Anthem

Clinical UM Guideline

Subject: Surgical Treatment of Hyperhidrosis
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Description

This document addresses various surgical treatments of hyperhidrosis, a condition characterized by excessive sweating.

Note: This document does not address the use of iontophoresis for the treatment of hyperhidrosis. Please refer to the following document for that information:

- CG-MED-28 Iontophoresis

Note: The use of botulinum toxin is not addressed in this document. For information regarding the use of botulinum toxin, refer to applicable guidelines used by the plan.

Clinical Indications

Medically Necessary:

Treatment of primary axillary or palmar hyperhidrosis with endoscopic *thoracic* sympathectomy is considered **medically necessary** when both of the following criteria (A and B) have been met:

A. It has been adequately documented that all efforts at nonsurgical therapy have failed;**and**
B. **Either** of the following:
    1. Presence of medical complications or skin maceration with secondary infection;**or**
    2. Significant functional impairment, as documented in the medical record.

Not Medically Necessary:

Treatment of hyperhidrosis is considered **not medically necessary** when the above criteria are not met.

Treatment of plantar hyperhidrosis with thoracic or lumbar sympathectomy or sympathetic block is considered**not medically necessary** in all cases.

All other surgical therapies for hyperhidrosis are considered**not medically necessary**, including but not limited to:

- Axillary liposuction; **or**
- Laser treatment; **or**
- Microwave energy; **or**
- Resection of axillary sweat glands.

Coding

The following codes for treatments and procedures applicable to this guideline are included below for informational purposes. Inclusion or exclusion of a procedure, diagnosis or device code(s) does not constitute or imply member coverage or provider reimbursement policy. Please refer to the member's contract benefits in effect at the time of service to determine coverage or non-coverage of these services as it applies to an individual member.

Sympathectomy
When services may be Medically Necessary when criteria are met:

CPT	
32664	Thoracoscopy, surgical; with thoracic sympathectomy

ICD-10 Procedure	
01BL3ZZ	Excision of thoracic sympathetic nerve, percutaneous approach
01BL4ZZ	Excision of thoracic sympathetic nerve, percutaneous endoscopic approach

ICD-10 Diagnosis	
L74.510	Primary focal hyperhidrosis, axilla
L74.512	Primary focal hyperhidrosis, palms

When services are Not Medically Necessary:
For the procedure and diagnosis codes listed above when criteria are not met or for the following diagnoses, or when the code describes a procedure designated in the Clinical Indications section as not medically necessary.

ICD-10 Diagnosis	
L74.511	Primary focal hyperhidrosis, face
L74.513	Primary focal hyperhidrosis, soles
L74.519	Primary focal hyperhidrosis, unspecified
L74.52	Secondary focal hyperhidrosis
R61	Generalized hyperhidrosis

Other procedures
When services are Not Medically Necessary:
For the following procedure and diagnosis codes, or when the code describes a procedure designated in the Clinical Indications section as not medically necessary.

CPT

15876-15879	Suction assisted lipectomy [includes codes 15876, 15877, 15878, 15879]
17999	Unlisted procedure, skin, mucous membrane and subcutaneous tissue [when specified as laser or microwave destruction or resection of subcutaneous sweat glands]
64520	Injection, anesthetic agent; lumbar or thoracic (paravertebral sympathetic)
64818	Sympathectomy, lumbar
64999	Unlisted procedure, nervous system [when specified as endoscopic lumbar sympathectomy]

ICD-10 Procedure

01BN0ZZ	Excision of lumbar sympathetic nerve, open approach
01BN3ZZ	Excision of lumbar sympathetic nerve, percutaneous approach
01BN4ZZ	Excision of lumbar sympathetic nerve, percutaneous endoscopic approach
0X040ZZ-0X044ZZ	Alteration of right axilla [by approach; includes codes 0X040ZZ, 0X043ZZ, 0X044ZZ]
0X050ZZ-0X054ZZ	Alteration of left axilla [by approach; includes codes 0X050ZZ, 0X053ZZ, 0X054ZZ]

ICD-10 Diagnosis

L74.510-L74.519	Primary focal hyperhidrosis
L74.52	Secondary focal hyperhidrosis
R61	Generalized hyperhidrosis

