Residual limb hyperhidrosis successfully managed with topical glycopyrrolate

Sir,

Residual limb hyperhidrosis is reported by up to 66% of patients with amputations and is associated with secondary dermatological complaints, such as acroangiodermatitis, contact dermatitis, infections and ulcerations. Moreover, it may result in reduced prosthetic fit and function, significantly impairing mobility and, therefore, quality of life.[1]

A 46-year-old female patient with a post-traumatic right transfemoral amputation presented for consultation due to focal stump hyperhidrosis. The patient wore an artificial leg for more than 20 years and suffered from progressive stump sweating, limiting the use of the prosthetic device. She did not have any comorbidities and did not receive any medications or previous treatment for stump hyperhidrosis. The hyperhidrosis disease severity scale score was four. A modified iodine-starch test, utilising a plastic wrap after applying the corn starch to assess the severity of hyperhidrosis under occlusion, revealed relevant sweating at the distal end of the residual limp [Figures 1a and 1b]. We decided to commence a galenic formulation of 2% glycopyrronium bromide in Fitalite (Fagron) applied twice daily on dry skin. Two weeks later, the patient reported a >75% improvement of hyperhidrosis and a hyperhidrosis disease severity scale score of two which could be also validated through the observed improvement in the result of iodine-starch test [Figure 1c]. Overall, the patient reported no side effects, including urinary retention or blurred vision, and her quality of life improved significantly, as reflected by a score reduction of the dermatology life quality index from 15 to two, before and after therapy with glycopyrrolate, respectively. Continuation of treatment led to further improvement of symptoms, as assessed at week ten.

Residual limb hyperhidrosis is thought to be a result of disturbed heat dissipation due to decreased body surface area and changed sympathetic activity in the stump.[2] Moreover, younger age, transtibial and traumatic amputation have been found to be predictive factors of more severe sweating.[1] Evidence-based guidelines for the management of stump hyperhidrosis are lacking. Except from diverse topical antiperspirants and aluminium chloride preparations, botulinum toxin A and B have been successfully employed on patients with stump hyperhidrosis, while one case report has demonstrated efficacy of microwave ablation on this condition.[3,4]

Systemic anticholinergic drugs have shown benefit in reducing sweat production in patients with hyperhidrosis, but their adverse event profile limits their use. Topical anticholinergic agents block the activation of acetylcholine receptors in peripheral sweat glands, inhibiting sweat production. Among them, only glycopyrronium tosylate 3.7% cloth has been approved by Food and Drug Administration for the treatment of axillary hyperhidrosis. Further agents include topical oxybutynine in the form of gel (3% and 10%) and skin patch as well as glycopyrronium bromide (also known as glycopyrrolate), available in concentrations of 0.5–4% in the form of cream, gel, solution, spray or pads which have shown promising results in different forms of focal hyperhidrosis.[5] However, we were unable to find any previous reports on treatment of stump hyperhidrosis with anticholinergic agents. In the above case, treatment with topical glycopyrrolate could lead to an objective (iodine-starch test) and subjective (hyperhidrosis disease severity scale) improvement of stump hyperhidrosis.

Residual limb hyperhidrosis affects patients with chronic diseases such as type I and II diabetes mellitus and peripheral arterial disease but also young, otherwise healthy, active-duty individuals who undergo traumatic amputations at an exceedingly high rate due to car accidents or on-going military engagements nowadays. These patients sweat with exertion, and because of the water-resistant liner, that is used to anchor the prosthesis to the residual limb, there is no mechanism for sweat evaporation. Large double-blind studies are difficult to design and implement for such special populations. However, we consider that topical glycopyrrolate may represent a cost-effective and easily applicable treatment option, facilitating improvement of prosthetic fit and function and, thereby, quality of life.

