Hyperhidrosis - 'Virtually non-invasive' management

by Peter Apap

Hyperhidrosis is a disease characterized by perspiration in excess of the physiologic amount necessary to maintain thermal homeostasis.[1] Primary or idiopathic hyperhidrosis and secondary hyperhidrosis are the two main categories. Patients can have excessive sweating either in a localized area (focal) or over the entire body (generalized).[2] Primary disease is usually focal, affecting the soles, palms, and axillae in various combinations and with varying degrees of severity. Secondary hyperhidrosis can be generalized or focal.[3] In secondary hyperhidrosis the symptoms are a consequence of certain medical conditions, example diabetes, or the use of certain drugs, example nortriptyline.[2]
Hyperhidrosis can have very significant effects on patients' lives, causing physical discomfort, social embarrassment and impacting negatively occupational and daily activities. Skin maceration from constant wetness can lead to bacterial and fungal overgrowth, and subsequent axillary intertrigo and bromhidrosis (foul-smelling sweat).

Pathophysiology and epidemiology

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] A recent representative survey of 150,000 households in the US showed a prevalence of 2.8%. Of those with hyperhidrosis, only 38% consulted their physician about their excessive sweating.[5]
The main treatment options available to patients with primary hyperhidrosis can be categorized as non-surgical (topical antiperspirants, iontophoresis) or surgical (endoscopic thoracic sympathectomy, excision of axillary tissue).[1] 'Minimally invasive' Botulinum toxin injections are another option for axillary hyperhidrosis.

Topical Treatments

OTC Anti-perspirants containing aluminium chloride can control underarm sweating and odour. However patients with moderate-to-severe hyperhidrosis need stronger therapies. [6]
Iontophoresis is defined as the passing of an ionized substance through intact skin by the application of a direct electrical current (DC).[7] *Tap water iontophoresis is considered by many dermatologists to be the first line of treatment for hyperhidrosis of the palms and soles.*[7,8]

Although the mechanism of action in hyperhidrosis is currently not understood, there have been several theories.[8]
Iontophoresis can be performed with a professional device in a clinic setting, or at home using portable devices. Hands and feet can be treated simultaneously, using separate trays. Treatment with a professional device[9] requires fewer initial treatment sessions (6-8 sessions of 20 minutes each for palmo-plantar treatments) and more spaced out maintenance sessions (on average, once a month). It is essential that maintenance sessions are carried out as soon as the first signs of hyperhidrosis are noticed. Newer 'pulsed' professional devices[9] also offer enhanced tolerance for patients sensitive to a DC current. However pregnant patients or those with pacemakers or arrhythmias should not be treated.[7,10] Caution must also be exerted with metallic implants such as orthopedic prostheses.
In a recent study, 112 patients had palmar iontophoresis.[11] Sweat production was measured at baseline and 20 days after all of the 8 treatments. The final sweat production was significantly reduced compared to baseline ($P<0.001$) for 81.2% of the patients. The mean time for patients to become symptomatic again was 35 days. Longer periods of remission were seen after a second period of treatment.
A few side effects are commonly reported with iontophoresis. Vesiculation is usually transient.[12] Redness of the skin, often along the water line,[12] and skin dryness are also commonly reported.[10]

Botulinum Toxin Injections (Botox®)

Botulinum toxin A injection has been used successfully to reduce excessive sweating in all of the body areas affected in primary hyperhidrosis: axillary, palmoplantar and facial. However it is most commonly used for treatment of axillary hyperhydrosis. It works by inhibiting release of acetylcholine from the presynaptic terminal of the cholinergic nerve junctions with striated muscle and eccrine glands.[13,14] Treatment takes less than 30 minutes and must be repeated anytime between 4 – 16 months after to maintain results. Side effects are generally related to pain, tenderness and bruising after injection, as well as to paresis of adjacent muscles, seen primarily with facial and palmar treatments.[15-17]

Smartlipo™ Laser

Smartlipo™ Laser with the same 1,064-nm Nd-YAG laser used successfully to liquify (and subsequently aspirate) excess fat from localised areas of the body, has recently gained popularity as a safe and effective option for axillary hyperhydrosis. In a 2008 study[17,18] patients with axillary hyperhidrosis were treated, using subdermal 1,064-nm Nd-YAG laser(Smartlipo™). The patients' global assessment showed an excellent result in 12 cases (70.6%), a good result in 3 cases (17.6%), and 2 patients reported fair results (11.8%). No patient reported poor results. The physicians' global assessment was excellent in 10 patients (58.8%), good in 4 patients (23.5%), and fair in 3 patients (17.6%) resulting in 82.3% of good or better outcome. Adverse effects were limited, transient and mild. The postoperative period was well tolerated in all patients, without significant discomfort or pain.
Of the 17 patients treated, all but 1 subject remained asymptomatic during the follow-up period which ranged from 12 to 43 months. 1 relapsed with axillary hyperhidrosis and required an additional laser treatment to the same area. Postoperative scarring was inconspicuous. No nerve injuries, bruises or other major skin complications were reported.
It is clear that hyperhidrosis is a disease that has a profound impact on patients' lives. The impact on quality of life compares to that of other chronic dermatologic and systemic diseases. Patients with excessive sweating need to be identified first and offered the most suitable virtually non-invasive treatment options in order to lessen the physical, psychosocial, and occupational impact of their condition.

References
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