

Hyperhidrosis Diagnosis and Management

By Samantha Hill, MD

Hyperhidrosis is perspiration in excess of the physiologic amount necessary to maintain thermal homeostasis. It affects more than 3 percent of the population, but the prevalence is likely significantly higher than currently estimated because it is both underreported by patients and underdiagnosed by physicians. While early diagnosis and management can significantly improve a patient's quality of life, hyperhidrosis remains widely undertreated, particularly among pediatric patients.

BACKGROUND

Primary disease is usually focal, bilateral and relatively symmetric. Axillary disease is the most common location, affecting approximately half of patients. This is followed by palmo-plantar disease, which affects up to one-third of patients. Patients with primary hyperhidrosis also can have generalized disease, affecting the axillae, palms, soles, face or scalp with varying degrees of severity. Secondary hyperhidrosis also can be generalized or focal and can be due to a large number of medications or medical conditions.

Primary hyperhidrosis usually presents at 14-25 years of age, although children with palmo-plantar disease often are symptomatic as toddlers. Approximately half of all patients report a positive family history, and a family history is most likely in pediatric patients. An autosomal dominant inheritance pattern has been suggested.

IMPACT ON PATIENTS

Hyperhidrosis can be embarrassing, uncomfortable, anxiety-inducing and at times disabling and isolating. When compared using standardized and validated quality-of-life measures, the negative impact of hyperhidrosis is comparable to severe psoriasis, end-stage renal disease, rheumatoid arthritis and multiple sclerosis. Children and adolescents living with hyperhidrosis often experience this impact most profoundly. Growing up with this socially ostracizing disease can be

detrimental to a child's development of confidence and sense of self.

EVALUATION

A thorough history and physical must be performed to differentiate focal from generalized sweating and to confirm that the patient does not have secondary

Minor starch-iodine test.

Figure 1

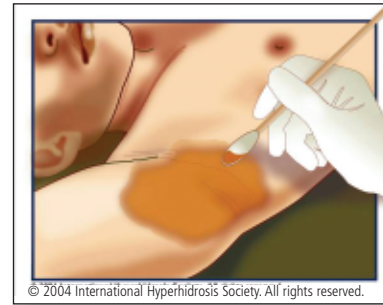


Figure 2



Figure 3

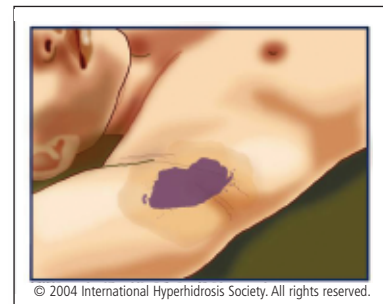


Table 1 – Hyperhidrosis Disease Severity Scale

<input type="checkbox"/> My sweating is never noticeable and never interferes with my daily activities.	Score 1
<input type="checkbox"/> My sweating is tolerable but sometimes interferes with my daily activities.	Score 2
<input type="checkbox"/> My sweating is barely tolerable and frequently interferes with my daily activities.	Score 3
<input type="checkbox"/> My sweating is intolerable and always interferes with my daily activities.	Score 4

Reprinted with the permission of the International Hyperhidrosis Society.

hyperhidrosis, which may require a separate evaluation. Several quality-of-life tools and quantitative measurements of sweat production are available. The most commonly used and most helpful to practitioners is the Hyperhidrosis Disease Severity Scale (see Table 1), on which a score of a three or four indicates severe hyperhidrosis.

A Minor starch-iodine test can help evaluate specific areas of focal hyperhidrosis and is easily performed in any office. In this method, an iodine or betadine solution is applied to the area of interest and allowed to dry, and then cornstarch is brushed on the area. The light brown iodine color turns dark purple when sweat is present. Starch-iodine preparation also is very helpful before botulinum toxin injection to delineate the treatment area. (See Figures 1-3.)

MANAGEMENT

Treatment of hyperhidrosis is best selected based on the body site or sites affected and can be classified as nonsurgical and surgical. Nonsurgical therapies, which will be the focus of the remainder of this article, include topical antiperspirants, tap water iontophoresis, botulinum toxin injection and anticholinergic medications. Surgical treatments include focal curettage or liposuction of sweat gland-containing adipose tissue and thoracic sympathectomy. Given the risks of surgery, it is the opinion of this author that surgical intervention should only be considered after failure of standard nonsurgical therapies and should be approached with great caution in pediatric patients.

Topical therapies: Aluminum salts are the most common active ingredients in both over-the-counter and prescription antiperspirants. These salts are thought to mechanically obstruct the sweat pores and can be used on virtually any area of the body. Aluminum chloride hexahydrate 20 percent

solution (Drysol®, Hypercare®) is the most commonly prescribed agent. These topical antiperspirants can be very effective but are limited by irritation that is caused by the formation of hydrochloric acid in a chemical reaction between the aluminum chloride and sweat present on the skin surface. Application on a very dry, nonoccluded skin surface can reduce this irritation substantially.

