

Special Considerations for Children with Hyperhidrosis



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KEYWORDS

• Hyperhidrosis • Iontophoresis • Botulinum toxin • Pediatric population

KEY POINTS

- Primary hyperhidrosis has traditionally been considered a medical and psychosocial problem for adult patients, with estimates suggesting that 1.6% of adolescents and 0.6% of prepubertal children are affected by this condition.
- A thorough history and physical examination should be performed to help rule out an underlying causation for secondary hyperhidrosis before initiating treatment.
- Quality of life in the pediatric population can be significantly improved by early diagnosis and therapy.
- Many therapeutic options for primary pediatric hyperhidrosis exist including topical and systemic therapies, iontophoresis, and botulinum toxin injections.

INTRODUCTION

Hyperhidrosis is a condition characterized by excess sweat production affecting children and adults. Primary focal hyperhidrosis is currently considered to be idiopathic, affecting areas of the body including the axillae, palms, soles, and face. Primary hyperhidrosis is believed to occur as a result of a hyperactive sympathetic nervous system.¹ Secondary hyperhidrosis, which usually results from an underlying condition, can present in a focal or generalized pattern. A thorough history and physical examination can help to rule out an underlying causation for secondary hyperhidrosis. The prevalence of hyperhidrosis in the United States has been estimated to be 2.9%, with an average age of onset of 14 to 25 years.²⁻⁴ Primary

hyperhidrosis has traditionally been considered a problem for adults, but estimates show that 1.6% of adolescents and 0.6% of prepubertal children are affected.² The primary locations of involvement in pediatric subjects include the palmoplantar and axillary areas.^{4,5}

Psychological and social development and well-being are often affected, impacting patient quality of life, which may in turn lead to profound emotional and social distress.^{2,5,6} Pediatric subjects with hyperhidrosis can have difficulties handling a writing utensil, keeping papers dry, gripping the handlebar of a bicycle, manipulating a computer mouse, and using a video game controller.⁶ Quality of life can be significantly improved by early diagnosis and therapy; however, underdiagnosis and lack of

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knowledge regarding therapeutic options has hindered maximization of therapy in the pediatric population.⁷ The medical community is not solely to blame for failure to provide or delayed treatment options. In a survey performed by Strutton and coworkers² only 38% of patients with hyperhidrosis had sought medical assistance for their excessive sweating. The risk for concomitant cutaneous disease (eg, verruca vulgaris, dermatophytosis) is increased for patients with hyperhidrosis.⁸ This article explores the available therapeutic options for pediatric hyperhidrosis, and expands awareness of this frequently underrecognized medical condition.

TOPICAL THERAPY

Treatment options for hyperhidrosis in the pediatric population are somewhat limited.^{7,9} Topical medications are often the first-line therapy and frequently include aluminum salts, which are found in over-the-counter and prescription antiperspirants. Aluminum chloride hexahydrate is the active ingredient found in prescription preparations, whereas a partially neutralized version is used in nonprescription compounds.¹⁰ Topical aluminum chloride preparations are thought to mechanically obstruct eccrine sweat gland pores and lead to atrophy of the secretory cells.¹¹ Aluminum chloride hexahydrate 20% to 25% preparations in alcohol have been found to be effective first-line treatments for axillary hyperhidrosis.^{12,13} Treatment regimen during one study consisted of patients applying the solution nightly for 1 week and then as needed, with most patients needing to reapply only once every 7 to 21 days to maintain adequate control. The only side effect reported during this study was irritation at the application site, which responded to treatment with 1% hydrocortisone for most that were affected.¹³ Aluminum chloride therapy is less effective at treating palmar hyperhidrosis. A study published in 1990 by Goh¹⁴ found that palmar hyperhidrosis was reduced within 48 hours of treatment with topical aluminum chloride 20%; however, this efficacy was lost 2 days after cessation of treatment. Local irritation and posttreatment pruritus and burning were the major limitations for this treatment modality.

A newer formulation of aluminum chloride hexahydrate using a hydroalcoholic gel base containing 4% salicylic acid was evaluated in a study of 238 patients with palmoplantar and axillary hyperhidrosis. This base was chosen to enhance absorption and minimize the irritant side effects associated with the traditional alcohol bases. Patients with palmar, plantar, and axillary disease had excellent-to-good response rates with values of 60%, 84%,

and 94%, respectively. Nonresponders and those with adverse reactions to earlier aluminum chloride preparations demonstrated better tolerance and control of disease with this new hydrogel compound.¹⁵

Other topical applications, such as astringents (eg, formaldehyde, glutaraldehyde, tannic acid), have shown efficacy in the treatment of hyperhidrosis, but their use is limited because of their propensity to cause staining of the skin and sensitization reactions.¹⁶

The efficacy and safety of topical treatments has rarely been studied in the pediatric population. However, topical aluminum chloride preparations remain popular among pediatric prescribers because of their relatively benign safety profile and ease of application. Downsides to treatment with topical products include the need for frequent reapplication to maintain efficacy, and local side effects including burning and pruritus. In addition, topical therapy is not effective for all those affected by hyperhidrosis, leaving some to explore other treatment options.

ANTICHOLINERGICS

Anticholinergic medications have been available for many decades and have widely been used to help minimize secretions perioperatively, and to decrease salivation in pediatric patients with neurologic conditions.^{17,18} The ability of anticholinergic medications to improve hyperhidrosis was inadvertently revealed when patients given preparations from atropine plants developed a decrease in sweat production.¹⁹ Anticholinergic medications competitively antagonize the muscarinic acetylcholine receptors, which are a prominent component of glandular tissue.^{20,21}

A few case reports have demonstrated efficacy of topical anticholinergic preparations in such conditions as craniofacial hyperhidrosis and diabetic gustatory sweating. However, randomized controlled trials are needed to accurately determine efficacy and safety.^{10,22–24}

Oral anticholinergic use in the treatment of hyperhidrosis is becoming increasingly more common, and agents include such drugs as glycopyrrolate and propantheline bromide. Annual treatment with generic oral glycopyrrolate at a dosage of 2 mg/day has been estimated to cost \$756 per year, which is a fraction of the cost for treatment with botulinum toxin injections.⁵ Side effects of anticholinergic medications can be limiting at the doses required for efficacy and include xerostomia most frequently, and blurred vision, tachycardia, urinary hesitancy, and constipation.^{16,25} To help determine the efficacy of oral glycopyrrolate in the treatment of

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