

## Therapeutic options for hyperhidrosis

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### Abstract

**Background:** Hyperhidrosis or excessive sweating of the hands, axillae, and soles of the feet can be a debilitating condition. Patients suffering from palmar hyperhidrosis find writing difficult as the page becomes wet and their academic work may suffer. They may find holding a pen or pencil difficult. Sports that involve a strong grip may be impossible as may also playing musical instruments. The patient may become withdrawn and find difficulty mixing socially with peers. Occasionally hyperhidrosis affects the whole body but the debilitating areas for which they seek treatment are usually the palms and axillae (1).

**Epidemiology;** Primary hyperhidrosis starts in childhood and affects 0.6%–1% of the population (2) A familial variant with autosomal dominant inheritance is now recognized with some families linked to an abnormality of chromosome 14q

**Pathophysiology;** although the exact pathophysiology of primary hyperhidrosis is yet to be determined, there is much evidence for abnormalities in autonomic nervous system function (3). Sweat glands in patients with hyperhidrosis are not histopathologically different from those in normal patients, nor is there an increase in the number or size of glands. The condition is caused by hyperfunction of the sweat glands rather than hypertrophy (4) Patients with primary hyperhidrosis have a higher-than-normal basal level of sweat production as well as an increased response to normal stimuli such as emotional or physical stress.(5)

**Diagnosis;** the first step in the evaluation of hyperhidrosis is to differentiate between generalized and focal hyperhidrosis. Generalized hyperhidrosis is usually part of some other underlying condition, such as infective or malignant disease or a hormonal disorder (6) focal or primary idiopathic hyperhidrosis occurs in otherwise

healthy people. It usually peaks in the second or third decade of life and manifests as bilateral excessive sweat production confined to the armpits, soles of the feet, palms of the hands, face or other specific sites. (7) The main diagnostic criteria of primary hyperhidrosis include visible sweat, exaggerated and located, lasting at least six months, without apparent cause, and with at least two of the following characteristics; Bilateral and symmetrical sweat, Frequency at least one episode per week, Impairment in daily activities, Age of the onset <25 years, Presence of family history, Absence of sweat during sleep (8)

**Treatment options of hyperhidrosis:** Standard therapeutic approaches include topical, oral, and injectable medications, (9) as well as medical devices and surgical options that vary greatly with respect to effectiveness, safety, tolerability, and cost.

**1-Topical treatment;** Aluminum chloride-based antiperspirants are a well-established first-line option for all types of primary focal hyperhidrosis (HH), regardless of severity. The mechanism of action is via aluminum salt blockade of the eccrine sweat gland ducts, which leads to functional and structural degeneration of both ductal epithelial and glandular secretory cells, (10) ultimately preventing sweat release .

**2-systemic treatment:** Systemic anticholinergic inhibit sweating by competitive blocking of muscarinic receptors near the eccrine sweat glands. The use of anticholinergic drugs, however, is greatly limited due to well-known side effects. (11) An RCT described efficacy of methanthelinium bromide (Vagantin) in a dose of 50 mg, twice daily for axillary hyperhidrosis with acceptable tolerance. (11) A retrospective study reported effective treatment with glycopyrronium bromide (2 mg, two to three times daily over 4 years) for both generalized and local hyperhidrosis in 75% of patients. However, 79% of patients complained of dry mouth, causing a 50% dropout rate.

**3-Botulinum toxin treatment;** Botox was first approved by the US Food and Drug Administration (FDA) in December 1989 to treat the eye muscle disorders blepharospasm and strabismus. (12) In 2002, it was approved to treat cervical dystonia and frown lines. It is approved for the treatment of primary axillary hyperhidrosis that cannot be managed by topical agents. One concern with the use of BTA is the possibility of blocking antibodies leading to nonresponse of

subsequent injections. **(13)** Have confirmed the effectiveness of BoNTs in controlling PH. Although response rates have been consistently high (80–90%), the anhidrotic effect, usually beginning three days after injections, is maintained for about 6–9 months. For successful therapy, injections should be repeated regularly. Poor treatment response could result from incorrect or insufficient dosing, errors in drug handling during preparation, storage, or administration, and anatomical variations.

**2-Iontophoresis;** involves electric current application to enhance the transdermal delivery of an ionized substance, i.e. water, through intact skin immersed in liquid. Primarily restricted to palmoplantar locations, this modality can be utilized as an effective first- or second-line option, usually after failure of antiperspirants **(14)**. In most cases, both hands are submerged in shallow trays filled with tap water while a mild electrical current (15–20 mA) is applied for a specific period of time (15–40 mins) depending on the device **(15)**

### **5.Surgical management:**

Surgery is largely reserved as a last-line option, being utilized after failure of less invasive interventions. The principle behind local surgery is to remove or injure the sweat glands, thus treating sweating at its source. As the risk of complications, such as dispersal of sweat glands and atrophic or hypertrophic scarring, is not negligible, local surgery, i.e. excision, curettage, liposuction, or a combination of these techniques, is not recommended in anatomic areas other than the axillae. Surgical options for the treatment of hyperhidrosis include; Local excision or curettage .Axillary liposuction .Endoscopic thoracic sympathectomy **.(16)**

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