

Acupuncture for the Treatment of Hyperhidrosis: A Case Report

Abstract

Hyperhidrosis (HH) manifests as excessive perspiration from different regions of the body, which can be both uncomfortable and humiliating. The aetiologic factors associated with primary HH are inadequately understood. The allopathic approach to treatment includes pharmaceutical or surgical interventions, which have demonstrated efficacy but are generally invasive and associated with multiple adverse effects. This case presentation describes a 40 year-old male suffering from anxiety-related HH who was treated with acupuncture. Following the treatment, the patient experienced a significant improvement in subjectively evaluated levels of stress, anxiety and perspiration. The author concludes that acupuncture may be a safe and effective therapeutic modality to diminish the intensity of primary HH to tolerable levels.

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Keywords:
Hyperhidrosis,
sweating,
acupuncture,
Chinese medicine

Introduction

Hyperhidrosis (HH) is profuse perspiration that is excess to that required for thermoregulation. HH is identified as general or focal depending on the distribution of tissues involved. The areas that are often affected by this condition are those containing the highest density of eccrine and apoeccrine sweat glands:¹ the scalp, the axilla, the genitalia, the palmar region of the hands and the plantar surface of the feet. About 2.8 per cent of the US population is afflicted by this condition, with 1.4 per cent classified as axillary, 0.5 per cent as palmar and the remaining cases as 'other'.¹

There are two main forms of HH: primary and secondary. In primary HH there is no obvious causative factor, while secondary HH has been observed in conjunction with several other factors such as anxiety, malignancies, central nervous system abnormalities, endocrine disorders, thoracic outlet syndrome, reflex sympathetic dystrophy, various dermatological conditions, auriculotemporal syndrome, Gopalan syndrome and genetic diseases, and also in conjunction with some medications.^{1,2,3} Primary HH typically occurs in individuals aged 25 to 64.¹ However, it may originate in childhood and continue throughout life.⁴ The distribution of cases among males and females is equal.¹

Although the exact aetiology of HH is unknown, a study conducted by Ro et al. demonstrated that there is a genetic component to hyperhidrosis.⁵ An imbalance between activity of the sympathetic nervous system (SNS), limbic system and anterior

hypothalamus has also been established.⁷ Therefore, the fundamental aetiologic factor corresponding to primary HH is hypothesised to be hyperactivity of the SNS, which is exacerbated by emotional stress.

The conventional therapeutic approaches for treatment of HH involve surgery, administration of pharmaceuticals or Botox (botulinum toxin) injections. Surgical abstraction can be minimally invasive and involve the removal of the local eccrine glands or subcutaneous tissue, or it can be extensively intrusive, involving the abscission of a sympathetic ganglion.¹ In the latter procedure, the patient is anaesthetised and a bifurcate endotracheal tube is inserted between the bronchi of the respiratory tract; an incision is then created in the intercostal space, inducing a pneumothorax; the ganglion in the thoracic cavity at the level associated with hyperhidrosis is identified, and either thermocoagulation or surgical excision is performed; the lung is then reinflated.⁸ Both nominally and significantly invasive surgery can have side-effects such as infection, and major surgery can be extremely stressful on the body, impeding recovery.

The primary medication for HH is oxybutynin, which is an anti-cholinergic agent¹ that induces dry mouth and eyes, constipation and dyspepsia due to its inhibitory effects on the parasympathetic nervous system.⁹ Botox injections, which prevent perspiration by initiating temporary paralysis of the neuromuscular junction, can also be harmful, causing dysphagia, local muscular weakness, generalised loss of muscular strength, dry mouth, pain encompassing

the site of the injection, dyspnoea or incontinence.^{10,11}

Conventional medical therapies have been shown to be effective for the relief of symptoms of HH. However, due to the adverse effects associated with them, some patients seek alternative therapies. Acupuncture is marginally invasive with few side effects and has proved effective for the treatment of various conditions. Unfortunately there is very little research demonstrating its effectiveness for the treatment of HH, although one study administering acupuncture versus a benzodiazepine demonstrated that acupuncture treatment was 96.7 per cent effective compared to 57.7 per cent efficacy in the pharmaceutical group.¹² The purpose of this case report is to describe the treatment of a male patient with HH that had commenced during puberty, and to analyse the safety and efficacy of acupuncture monotherapy as a potential alternative therapeutic modality. Therefore, no modifications were made to the patient's diet, no additional supplements were added or removed and no other treatment was employed.