Discussion/General Information

Hyperhidrosis is a relatively uncommon condition of exaggerated perspiration due to excessive secretion of the eccrine sweat glands in amounts greater than required for physiologic needs of thermoregulation and electrolyte alteration. Primary hyperhidrosis is idiopathic in nature, typically involving the hands (palmar), feet (plantar) or armpits (axillae). Secondary hyperhidrosis can result from a variety of drugs, such as tricyclic antidepressants, selective serotonin reuptake inhibitors (SSRIs), or underlying disease/conditions, such as febrile disease, diabetes mellitus or menopause. Gustatory hyperhidrosis may be primary or secondary in nature, but is usually considered separately from these two classes of hyperhidrosis. As a primary condition, it is characterized by excessive sweating of the lips, nose, and forehead after eating certain foods. As a secondary condition, this sweating condition is the result of complications from surgery to the parotid gland and subsequent aberrant regenerating parasympathetic fibers.

The consequences of hyperhidrosis are primarily psychosocial in nature. Excessive sweating may be socially embarrassing, may require several changes of clothing a day or result in staining of clothing or shoes. In some situations, hyperhidrosis may interfere with the activities of daily living. For example, palmar hyperhidrosis may interfere with those jobs that require detailed work with the hands.

Treatment of secondary hyperhidrosis focuses on treatment of the underlying cause. A variety of therapies have been investigated for primary hyperhidrosis, including topical therapy with aluminum chloride or tanning agents, iontophoresis, and endoscopic transthoracic sympathectomy.

Description of Technologies

Sympathectomy: Sympathectomy involves the surgical cutting of the nerve that stimulates sweat glands. This surgical procedure can be done openly or endoscopically and is usually reserved for palmar, axillary, and craniofacial hyperhidrosis. Although successful results have been reported to be up to 95% in some studies, significant complications have been noted. Such complications include worsening of hyperhidrosis symptoms, gustatory hyperhidrosis, wound infection, puncture of the chest wall, and several complications involving the nerves of the ribs.

Laser therapy: As with many other skin-related conditions, lasers have been proposed for the destruction of subcutaneous sweat glands. Laser therapy has been proposed as a method to treat hyperhidrosis by disrupting the cellular integrity of sweat glands. At this time, there is insufficient evidence to determine whether or not this treatment method is effective.

Microwave: This treatment method involves the use of a microwave emitting device that applies microwave energy to superficial skin structures. The intent is to destroy the sweat glands under the skin. At this time, there is insufficient evidence to determine whether or not this treatment method is safe or effective.

The medical necessity of treatment for hyperhidrosis focuses on those cases that result in significant functional impairment including medical complications, such as skin maceration or interference with activities of daily living. Thoracic sympathectomy for palmar or axillary hyperhidrosis has been shown to be effective in the treatment of hyperhidrosis in large case series studies. Sympathectomy is frequently performed endoscopically (Ong, 2002; Park, 2000).

Sympathectomy

The available evidence addressing the use of either thoracic or lumbar sympathectomy for the treatment of plantar hyperhidrosis is extremely limited. Loureiro and colleagues (2008) published the results of a study that included 30 women randomized to receive either thoracic sympathectomy or no surgical intervention. The authors reported 20% of surgical subjects suffered prolonged post-operative pain, and that 53.3% experienced significant worsening compensatory hyperhidrosis (CH). Reiger et al. (2011), published the results of a retrospective case series study involving 130 subjects with palmoplantar hyperhidrosis previously treated with thoracic sympathectomy. All subjects had 100% success with their palmar hyperhidrosis with their previous procedures, but their plantar condition persisted. Endoscopic lumbar sympathectomy was used to resect the second, third, and fourth lumbar ganglia in female subjects, and male subjects had only the third and fourth lumbar ganglia resected to avoid ejaculation disorders. A total of 260 sympathectomies were performed for all 130 subjects. Anhidrosis was reported in 248 of 260 feet (95%), and residual slight sweating in 12 feet (12%) immediately after sympathectomy. Mean follow-up was 37 months (range 3-90 months). Thirty-four subjects (26%) were lost to follow-up. Of the remaining 96 subjects, plantar hyperhidrosis was eliminated in 93 (97%), but recurred on one side in 3 subjects (3%). Persistent or recurrent slight moisture was observed in 22 subjects. Bromhidrosis (body odor) was eliminated in 37 of the 41 subjects (91%) reporting that condition at baseline. After lumbar sympathectomy, 24 subjects (25%) reported new slight CH or increased severity of existing CH. New, severe CH was not reported in any subject. Eighteen subjects (18%) reported temporary neuralgia that had completely resolved at the time of final visit. No erectile or ejaculatory complications were reported at any time point. This retrospective study had a high loss to follow-up rate, with over a quarter of the subjects not completely followed. Limitations of this study include its uncontrolled, retrospective design and high drop-out rate.