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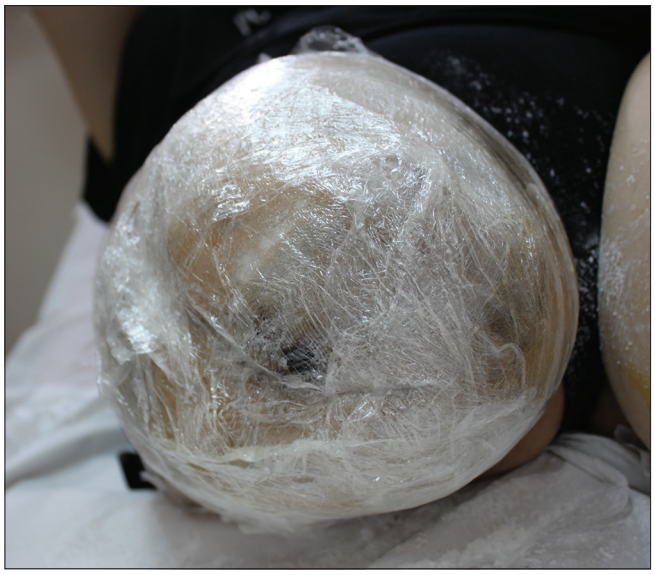

Figure 1a: A 46-year-old female patient with stump hyperhidrosis: Application of a plastic wrap to recreate the environment that normally leads to stump sweating

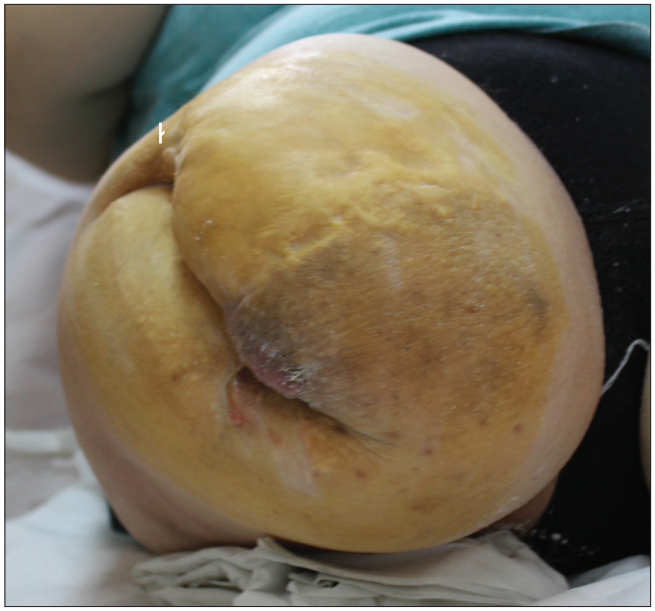

Figure 1c: Iodine-starch test: Result two weeks after treatment with topical glycopyrrolate

Declaration of patient consent

The patient's consent is not required as the patient's identity is not disclosed or compromised.

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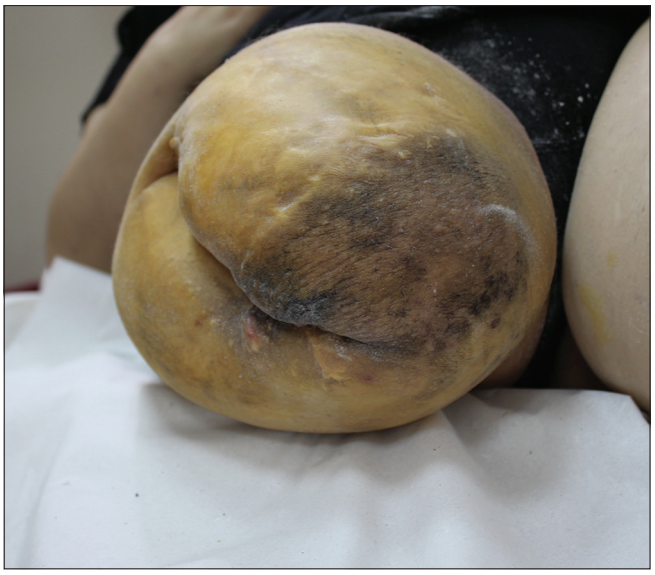

Figure 1b: Iodine-starch test: Result at first presentation

Conflicts of interest

There are no conflicts of interest.

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