Case report

Case presentation

A 40-year-old male post-graduate student sought acupuncture treatment for HH. Both his father and brother suffered from the same condition, indicating a genetic component. His HH began during puberty and was characterised by intense perspiration, heat and oedema of the palmar and plantar regions. The frequency of his HH had decreased only minimally as he advanced in age, although the oedema had subsided.

The patient experienced concurrent anxiety, which exacerbated his HH. The anxiety had manifested in adulthood, but had become more pronounced over the previous six months. The primary manifestation of the anxiety involved thoughts racing through his mind, disrupting his ability to concentrate or sleep. Despite the sleep disruption, however, he felt refreshed upon waking. He experienced anxiety about 80 per cent of the time during the day. On a scale of one to ten, he rated his anxiety as ranging between seven and ten. Other factors that aggravated his HH were heat, exercise and stress.

The HH interfered with his ability to write and to perform manual therapy in class. The symptoms of HH lasted throughout the entire day, yet the amount of excretion was less severe at home. On a scale of one to ten, he rated his HH at nine or ten. The patient utilised iontophoresis as a home treatment, placing his hands into bowls of water containing rubber pads connected to electrodes that apply a low intensity electrical stimulation. He did this for 30 minutes, twice a day, for courses of 12 days and noted that it helped. However, it was very time-consuming. He also drank red wine two to three times a week, which seemed to slightly diminish the symptoms of HH.

History, exam and lab findings

The patient ingested 1000 mg ginger, 1000 mg turmeric, 400 mg magnesium, 5000 IU vitamin D3 and a multivitamin daily for general health purposes. He also intermittently consumed valerian root or Benadryl to aid sleep, but did not use illicit drugs and had not been prescribed any medication. He drank a half-litre bottle of water two or three times a day and did not consume coffee or other caffeinated beverages. He generally preferred cold drinks and usually felt hot. His typical diet consisted of boiled eggs, pasta, salads, chicken and occasionally red meat, and he reported experiencing cravings for sweet foods. He sporadically experienced hypophagia with no precipitating factor, and this had increased over the previous six months. The patient experienced two to three bowel movements a day with well-formed stools.

A conventional examination revealed no abnormalities. His vitals, reflexes, muscle strength tests, cranial nerves exam and cardiac auscultation were within normal parameters. All lab results conducted within the previous year were unremarkable. His pulse was wiry on both sides and slightly slippery on the right. His tongue was pale, quivering and swollen, with teeth marks and a thin white coat.

Diagnosis and treatment plan

The pattern diagnosis was Kidney yin deficiency, leading to Liver qi stagnation disturbing the shen and overacting on the Spleen leading to Spleen qi deficiency. The treatment protocol focused on fortifying the Kidney, nourishing yin, coursing Liver qi, strengthening the Spleen, clearing heat, calming the shen and regulating the water passages. See below for a full discussion of the pathophysiology involved.