Neumayer and others conducted a study that included 73 subjects, 66 of whom had plantar hyperhidrosis (2005). Subjects in this study were treated with an endoscopic thoracic sympathectomy. The authors reported that 42% of participants had significant improvements in their conditions, with 42.4% having no changes. Interestingly, 15.2% of participants had exacerbated symptoms

postoperatively. CH occurred in 19.4% of subjects and 31.9% had gustatory sweating. Kim et al. reported the results of a series of 69 subjects with plantar hyperhidrosis treated with chemical lumbar sympathetic block (2008). Of the 138 procedures completed, successful treatment was seen in 72.2% of subjects. Complications included temporary sexual dysfunction in 1 subject, CH in another, and significant post-block pain in 3 subjects.

A large case series study of endoscopic lumbar sympathectomy was published by Reisfeld and others in 2013. This study involved 154 subjects who underwent outpatient endoscopic lumbar sympathectomy (ELS) for the treatment of plantar hyperhidrosis. Sympathectomy was conducted at the third lumbar vertebrae in 68.2% of subjects and at the fourth lumbar vertebrae in 31.8%. Follow-up averaged 15 months and ranged up to 4.7 years. The authors reported that anhidrosis was achieved in 97.4% of subjects with the remainder reporting major reduction in symptoms. There were two surgical complications reported, including lymphatic leak and misidentification of genitofemoral nerve for sympathetic nerve. Six early subjects required conversion to an open surgical procedure. Partial recurrence was reported in 4.5% of subjects, with 2.6% requiring revision surgery. The authors concluded that severe plantar hyperhidrosis can be safely and effectively treated by endoscopic lumbar sympathectomy using the clamping method on an outpatient basis with low morbidity and complete resolution of symptoms. However, it should be noted that while this study was the largest of its kind yet published; additional studies are warranted to evaluate the safety and efficacy of lumbar sympathectomy.

Smaller case series studies have been conducted, including a study by Rieger and colleagues who enrolled 8 subjects that underwent lumbar sympathectomy for plantar hyperhidrosis (2007). A large proportion of study subjects experienced CH (62%) and 50% had post-operative neuralgia. A study by Singh and colleagues discussed a small trial of thoracic sympathectomy in 49 participants with plantar hyperhidrosis (2002). The authors reported a 90% success rate in treating plantar hyperhidrosis, with a 13% rate of CH. Additionally, Jani described a series of 7 subjects who underwent lumbar sympathectomy (2009). The authors did not adequately report the outcome of the procedure in terms of successful treatment of the plantar hyperhidrosis, but did report 1 subject with spontaneously resolving upper thigh parasthesias. No CH was reported.

Singh and colleagues (2016) reported on a retrospective case series study involving 10 subjects with plantar hyperhidrosis treated with 20 lumbar sympathectomy procedures. The authors reported no adverse events in the immediate postoperative period. Plantar anhidrosis was achieved in all subjects at the first follow-up visit. However, 2 participants (20%) suffered a relapse. The first subject had minimal recurrence at 14 months, and the second subject had recurrence at 15 months and underwent a repeat procedure. Compensatory sweating of the back was reported in 3 subjects (30%), although symptoms were reported as minimal and required no treatment. One subject had compensatory gustatory sweating as well. Two subjects (20%) developed unilateral post-sympathetic neuralgia affecting the thigh and leg; the pain affected the right leg and thigh in both and resolved within 6 months. No ejaculatory dysfunction was reported in the 2 male subjects.

