Microwave energy has been harnessed to provide the latest effective treatment of primary axillary hyperhidrosis. The MiraDry proprietary system focuses microwave energy delivery directly to the dermal-fat interface for targeted thermal destruction of sweat glands. Microwaves create heat by causing physical vibration of dipole molecules. Microwave energy has good absorption in tissues with significant water content, such as the dermis and sweat glands, because of their high dipole moments; however, there is poor absorption in the subcutaneous layer because of its low dipole moment.

Axillary hyperhidrosis is a difficult quality of life problem for many individuals. A mail survey in 2002 found 2.8 percent of respondents felt they had excessive or abnormal/unusual sweating (approximately 1.4 percent complained of axillary hyperhidrosis).1 An online survey in 2008 found that 33 percent of adults felt that they have too much underarm sweat but only five percent seek help.2 The impact of axillary hyperhidrosis on the quality of life index (DLQI) has been calculated to be similar to the effects of psoriasis and acne.3 Sufferers complain of social embarrassment, ruined clothes, and an increased tendency to develop skin irritation and infections.

THE TREATMENT OPTIONS

Previous medical and surgical approaches used have had drawbacks. Prescription topical antiperspirants, like aluminum chloride hexahydrate 25%, can stain clothes, irritate skin, and have no lasting benefit; yet, these topical therapies often fail to suppress sweating sufficiently. Oral anticholnergic medications may cause xerostomia, cycloplegia, mydriasis, as well as bowel and bladder dysfunction. Botulinum toxins, while highly successful, require significant doses every six to eight months, which is prohibitively expensive.4 Surgical excision of the axilla and dermal curettage leave scars and may restrict range of motion. Liposuction of sweat glands has been shown to work well but is invasive. Endoscopic thoracic sympathectomy is invasive and may lead to Horner’s syndrome, pneumothorax, hemothorax, gustatory sweating, and compensatory hyperhidrosis. An effective non-invasive technique is attractive to patients and is a welcome addition to physicians.

MiraDry (microwave thermolysis) is a non-invasive office procedure that received FDA 510(k) clearance in January 2011 for treatment of excessive underarm sweat. This novel device delivers microwave energy to the dermal-fat interface to destroy sweat glands. Continuous hydroceramic cooling prevents thermal conduction of heat superficially and creates a heat zone at the level of sweat glands, resulting in targeted thermolysis.

THE MIRADRY PROCEDURE

The MiraDry procedure is straightforward. The physician identifies the areas of excessive sweating (usually the entire hair bearing area), then a proper sized template is used to mark out a treatment grid. After administering local anesthesia, the operator moves the hand piece from zone to zone in a specified pattern until the entire hyperhidrotic area is treated. Software on the console guides the user through the treatment session so that each zone is treated, but only once. Swelling and bruising are common immediately after treatment and may persist for several days. The procedure typically lasts 60–75 minutes, depending on the size of treatment area. Two procedures (spaced three months apart) are required for optimal results.

Axillary biopsies as early as 11 days post-treatment demonstrate eccrine and apocrine gland cells devoid of nuclei as well as complete cellular necrosis. At six months, histology confirms a complete absence of sweat glands in the treated area. Studies of the effectiveness and safety of MiraDry have been encouraging. A randomized, blinded sham-controlled IDE study utilizing an investigational device on 120 patients at seven sites resulted in 89 percent of severely hyperhidrotic subjects reaching a level of 1 or 2 on the Hyperhidrosis Disease Severity Scale at one month. Sixty-nine percent maintained this effect at one year.5 Treatment side effects were mild and transitory. The most common complaint was temporary altered sensation in the skin. One subject exited the study with complaint of altered sweating on the face.

In an open-label study of the commercial version of MiraDry, over 90 percent of subjects demonstrated a reduction in sweating as well as patient satisfaction with the technique. MiraDry is a non-invasive, safe, and efficacious treatment option for axillary hyperhidrosis.
CONSUMER SURVEY REVEALS WIDESPREAD PROBLEM OF EXCESSIVE SWEATING AND INTEREST IN TOPICAL BOTULINUM TOXIN TREATMENT

Late last year, Anterios, Inc. announced survey results regarding current consumer sentiment around excessive sweating and a new potential topical botulinum treatment option (ANT-1207) that the company is developing for hyperhidrosis. The survey found that 17 percent of men and women in the survey—approximately 50 million people in the US—indicate that their antiperspirants are ineffective and that they sweat too much.

The Internet survey collected a nationally randomized sample of 2,599 men and women respondents. The survey also found:

- 3.2% of men and women in the survey, or about 10 million people in the US, indicate that they suffer from hyperhidrosis as self-scored on the Hyperhidrosis Disease Severity Scale as “Moderate” or “Severe.”

- 54% of women and 37% of men who said they “sweat too much” indicated that they are likely to go to a physician’s office to seek evaluation and possible treatment with an in-office topical botulinum prescription lotion, if approved.

- Approximately 80% of women and 60% of men who scored themselves as having hyperhidrosis indicated that their condition made them anxious or worried. Among this group, about half of men and women indicated that they have avoided certain social situations (e.g., dates, dinners with friends) because of the condition and approximately one-quarter of this group indicated that the condition actually prevented them from being intimate.

- 40% of survey respondents report that their work was negatively impacted because of this condition. Respondents also ranked excessive sweating as their top personal issue, right after weight loss, but substantially beating out acne, wrinkles and thinning hair.

Another topical formulation of botulinum toxin type A is currently being studies for a variety of potential aesthetic and therapeutic indication. Revance Therapeutics, Inc’s RT001, a topical formulation of botulinum toxin type A, is being evaluated in a broad clinical program that includes aesthetic indications such as crow’s feet lines (wrinkles around the eyes) and therapeutic indications such as hyperhidrosis (excessive sweating) and migraine headache.

of HDSS to level 1 or 2 at 12 months. The average gravimetric reduction in sweat was 81.7 percent at one year post treatment, and 85.2 percent reported a greater than 5-point reduction in the DLQI. There was a statistically significant reduction in underarm odor based on patient surveys. Many patients reported hair loss in the axilla, which the female subjects appreciated.6 Most patients are satisfied with the treatment. Two treatments three months apart are required to obtain a lasting result. A small number of patients may benefit from a third procedure targeting resistant areas. Although transient, altered sensation in the skin seen in some patients is the most significant potential side effect and appears to be related to the amount of energy delivered as well as to the thickness of the patient’s skin. Very slender patients have a smaller tissue buffer between the treated dermal-fat interface and the underlying sensory nerves and may have a higher chance of experiencing altered sensation. Experienced users recommend decreasing the energy dose on the most peripheral portions of the axilla (especially on the arm side) in individuals with low body fat.