Treatment

Acupuncture was performed once a week for a 12-week period. The duration of each treatment was 20 minutes. The acupuncture points selected for treatment were: Yintang (M-HN-3), Baihui DU-20, auricular Shenmen (R), auricular Sympathetic (L), auricular Spleen (R), Auricular Liver (L), Guanyuan REN-4, Shuifen REN-9, Zhongwan REN-12, Shanzhong REN-17, Daheng SP-15, Hegu LI-4 (L), Taichong LIV-3 (R), Houxi SI-3 (L), Wai guan SJ-5 (L), Neiguan PC-6 (R), Shenmen HE-7 (R), Taiyuan LU-9 (R), Zusanli ST-36 (R), Xiyang GB-34 (R), Sanyinjiao SP-6 (L), Taixi KID-3 (R), Taibai SP-3 (L) and Zhaohai KID-6 (L). The majority of the yang channel points for clearing heat were inserted on the left, as it is the yang half of the body. However, some of the unilateral points were inserted on one side only based on the patient's tolerance to needling and ability to relax. Although not every point was selected every time, most points were utilised in a majority of treatments.

The primary points for enhancing the function of the

Kidney and nurturing yin were Taixi KID-3, the yuan source point of the Kidney, Guanyuan REN-4 to reinforce the Kidney essence and function and nourish Kidney yin,¹⁴ and Zhaohai KID-6 to calm the spirit.

Additional points used to calm the spirit were Yintang (M-HN-3), auricular Shenmen and Sympathetic, and points referred to as the ‘Buddha’s triangle’: Neiguan PC-6 (a command point for the chest and Pericardium Luo-connecting point which regulates Heart qi and clears heat), Shenmen HE-7 (the yuan source point, which augments the Heart function, soothing the shen) and Taiyuan LU-9.

Points used to expel heat were Houxi SI-3 and Baihui DU-20.¹⁴

Several points were selected for mitigating exuberant Liver qi and augmenting its harmonious circulation, including Hegu LI-4 with Taichong LIV-3 (Hegu LI-4 also regulates sweating and Taichong LIV-3, the yuan source point of the Liver, subdues hyperactive Liver yang and nourishes Liver yin¹⁴), auricular Liver, Shangzhong REN-17 and Xiyang GB-34.

As well as coursing Liver qi, re-establishing the function

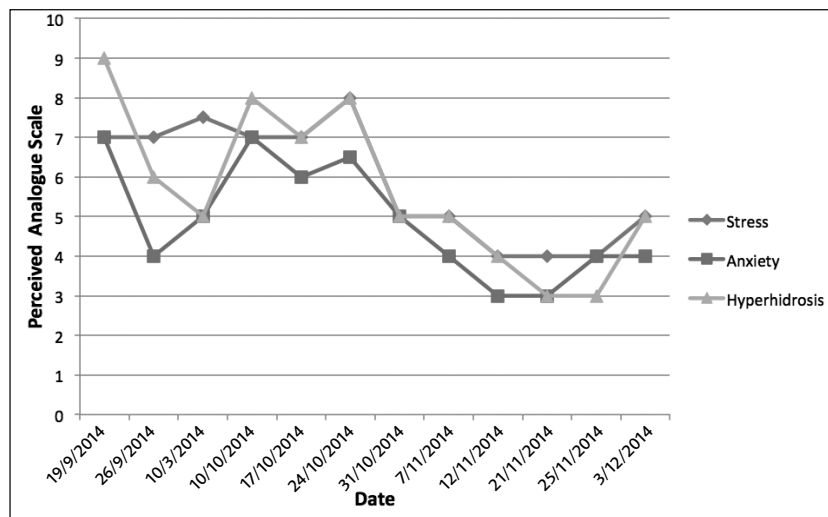
of the Spleen was a central aspect of this treatment strategy. The points used to restore Spleen function were auricular Spleen, Taibai SP-3, Daheng SP-15, Sanyinjiao SP-6, Zusanli ST-36 and Zhongwan REN-12. The latter two points exhibit the potential to influence water passages throughout the body and were therefore apt for this condition. The Luo-connecting point of the San Jiao, Waiguan SJ-5, which is responsible for the coordination of water transportation, assists with perspiration, and additionally clears heat, was also included.¹⁵ Shuifen REN-9, the name of which translates as ‘Water Separation’ was also utilised for the modulation of the water passages.¹⁴