In 2017 Elalfy described the use of a new procedure, sequential extended thoracoscopic sympathicotomy (SETS), for the treatment of palmo-axillo-plantar hyperhidrosis. SETS targets the same sympathetic ganglion targeted in the standard approach (L1 to L2) and additionally targets ganglion at T10 to T12. Nerve destruction was with either electrocautery or harmonic scalpel. The study involved 42 subjects with a minimum 24 month follow-up data, and post-procedure visits were conducted monthly for the first 6 months and then every 3 months through the next 18 months. At 24 months, visual analog scale assessments resulted in significant improvement in palmar, axillary, and plantar symptoms ($p<0.0001$ for all). Likewise, iodine-starch testing demonstrated significant improvements at all three locations, with no sweating detected at the axillar or palmar sites, and 28% of subjects having positive tests at the plantar sites ($p<0.0001$ for all). The authors reported 12 complications (28.6%), with pneumothorax in 2 subjects, mild rebound hyperhidrosis in 3 subjects, 3 subjects with compensatory hyperhidrosis in the groin region and mild intercostal neuralgia of 1 week duration, surgical emphysema, and Horner syndrome in 1 subject each. They concluded that the SETS method appeared to provide satisfactory results, but prospective studies were needed to fully evaluate efficacy.

In 2019, Lima and colleagues published the results of a meta-analysis evaluating the efficacy of lumbar sympathectomy for plantar hyperhidrosis. A total of nine studies and 517 subjects were included in the analysis of mechanical and chemical procedures. The studies focusing on mechanical sympathectomy included 398 subjects and follow-up of the curative outcomes occurred in early and late post-operative periods. Complete resolution of symptoms occurred in 92% of subjects when mechanical sympathectomy was used, including clipping or the resection of the lymph nodes between L2 and L5. Reports indicating resecting L2 may result in retrograde ejaculation in some males, therefore preserving L2 may achieve plantar hyperhidrosis curative results and decrease risk of sexual dysfunction. It was noted that results were similar at L2/L3 or L3/L4 resection levels, therefore avoiding L2 in males may decrease potential risk of sexual dysfunction while maintaining satisfactory curative results. Chemical sympathicolysis studies included 104 subjects and also evaluated outcomes in the early and late post-operative periods. Resolution after chemical sympathicolysis occurred in 11/104 subjects (11%). After an average follow-up of 6 months, mild to severe compensatory sweating was noted in 177 mechanical sympathectomy subjects (44%) and 13 chemical sympathicolysis subjects (12.5%). Neuralgia occurred in a total of 38 subjects (42.2%) but appeared to be transient. Additional prospective studies are needed with standardized protocols to further explore lumbar sympathectomy options and to gather additional data on the long-term risks associated.

In 2020, Wei and colleagues published the results of a meta-analysis evaluating the quality of life (QoL) of individuals after thoracic sympathectomy for palmar hyperhidrosis. A total of nine studies, which involved 895 individuals, met inclusion criteria including palmar hyperhidrosis, thoracic sympathectomy performed, and the Campos questionnaire evaluated quality of life. Follow up periods included 1 year, 20 months, 21.9 months, and 32 months. The mean difference (MD) of the comparison of preoperative QoL score to postoperative was 57.81 (95% confidence interval [CI] 53.33-62.30). There was no significant difference in QoL noted in the subgroup analysis of the different thoracic sympathectomy segments treated, such as single segment versus multiple segments (single segment MD= 61.16, 95% CI, 56.10-66.22; multiple segments MD= 52.14, 95% CI, 48.39-55.88), though further analysis is recommended due to high heterogeneity in the subgroup. Statistical heterogeneity was detected but the overall results of the meta-analysis did not change significantly when omitting the single-choice study or studies with high risk of bias. The authors conclude that thoracic sympathectomy could improve quality of life for individuals with palmar hyperhidrosis despite the development of compensatory hyperhidrosis complication in multiple segment sympathectomy cases.

