreed with the treatment proposal by the compounding pharmacist and prescribed glycopyrrolate 0.5 mg lollipops, as displayed in Figure 2, for the duration of 3 months.

Rx	1 Lollipop
Glycopyrrolate 5%/Steviol Glycosides Trituration	0.01 g
Flavor, Tutti Frutti, Artificial	0.24 mL
Base, PCCA Sorbitol Lollipop™	7.75 g
Pam®	To coat mold

**Table 1.** PCCA Formula #13174: Glycopyrrolate 0.5 mg Sorbitol Lollipop Base

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**Figure 2.** Glycopyrrolate lollipops prepared for testing by the PCCA formulations department.

### Methodology:

Objective and subjective research instruments have been developed to quantify drooling. In this case study, the Drooling Severity and Frequency Scale (DS-FS) was the instrument used, which is a subjective scale that rates the severity of drooling on a five-point scale and the frequency of drooling on a four-point scale [1,3-4]. The caregiver was asked to complete the DS-FS, before and after treatment, in collaboration with the elderly patient because of her potential cognitive/memory compromise. The caregiver was also asked to report any adverse effects noticed during treatment.

### Results and Discussion:

The elderly patient completed the DS-FS, before and after treatment, in collaboration with the caregiver. According to the results obtained, the drooling severity decreased by 50% whereas the drooling frequency decreased by 67%. The glycopyrrolate lollipops helped the patient control her drooling condition and there were no reported adverse effects.

It was also noticed that the patient was more willing to engage in conversations whereas, before treatment, the patient would hold her head down and not interact with others.

### Conclusions:

Drooling is a pathologic condition that is associated with neurodisability, such as Parkinson's disease and dementia. Drooling patients often seek treatment options to reduce the excessive salivation and increase their quality of life. Glycopyrronium liquid has been considered first-line medication to treat this condition [2]. However, there are alternative dosage forms that might be more suitable, in particular for elderly patients with dysphagia. This case study demonstrates the importance of the triad relationship (pharmacist-patient-physician) in meeting the individual needs of an elderly dementia patient. The compounding pharmacist recommended glycopyrrolate lollipops, instead of the oral liquid, in order to deliver the anticholinergic effect directly in the oral cavity. This patient-specific formulation was very successful, as demonstrated by the decrease in both drooling severity and frequency scales (DS-FS). Glycopyrrolate lollipops may therefore be considered an effective treatment option for drooling.

### References:

1. Hockstein, N.G., Samadi, D.S., Gendron, K. *et al.* (2004) 'Sialorrhea: a management challenge', *American Family Physician*, 69 (11), p. 2628-34.
2. Parr, J.R., Todhunter, E., Pennington, L. *et al.* (2018) 'Drooling Reduction Intervention randomised trial (DRI): comparing the efficacy and acceptability of hyoscine patches and glycopyrronium liquid on drooling in children with neurodisability', *Archives of disease in childhood*, 103 (4), p. 371-6.
3. Thomas-Stonell, N. and Greenberg, J. (1988) 'Three treatment approaches and clinical factors in the reduction of drooling', *Dysphagia*, 3 (2), p. 73-8.
4. Lagalla, G., Millevolte, M., Capecci, M. *et al.* (2009) 'Long-lasting benefits of botulinum toxin type B in Parkinson's disease-related drooling', *Journal of Neurology*, 256 (4), p. 563-7.