Results

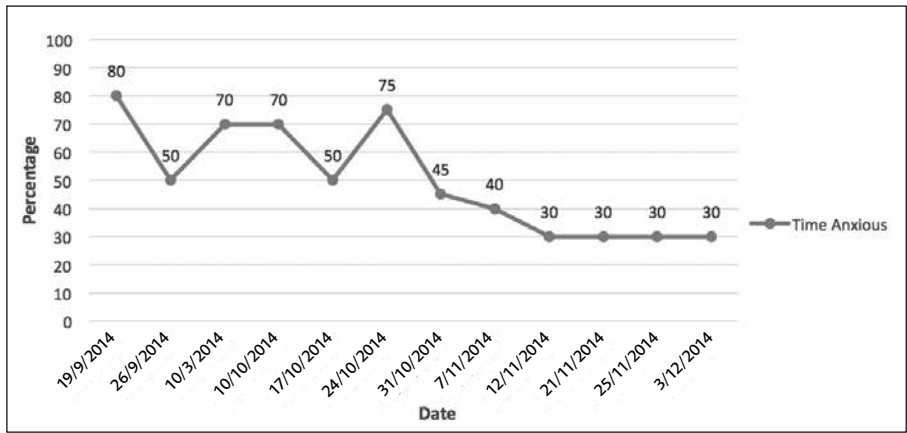
From the baseline to the end of the treatment period, there was a 20 per cent reduction in perceived stress, a 30 per cent decline in perceived anxiety, a 50 per cent decrease in the amount of time spent feeling anxious and a 40 per cent reduction in level of hyperhidrosis (based upon the level of saturation of the patient’s paper during class).

Date	Perceived Stress Level (Scale 1-10)	Perceived Anxiety Level (Scale 1-10)	Percentage of Time Anxious (Scale 1-100%)	Hyperhidrosis Level (Scale 1-10)
19/09/14	7	7	80%	9
26/09/14	7	4	50%	6
03/10/14	7.5	5	70%	5
10/10/14	7	7	70%	8
17/10/14	7	6	50%	7
24/10/14	8	6.5	75%	8
31/10/14	5	5	45%	5
07/11/14	5	4	40%	5
12/11/14	4	3	30%	4
21/11/14	4	3	30%	3
25/11/14	4	4	30%	3
03/12/14	5	4	30%	5

Table 1: Levels of perceived stress, anxiety and hyperhidrosis during treatment period



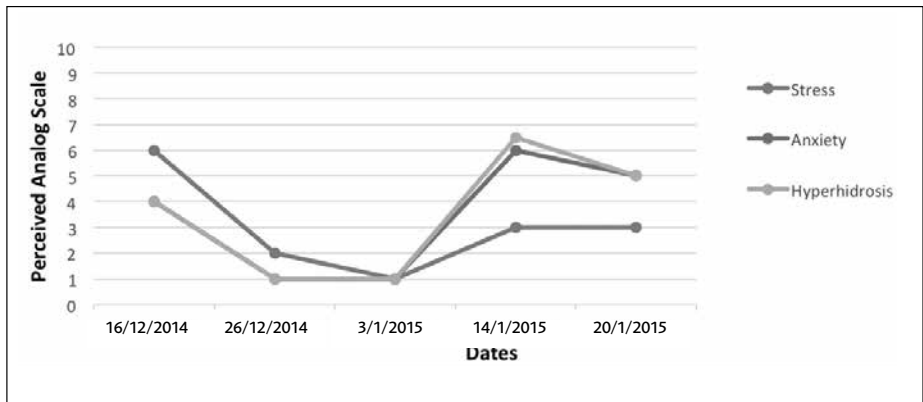
Graph 1: Perceived stress, anxiety and hyperhidrosis during treatment period