In 2021 Wolosker published the results of a retrospective case series study of 2431 subjects with palmar, axillary, and cranial-facial hyperhidrosis who underwent bilateral video-assisted thoracoscopic sympathectomy. All subjects were evaluated pre-operatively and 1 month post-procedure. For subjects with primarily palmar and axillary hyperhidrosis, major clinical improvement was reported in more than 90% of subjects. The rate of improvement was lower (80.6%) in cases in which the cranial-facial region was the main site (no specific data or p-values provided). Compensatory hyperhidrosis occurred in 89.3% of subjects, and severe compensatory hyperhidrosis occurred in 22.1%. More than 90% of the participants reported having high satisfaction with the surgery. These results are generally supporting, but are limited by lack of standardized measures, statistical analysis and short follow-up time.

Mol and others (2021) published a retrospective report on the use of thoracoscopic sympathicolysis in 98 children less than 14 years of age with primary palmar hyperhidrosis. The procedure entailed bilateral bipolar fulguration of the second and third thoracic ganglia with transverse disruption of collateral nerve fibers along the third and fourth rib. Median follow-up was 4 (range 2-12) years. The authors reported complete dryness of the hands in 93 subjects (95%). In 1 subject, one hand remained hyperhidrotic after an unsuccessful second procedure. Residual partial moistness was observed in 4 subjects (4.1%). Revision procedures were performed

in 3 subjects (3%), 2 of which were reported as successful. No intraoperative complications were reported. One subject experienced non-functionally impairing postoperative unilateral mild ptosis. Compensatory hyperhidrosis was reported in 65 subjects, 6 of which resolved spontaneously. Another 12 cases reported decreasing compensatory hyperhidrosis with time. Long-term compensatory hyperhidrosis was reported in 59 subjects (60%). Of these, 26 (44%) were reported to not be bothered by it at all, and 3 reported it as a major impairment. Overall, subject-reported satisfaction was rated a 9 out of 10. This report indicates a high rate of satisfaction, despite a high rate of compensatory hyperhidrosis.

Felisberto (2021) published a systematic review and proportional meta-analysis of observational studies investigating the use of video-assisted thoracoscopic sympathectomy (VATS) for the treatment of primary axillary hyperhidrosis. The study included 13 studies with a total of 1463 subjects. The overall satisfaction rate was 92% and the symptom control rate was 96%. Compensatory sweating could not be assessed because of high heterogeneity among studies. The authors reported that complications were rare.

Zhang (2022) reported on the long-term follow-up in quality of life before and after endoscopic thoracic sympathicotomy in 367 subjects with palmar hyperhidrosis. At baseline and a median of 14 months post-procedure all subjects completed a web-based quality of life questionnaire specifically addressing the impact of hyperhidrosis. Improvement in quality of life was reported in 90.7% of subjects ($p<0.001$). The incidence of subclinical compensatory hyperhidrosis post-procedure at follow-up was 94.6%. Post-operative quality of life was significantly positively correlated to the severity of compensatory hyperhidrosis (Risk Score [RS], 0.14, $p=0.009$). the results of this study are in line with previous reports.

Overall, the available body of evidence addressing lumbar and thoracic sympathectomy for plantar hyperhidrosis is weak, but the evidence addressing the thoracic procedure is stronger than that for lumbar procedures. For thoracic procedures, the evidence indicates a much lower incidence of complications and recurrence, and it has become widely accepted as a standard of care procedure for severe cases when conservative measures have failed. On the other hand, the evidence addressing the use of endoscopic lumbar sympathectomy had not demonstrated that the treatment effects and associated risks are equal to or better than alternative treatments. The available data indicates a high rate of complications and no long-term results have been presented.

Liposuction

The available evidence addressing surgical excision or liposuction of axillary tissues has not established the safety or efficacy when compared to alternative treatments. Ibrahim and colleagues reported on the largest and only controlled study of suction-curettage for the treatment of focal axillary hyperhidrosis (2013). In this single-center, parallel-group control trial, 20 subjects were randomly assigned to either left or right axillary botulinum toxin injection or suction-curettage to the contralateral axilla. At 3 months post-treatment, botulinum toxin injections decreased baseline resting sweat production by 72.1% vs. 60.4% for suction-curettage ($p=0.29$), and baseline exercise-induced sweat production by 73.8% vs. 58.8% ($p=0.10$). Using a stratification scheme of light vs. heavy sweaters, exercise-induced sweat production was lower by 10.48 mg/min or 34.3% at botulinum toxin-treated sites ($p=0.0025$). Compared with suction-curettage, botulinum toxin subjects had greater improvements in quality of life by 0.80 points ($p=0.0002$) and 0.90 points ($p=0.0017$) at 3 and 6 months post-treatment, respectively, as measured by the HDSS. The authors concluded that at 3 months, neurotoxin injections are more effective than suction-curettage in all cases and markedly more effective in heavy sweaters. The other published literature addressing surgical excision and liposuction of axillary sweat glands is limited to case reports (Shachor, 1994; Shelley, 1998; Shenq, 1987; Swinehart, 2000; Tsai, 2001).

