

A dramatic case of diabetic gustatory hyperhidrosis successfully treated with topical glycopyrrolate



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INTRODUCTION

Diabetes mellitus can cause a myriad of derangements of the autonomic nervous system.¹ Diabetic gustatory hyperhidrosis (DGH) is an uncommon manifestation of autonomic dysfunction and is associated with severe diabetic neuropathy and diabetic nephropathy.² Perspiration is a common physiologic response to spicy foods; however, patients with gustatory hyperhidrosis sweat profusely in response to anticipating, smelling, or eating food.³ These symptoms frequently cause significant social and emotional distress.^{2,4} Due to the underrecognized nature of DGH, providers may overlook this condition resulting in disappointment for patients due to perceived lack of treatment options.

DGH was first described in 1973⁴; however, data on treatment is limited with highly variable response rates.⁵ Current treatments include topical and oral anticholinergic medications and the injection of botulinum toxin.⁵ We present a case of a patient with severe DGH that led to dramatic weight loss and food avoidance. We highlight the use of compounded topical glycopyrrolate in the resolution of his DGH.

CASE REPORT

A 67-year-old man with uncontrolled type 2 diabetes mellitus complicated by neuropathy and nephropathy presented with concerns of excessive sweating when eating for a duration of 10 years. Initially, only spicy foods triggered his symptoms but eventually all food, as well as the smell of food,

Abbreviation used:

DGH: diabetic gustatory hyperhidrosis

resulted in localized perspiration. He noted that his sweating occurred symmetrically on the face and neck within 1 minute of oral consumption. He required an average of 30 paper towel sheets for symptomatic control during meals. Due to the increasing severity of his symptoms, he completely avoided entering the kitchen when his wife was cooking as he would become drenched in sweat from the smell of the food alone. Due to the disruptive nature of his condition, he had lost 65 pounds in one year (from 220 to 155 pounds) and reported a profound impact on his quality of life. Upon presentation to the dermatology clinic, he was started on oral glycopyrrolate 2 mg daily, subsequently uptitrated to 6 mg daily. He experienced xerostomia and urinary hesitancy, which he found tolerable; however, he had only a 50% reduction in sweating. The oral glycopyrrolate was stopped, and he received onabotulinumtoxinA injections (200 units, Allergan) into the scalp, forehead, and preauricular cheeks. He noted decreased sweating 3 to 4 weeks post injection, however relief lasted only 1 month. Topical glycopyrronium was attempted but not covered by insurance, leaving the patient a cost of \$555.⁶ We then prescribed compounded topical 2% glycopyrrolate in a Vanicream Lite lotion base (Pharmaceutical Specialties, Inc) to areas of excess

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sweating on the head and neck once nightly. Within 2 weeks, he had near resolution of symptoms. He went from using 30 paper towels per meal to needing, on occasion, a single napkin. Though the glycopyrrolate was topical, he noted reproduction of his xerostomia and urinary hesitancy but found these side effects tolerable. He remains on the compounded topical medication with ongoing satisfaction of the results. His weight stabilized and he has started to regain weight.

DISCUSSION

We describe a case of severe DGH refractory to multiple treatment modalities resolving with compounded topical 2% glycopyrrolate in a light lotion base. This case highlights the importance of this condition, illustrates the extreme severity, and reviews potential treatment modalities.

The highest level of evidence for using topical glycopyrrolate comes from a double-blind, placebo-controlled crossover study of 13 subjects treated with topical 0.5% glycopyrrolate compounded in cetomacrogol A cream.⁷ In that study, 5 patients with DGH had complete resolution, and the remainder had moderate reductions in sweating.⁷ However, the authors of the study noted that it was not feasible to apply the topical glycopyrrolate beyond the hairline for scalp hyperhidrosis.⁷ In our patient who had mild to moderate androgenetic alopecia but still had significant scalp hair, utilizing a light lotion made application to his scalp possible. For those with thicker hair, utilizing a solution base could be considered. By varying the vehicle in which glycopyrrolate is compounded, treatment of the hair-bearing scalp may be possible.

An important consideration is whether the mechanism was due to local anticholinergic effects from the topical formulation or systemic effects through absorption. Forty-five grams of topical 2% glycopyrrolate is equivalent to 900 mg of the drug per month. In contrast, 2 mg of oral glycopyrrolate taken twice daily is equivalent to a total of 120 mg per month. In theory, it is possible that the patient was exposed to higher systemic levels of glycopyrrolate than in oral dosing. However, our patient noticed dramatically improved efficacy with the topical formulation compared with oral and anticholinergic side effects that were at least no worse than with the oral dosing. Therefore, we find this to be limited evidence that the primary mechanism for his improvement was via

local anticholinergic effect rather than increased systemic exposure.

The primary limitation to using topical glycopyrrolate is cost, as it needs to be compounded. Our patient's out-of-pocket cost for the compounded product was \$174 for 45 grams, which represents roughly a one-month supply. This is compared with brand name topical glycopyrrolate, which is rarely covered by insurance for this off-label indication, and which is over 3 times this price.⁶ Ways to reduce cost include decreasing the concentration of glycopyrrolate in the compound or decreasing application to every other day. Important side effects when prescribing topical glycopyrrolate include mydriasis (if contact is made with the eye), as well as systemic anticholinergic side effects such as xerostomia. Glycopyrrolate is contraindicated in narrow-angle glaucoma or in any other condition where anticholinergic side effects could be detrimental. As illustrated by this case, severe presentations of DGH can cause very poor quality of life and dramatic weight loss. Topical glycopyrrolate is a promising treatment option in these patients and may have efficacy even when applied to the hair-bearing scalp.

Conflicts of interest

None disclosed.

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