Graph 2: Perceived percentage of time experiencing anxiety

Date	Perceived Stress Level (Scale 1-10)	Perceived Anxiety Level (Scale 1-10)	% of time Anxious (Scale 1-100%)	Hyperhidrosis Level (Scale 1-10)
16/12/14	6	4	30%	4
26/12/14	2	1	10%	1
03/01/15	1	1	10%	1
14/01/15	3	6	60%	6.5
20/01/15	3	5	50%	5

Table 2: Follow-up period levels of perceived stress, anxiety and hyperhidrosis



Graph 3: Follow-up representation of perceived stress, anxiety and hyperhidrosis

Discussion

In determining the diagnosis for this patient, numerous aetiological factors were considered. The first aspect of this case was the genetic heritability of HH, indicating that the pre-heaven essence of the Kidney was involved. This was considered particularly relevant as the patient’s condition began during puberty, which is a crucial phase of development controlled by the Kidney.¹⁵ Since his HH began during this time and was unaccompanied by any other ailment or disorder, it was postulated that the Kidney was the primary organ responsible for the commencement of the condition. Kidney yin deficiency was apparent from the ‘five centre heat’ symptoms, in which the yin areas of the palms and soles manifested heat and oedema, and the fact that heat aggravated his condition. The excessive perspiration seems to have been a compensatory mechanism of the body attempting to

cool these areas.

A central aspect of the treatment of this patient was subduing hyperactivity of Liver qi and enhancing the Liver function of circulating qi. The patient was a student in a doctorate level programme. He had multiple exams and paper assignments to complete and his workload was high, causing him to experience severe stress. It was hypothesised that this stress was inducing stagnation of Liver qi and hyperactivity of Liver yang, which was rising to disrupt the function of the shen. As the shen houses the mind, this resulted in intense anxiety that manifested most of the time.

As a result of hyperactivity of the Liver qi, the Liver was overacting on the Spleen, causing deficiency that manifested as hypophagia and cravings for sweets. Furthermore, the pathological emotion of the Spleen is worry, which was exacerbating the patient’s pre-existing

anxiety. Several studies have also demonstrated a correlation between hypohagia and anxiety.¹³

An important consideration for this case was that the effect of acupuncture as a monotherapy was the primary outcome being measured. Therefore, although the turmeric and ginger being ingested by the patient were acrid and warm agents that may have been exacerbating the pattern of yin deficiency, the dosage of these was not altered. If the safety and efficacy of acupuncture were not the primary outcomes being measured, other modalities would have been employed to treat the patient such as cooling and calming herbs to supplement yin, whilst advising the patient to avoid such warm and acrid medicinals. It is notable that the patient still saw significant improvement despite not excluding the ginger and turmeric.

The therapeutic approach for HH in this case was found to be effective. However, the treatment did not completely resolve the anxiety and HH. An important consideration in this regard is that even with surgery, HH is rarely completely resolved. Studies indicate that patients who elect to receive surgical ablation or removal of local glands and tissue experience a 60 to 65 per cent reduction in HH.^{16,17} In a three-year follow-up study of treatment by thoroscopic sympathectomy it was noted that 88.7 per cent of patients were satisfied with the surgery, yet 77.5 per cent of these patients still experienced sweating after their operation.¹⁸ Another study utilising thoracic sympathectomy demonstrated that 71.6 per cent of patients still experienced HH to some degree.¹⁹ However, a study performed in 2007 documented that 41 per cent of the participants reported a moderate to severe reduction in their quality of life after surgery.²⁰