Laser therapy

The use of laser therapy has been proposed as a treatment of axillary hyperhidrosis. At this time, a limited number of small studies have been published addressing this treatment method. One study investigated the use of a 1064 nm Nd-Yttrium-Aluminum Garnet (YAG) laser to subcutaneously treat the axillary region (Goldman, 2008). This study included 17 subjects with axillary hyperhidrosis who had laser energy delivered subcutaneously via a fiber optic device through an 18 gauge needle. The authors reported that histologic examination demonstrated microvesiculation, decapitation and dilatation of eccrine glands after laser treatment. Physician's global assessment was excellent in 10 subjects (58.8%), good in 4 (23.5%), and fair in 3 (17.6%), resulting in 82.3% of good or better outcomes. No objective measures of long-term outcome were reported. Adverse effects were limited, transient, and mild, including burns (1), seroma (1), relapse of hyperhidrosis (1), and temporary hair loss (8). No serious complications, such as bleeding, damage to axillary plexus, or deeper structures, were noted. During follow-up, a temporary decline in the sensitivity of the treated area was reported by all subjects. The decreased sensitivity lasted about 3 to 5 weeks and spontaneously resolved in all cases.

Another study enrolled 6 subjects undergoing treatment with a Nd:YAG 1064 nm laser at hair reduction settings (Letada, 2012). Three subjects completed the 3-month follow-up period. The authors reported that self-reported survey results found marked improvement in axillary sweating. Modified starch-iodine test results supported this finding at 1 month. Another unblinded case series study was by Bechara and colleagues (2012) and involved 19 subjects who underwent treatment with an 800 nm diode laser. In this study, subjects acted as their own controls with one side randomly treated with laser therapy and the other side not treated. The results demonstrated that both treated and untreated sides significantly improved after treatment, but no significant difference between sides was noted. In both studies, no adverse events were reported and no significant changes in the histology of punch biopsy samples were noted.

These initial small studies demonstrate conflicting results, perhaps due to the different laser types used. The efficacy and safety of this treatment for hyperhidrosis has not been established compared to alternative treatments options.

Microwave therapy

The use of microwave therapy has been described in two peer-reviewed published studies. These devices deliver microwave energy to superficial skin structures to cause thermolysis of eccrine and apocrine sweat glands. The first, by Hong and others (2012), was a case series which included 26 subjects with primary axillary hyperhidrosis who underwent treatment with the miraDry® microwave system (Miramar Labs; Sunnyvale, CA). Subjects were followed for 12 months. Primary outcomes were measured with the HDSS and secondary outcomes were measured with gravimetric (sweat production) testing. The primary efficacy measure was the percentage of subjects that reduced their HDSS scores from 3 or 4 (barely tolerable or intolerable sweating) at baseline to 1 or 2 at follow-up visits. The HDSS data showed a 90% or higher improvement at all follow-up time points. At the 12-month measurement, 9% (29/31) of subjects had at least a 1 point drop in HDSS scores and 55% (17/31) had a 2 point drop. These results were supported by the secondary outcome measure, with 90% of subjects having at least a 50% drop in gravimetric measurement at 12 months. With regard to adverse events; edema, redness, vacuum acquisition marks, and post-treatment discomfort were reported in over 84% of subjects and were self-limited. Palpable bumps under the skin were reported by 71% of subjects, altered skin sensation by 65% of subjects, and axillary hair loss was reported by 26% of subjects. One subject reported neuropathy of the left arm with associated muscle weakness. This subject showed improvement at 6 months after treatment, but was lost to follow-up. There was no confirmation that this adverse neurologic event had resolved.