Iontophoresis: In a technique that has been used since the 1930s, tap water iontophoresis uses an electrical current to introduce ions into the skin through the sweat glands. The mechanism of action of iontophoresis in hyperhidrosis remains unknown. This is most effective for palmo-plantar hyperhidrosis and side effects generally are limited to mild stinging and redness. Treatments are started at three to five times per week until the patient achieves dryness, generally at two to four weeks, and then are spaced out to longer intervals to maintain dryness. Occasionally, anticholinergic medications are added to the water to increase the duration of dryness.

Botulinum toxin: Intradermal injection of botulinum toxin blocks the sympathetic innervation of sweat glands, thereby decreasing sweat production. While it is only FDA approved for axillary hyperhidrosis in adults, botulinum toxin can be used for any area of focal hyperhidrosis and also is commonly used in pediatric patients. The average duration of improvement is six to eight months for the axillae and four to five months for the palms and craniofacial region, with significant results as early as five to seven days post-injection. The main side effect is discomfort during injection, which is encountered most often when treating the palms. Transient small muscle weakness also occurs occasionally when treating the palms; however, compensatory sweating has not proved to be a problem for any treatment areas.

Anticholinergic medications: As competitive antagonists of acetylcholine, anticholinergic drugs block sweat secretion by blocking muscarinic receptors in the sympathetic pathway. Oral anticholinergics are a mainstay in the treatment of hyperhidrosis, especially generalized. Side effects of the medications such as dry mouth, blurred vision, urinary retention, tachycardia and constipation, may limit their use. Although none are FDA-approved for hyperhidrosis, glycopyrrolate, propantheline bromide and oxybutynin all have been used.

CONCLUSION

Hyperhidrosis is a relatively common disorder that is a substantial burden to affected patients, interfering with daily activities and causing social embarrassment. Pediatric patients make up a significant portion of those affected and symptoms often are lifelong. With increased awareness of the diagnosis of hyperhidrosis and available treatment options, clinicians have the opportunity to change lives.



SAMANTHA HILL, MD, is a pediatric dermatologist at Children's Hospital of Wisconsin, a professor of Pediatric Dermatology at The Medical College of Wisconsin and a member of Children's Specialty Group.

FOR MORE INFORMATION

Dermatology (414) 266-6430

TO MAKE AN APPOINTMENT

Central Scheduling
Milwaukee area (414) 607-5280
Toll-free (877) 607-5280

Leadership announcements



Dr. Ranta named director of Physician Affairs

MARYLYN RANTA, MD, has joined Children's Hospital of Wisconsin's administrative staff as director of Physician Affairs. In this new role, Dr. Ranta provides administrative input to several areas and functions, including the utilization management program, Medical/Dental Staff Services and Physician Support Services. She also provides support and leadership for the hospital's quality initiatives.

Dr. Ranta can be reached at (414) 266-1681.



Dr. Costakos leads Retinopathy of Prematurity Program

DEBORAH COSTAKOS, MD, has been named program director of Retinopathy of Prematurity at Children's Hospital of Wisconsin. She also is an assistant professor of Pediatrics (Ophthalmology) at The Medical College of Wisconsin and a member of Children's Specialty Group. In her new role, Dr. Costakos oversees retinopathy of prematurity prevention, detection and treatment activities in the Neonatal Intensive Care Unit.

Dr. Costakos can be reached at (414) 456-2058.



Dr. Kerschner expands leadership role

JOSEPH KERSCHNER, MD, FACS, FAAP, has been named executive vice president of Children's Hospital and Health System. He also is president and CEO of Children's Specialty Group, medical director of Otolaryngology at Children's Hospital of Wisconsin and a professor and interim chair of Otolaryngology at The Medical College of Wisconsin. In his new role, Dr. Kerschner facilitates collaboration in the physician community, creating synergies to help the health system better serve the needs of children.

Dr. Kerschner can be reached at (414) 266-6486.



Walczyk Joers appointed vice president of Surgical Services

BARBARA WALCZYK JOERS, MHA, CHE, has joined Children's Hospital of Wisconsin as vice president of Surgical Services. Walczyk Joers works in partnership with Keith Oldham, MD, surgeon-in-chief and The Marie Uihlein Chair in Pediatric Surgery at the hospital. They are responsible for developing the Surgical Services strategic plan, including opportunities for growth and further alignment with community needs.

Walczyk Joers can be reached at (414) 266-5630.



Duncan named executive vice president of Community Services

BOB DUNCAN has been appointed executive vice president of Community Services at Children's Hospital and Health System. He serves as president of Children's Service Society of Wisconsin as well as providing executive leadership for other community programs and services. In partnership with key stakeholders, he works to ensure child welfare programs meet all quality measures and standards and is responsible for improving the medical coordination, treatment and care of children in the community.

Duncan can be reached at (414) 337-8634.