Other therapeutic methods such as drug therapy or Botox have not been demonstrated to be completely effective either. Oxybutynin was noted to improve symptoms in 80 per cent of patients, but all of those patients suffered from side effects.²¹ The intensity of the adverse effects produced was severe and resulted in the discontinuity of treatment in 25 per cent of the patients.²¹ Although a plethora of negative effects are associated with Botox injections, it has a high rate of efficacy, reducing the intensity of the symptoms by as much as 72.1 per cent for four months with palmar HH and 12 months with axillary HH.^{22,23} Consequently, HH patients would have to receive these injections every four months (for palmar HH) or 12 months (for axillary HH) to sustain their effects, and long-term utilisation of Botox has been shown to induce local muscle atrophy.²⁴ Therefore, since the other main treatment methods employed for primary HH have been shown only to reduce symptoms rather than resolve them entirely, the improvement seen in this case is comparable to that achieved by other methods. Although complete remission of symptoms was not observed, each treatment parameter that was evaluated showed a sustained

improvement. Additionally, it is important to note that the patient involved in this study was subject to a considerable amount of stress over a prolonged period of time.

Upon examination of the data, the greatest efficacy was revealed in the amount of time that the patient experienced anxiety and the level of HH, which declined from 80 to 30 per cent and nine to five respectively. Lesser reductions were discovered with stress (seven to five) and anxiety (seven to four). At the beginning of the study, the patient was anxious 80 per cent of the time, which was disrupting his sleep. However, after the first appointment, a significant drop in the level and incidence of anxiety occurred, from seven to four and 80 per cent to 50 per cent respectively. In addition, he experienced a drastic improvement in his sleep and did not report any further problems with his appetite throughout the entire treatment period. These symptomatological improvements indicated that the hyperactivity of the Liver and weakness of the Spleen were being alleviated.

It should be noted that the beginning of the follow-up period (December 16th) was midway through the patient's final exams. The fact that despite the patient's stress level being high his anxiety and HH remained low was particularly significant. He also noted that he experienced episodes when his HH became non-existent for several hours, and after the new trimester commenced, six weeks after his final acupuncture session, the severity of his anxiety and HH remained below the original values.

Limitations

The greatest drawback of this study was that an instrument was not used to assess the intensity of the patient's HH. The intensity of the HH was based solely on the patient's perception and the degree to which his paper became saturated while writing during classes. Another limitation was that appointments did not follow a sequential pattern – after the eighth week of treatment there were a variable number of days between treatments. This was unavoidable due to practitioner-patient availability. A further disadvantage of this study was the limited contact during the follow-up period, which fell during the holidays. Lastly, the effects of long-term therapy were not established.

Conclusion

There are a wide variety of treatment options available for the management of primary HH. However, many of the options are costly, have side-effects and cannot guarantee resolution of symptoms. In this retrospective study, acupuncture was able to drastically reduce the subjective intensity of the anxiety, the duration of the anxiety and the severity of the HH in a student enrolled in an arduous post-graduate programme. It is therefore the conclusion of the author that acupuncture may be a safe and effective

alternative for the management of primary HH and associated anxiety. However, additional studies must be performed to confirm this conclusion.