In another microwave study (DTS G2 System; Miramar Labs, Sunnyvale, CA), Glaser et al. (2012) reported the results of a double-blind randomized controlled study in which 120 subjects with primary axillary hyperhidrosis were assigned in a 2:1 fashion to either microwave therapy (n=81) or sham treatment (n=39). Subjects were required to have an HDSS score of 3 or 4 with baseline axillary

sweat production of greater than 50 mg/5 min as measured by gravimetric readings. Subjects were excluded if they had prior surgery or botulinum toxin injections within the past 12 months. Twenty (17%) subjects did not complete the study to the 30-day follow-up time point. The authors reported 89% of treatment subjects and 54% of controls met the primary endpoint of HDSS measurement drop of 1 or 2 points at 30 days post-treatment. The microwave treatment group had significant improvement in HDSS compared to the sham group ($p<0.001$). HDSS measurements at 6 months were still significantly in favor of the microwave group, with 67% with a score of 1 or 2 vs. 44% in the sham group ($p=0.02$). Twelve month data were only available for the microwave group, with 69% reporting a HDSS score or 1 or 2. Adverse events reported in the microwave group included altered sensation in the treated limb (10%), pain (6%), swelling (5%), blisters or burns (5%), skin rash (5%), skin nodules or bumps (2%), and CH (2.5%). One subject with CH did not have resolution by the end of the study. The authors noted that study data provided an opportunity to identify areas for improvement of the treatment protocol including waiting longer between treatments and using a higher dose of energy at the second session.

Kaminaka and others (2019) published the results of a prospective, split-area randomized controlled trial (RCT) involving 24 subjects with primary axillary hyperhidrosis who received a single treatment with microwave therapy at the maximum energy level (5.8 GHz/axilla) on the randomized side. It was reported that there were statistically significant differences between the microwave-treated and control sides from baseline at 0.5, 1, 3, 6, and 12 months, with improvement measured by the modified single-underarm HDSS scores ($p<0.05$). The percentage of responders with at least 75% reduction in sweat weight on the microwave-treated side vs. control side was 75.0% vs. 37.5% at 1 month, 75.0% vs. 29.2% at 3 months, 83.3% vs. 50.0% at 6 months, and 70.8% vs. 33.3% at 12 months ($p<0.05$ for all). Recurrence on the microwave-treated side was observed in 4.2% and 12.5% at 3 and 12 months, respectively. No serious side-effects were noted.

The results of these studies show promise, but the rate of adverse events and efficacy have not established equivalency to other treatment options. Additional data is needed from larger trials, preferably with blinded evaluators and subjects.

Definitions

Eccrine gland: A gland in the skin that secretes sweat. These glands are located all over the body, and greater concentrations may be found in certain areas of the body such as the armpits, feet, and hands.

Hyperhidrosis: Severe and uncontrollable localized sweating of the scalp, torso (truncal), face (facial) hands (palmar), underarms (axillary), or the feet (plantar or pedal).

Liposuction: A surgical approach that uses a vacuum to remove fatty tissue from under the skin.

Primary hyperhidrosis: Hyperhidrosis due to unknown causes.

Secondary hyperhidrosis: Hyperhidrosis that results from an underlying cause; some common causes include prescribed drug side-effects and medical conditions such as anxiety disorders, diabetes mellitus, and menopause.

Secondary gustatory hyperhidrosis: A nervous system disorder characterized by severe sweating of the forehead, upper lip and mouth region, or chest that may result from exposure to spicy foods and complications from surgery to the parotid gland.

Sympathectomy: A surgical procedure during which segments of the sympathetic nerves that stimulate sweating are cut. This procedure interrupts the nerve transmissions that lead to excessive sweating.

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Index

The use of specific product names is illustrative only. It is not intended to be a recommendation of one product over another, and is not intended to represent a complete listing of all products available.

History

Status	Date	Action
Revised	11/09/2023	Medical Policy & Technology Assessment Committee (MPTAC) review. Revised MN statement to remove “subset” text. Updated Discussion section.
New	11/10/2022	MPTAC review. Initial document development. Moved content of CG-MED-63 Treatment of Hyperhidrosis to new document. Moved content related to iontophoresis to CG-MED-28.