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References

- Brewer, J. & Shashak, A. (2014). Management of hyperhidrosis. *Clin Cosmet Investig Dermatol*, 7, 285-99.
- Evans R. (2009). *Illustrated Orthopedic Physical Assessment*. 3rd Ed. Elsevier Saunders: St Louis
- Dorland's Illustrated Medical Dictionary*. (2012). 32nd Ed. Elsevier: Philadelphia
- Oskouei, A., Golijarian, S., Yaghobi, Z., (2014). "Comparison of tap water and normal saline iontophoresis in idiopathic hyperhidrosis: a case report". *J Phys Ther Sci*, 26, 1313-5.
- Ahn, S., Cantor, R., Lange, K., et al. (2002). "Palmar hyperhidrosis: evidence of genetic transmission." *J Vasc Surg*, 35, 382-6.
- Hall, J. (2011). *Guyton and Hall Textbook of Medical Physiology*. 12th ed. Elsevier Saunders: Jackson.
- Grimnes, S., Helsing, P., Krogstad, A., et al. (2014). "Tumescent suction curettage vs curettage only for treatment of axillary hyperhidrosis evaluated by subjective and new objective methods." *Acta Derm Venereol*, 94, 215-20.
- Drake, R., Mitchell, A., Vogl, W., (2010). *Gray's Anatomy for Students*. 2nd Ed. Churchill Livingstone: London.
- Lehne, R., (2009). *Pharmacology for Nursing Care*. 5th ed. Elsevier Saunders: St Louis.
- Allergan (2013). "Medication Guide: Botox Cosmetic for Injection." Allergan Pharmaceuticals Inc., available at: http://www.allergan.com/assets/pdf/botox_med_guide.pdf [Accessed 19/05/15]
- Evidente, V. & Pappert, E., (2014). "Botulinum toxin therapy for cervical dystonia: the science of dosing." *Tremor Other Hyperkinet Mov* (NY), 4, 273: doi: 10.7916/D84X56BF
- Wang, W. & Zhao, L. (2008). "Acupuncture treatment for spontaneous polyhidrosis." *J Tradit Chin Med*, 28:262-3.
- Conger, J., Gamble-George, J., Gupta, P., (2013). "Dissociable effects of CB1 receptor blockade on anxiety-like and consummatory behaviors in the novelty-induced hypophagia test in mice." *Psychopharmacology* (Berl), 228, 401-9.
- Deadman, P., Al-Khafaji, M., Baker, K., (2007). *A Manual of Acupuncture*. Journal of Chinese Medicine Publications: Hove
- Maciocia, G. (2005). *The Foundations of Chinese Medicine*. 2nd ed. Churchill Livingstone: Edinburgh
- Almeyer, P., Bechara, F., Boorboor, P., et al. (2008). "Hoffmann K. Sand M. Stuecker M. Histological and clinical findings in different surgical strategies for focal axillary hyperhidrosis." *Dermatol Surg*, 34, 1001-9.
- Lawrence, C., Lonsdale Eccles, A. (2006). "Selective sweat gland removal with minimal skin excision in the treatment of axillary hyperhidrosis: a retrospective clinical and histological review of 15 patients." *Br J Dermatol*, 155, 115-8.
- Karamustafaoglu, Y., Kuzucuoglu, M., Sagiroglu, G. et al. (2014). "3-year follow-up after uniportal thoroscopic sympathectomy for hyperhidrosis: undesirable side effects." *J Laparoendosc Adv Surg Tech A*, 24, 782-5.
- Findikcioglu, A., Hatipoglu, A., Kilic, D., (2014). "Is clipping superior to cauterization in the treatment of palmar hyperhidrosis?" *Torac Cardiovasc Surg*, 62, 445-9.
- Cohen, Z., Hershkovitz, Y., Kleiner, O., (2007). "Compensatory sweating after thoracoscopic sympathectomy: an acceptable trade-off." *J Pediatr Surg*, 42, 1238-42.
- de Campos, J., Kauffman, P., Krutman, M., et al. (2014). "Treatment of uncommon sites of focal primary hyperhidrosis: experience with pharmacological therapy using oxybutynin." *Clinics (Sao Paulo)*, 69(9), 608-14.
- Calvieri, S., D'Epiro, S., Luci, C., et al. (2014). "Safety and prolonged efficacy of Botulin Toxin A in primary hyperhidrosis." *Clin Ter*, 165, 395-400.
- Alam, M., Becker, L., Bolotin, D. et al. (2013). "The comparative effectiveness of suction-curettage and onabotulinumtoxin-A injections for the treatment of primary focal axillary hyperhidrosis: a randomized control trial." *J Am Acad Dermatol*, 69, 88-95.
- Alvarez, R., Cernuda-Morollon, E., Larrosa, D. et al. (2014). "Long-term experience with onabotulinumtoxin A in the treatment of chronic migraine: What happens after one year?" *Cephalalgia*, pii: 0333102414561873 [Epub ahead of print]

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