Zagazig University Medical Journal
www.zumj.journals.ekb.eg

https://doi.org/10.21608/zumj.2024.265015.3131 Volume 30, Issue 8.1, NOV. 2024, Supplement Issue

Manuscript id: ZUMJ-2401-3131
Doi: 10.21608/ZUMJ.2024.265015.3131

ORIGINAL ARTICLE

The Role of Sympathetic Nerve Block in Predicting Compensatory Hyperhidrosis before Thoracoscopic Sympathectomy

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Submit Date: 23-01-2024
Revise Date: 26-01-2024
Accept Date: 30-01-2024

ABSTRACT

Background: Primary hyperhidrosis is a condition characterized by excessive sweating beyond the physiological needs. Dissatisfaction among patients after sympathectomy for primary hyperhidrosis is primarily due to compensatory hyperhidrosis. This work aimed to evaluate the efficacy of CT-guided Sympathetic nerve block in predicting compensatory hyperhidrosis before performing sympathectomy.

Methods: We performed this randomized clinical trial on 36 patients who complained of signs and symptoms of primary hyperhidrosis and were indicated for sympathectomy. All 36 patients underwent CT-guided temporary local sympathetic block at the level of T2 and T3; analysis of cases was done for those who were managed with permanent thoracoscopic sympathectomy regarding the occurrence and grade of compensatory hyperhidrosis after block and after surgery.

Results: For patients with absent compensatory hyperhidrosis in Ct guided Sympatheticnerveblock, 42.86% developed compensatory hyperhidrosis after surgery; the sensitivity and specificity were recorded at 33.33% and 40%, respectively. In the mild grade of compensatory hyperhidrosis was present, 21.43% of cases continued to experience mild compensatory hyperhidrosis after surgery. The sensitivity and specificity for this grade were 25% and 80%; for a moderate grade of compensatory hyperhidrosis, 21.43% progressed to experience moderate compensatory hyperhidrosis after surgery, for a severe grade of compensatory hyperhidrosis cases showed a statistically significant increase to 14.29% after surgery, with a significant p-value of 0.0385*. The specificity for this grade was notably high at 85.71%, and the NPV was 100%, resulting in an accuracy of 85.71%.

Conclusions: The significant association between the severity of compensatory hyperhidrosis after the block and the development of severe cases after surgery highlights the potential utility of this preoperative assessment.

Key Words: Sympathetic Nerve Block, Prediction, Compensatory Hyperhidrosis, Thoracoscopic Sympathectomy

INTRODUCTION

Excessive sweating beyond what is normally considered normal, especially in reaction to changes in temperature or emotional triggers, is a hallmark of primary hyperhidrosis. Among teenagers, 4.36 percent had primary palmar hyperhidrosis, which affects both sexes equally. A painful and debilitating condition is palmar and axillo-palmar hyperhidrosis. The patient's personal and professional life is often negatively affected [1]. Both localized and widespread hyperhidrosis are possible. Primary hyperhidrosis and focal hyperhidrosis are terms used to describe areas of excessive sweating that are located in specific areas, such as the palms, soles, face, underarms, or scalp. Generalized or secondary hyperhidrosis refers to excessive sweating that affects the entire body. Most of the time, it's due to a preexisting illness like hyperthyroidism or hyperpituitarism or diabetes or emotional reasons [2].

Primary hyperhidrosis (PH) has an unidentified cause. Hands (25%), axilla (20%), or both(55%), and plantar hyperhidrosis (45%) are the most common locations for excessive sweating [3]. Topical medicines and injections of botulinum toxin into nerve terminals are among the many drugs used to manage these people. One new alternative to traditional medicine is radio-frequency thermotherapy, which has been more popular in recent years [4]. In the 1920s, the trans-thoracotomy surgical treatment started to appear in medical practice with significant patient morbidity. It failed to generate widespread acceptance [5].

Evolving thoracoscopy approach enhanced the thoracoscopic sympathectomy to become the surgical technique of choice for treating primary hyperhidrosis[5] .

Compensatory hyperhidrosis is a very common complication following sympathectomy that may occur in 50%_70% of patients after surgery. It may be mild, moderate or severe. It may occur in the abdomen, back, lower extremities, or chest [6]

Patients often express dissatisfaction with the results of sympathectomy for primary hyperhidrosis due to compensatory hyperhidrosis. So, to anticipate compensatory hyperhidrosis following sympathectomy, a temporary thoracoscopic sympathetic nerve block is an option [7,8].

Limited-level sympathectomy and lower-level sympathectomy are two of the many approaches to lessen compensatory hyperhidrosis. [8]

We aimed to evaluate the efficacy of temporary CT-guided Sympathetic nerve block in predicting compensatory hyperhidrosis before doing thoracoscopic sympathectomy.

METHODS

We performed this randomized clinical trial in the General Surgery Department, Zagazig University Hospitals, upon 36 patients who complained of signs and symptoms of primary hyperhidrosis and were indicated for sympathectomy from January 2022 to December 2022.

Consent was collected from all patients or their 1st-degree relatives. The approval for the study was obtained from Zagazig University Hospitals after obtaining approval from the Institutional Review Board (#10439/13-2-2023), and the research was conducted in accordance with the Helsinki Declaration.

Inclusion criteria

We included patients complaining of signs and symptoms of 1ry hyperhidrosis and indicated for sympathectomy, who had Grade 3 and Grade 4 1ry hyperhidrosis according to the Hyperhidrosis Disease Severity Scale (HDSS), Hyperhidrosis severity is classified according to Hyperhidrosis Disease Severity Scale (HDSS) into four grades; Grade 1: sweating could never be noticeable or interferes with the daily activities, Grade 2: when sweating is tolerable by patients and could sometimes interferes with the daily activities, Grade 3: sweating is barely tolerable by patients and frequently interferes with the daily activities, Grade 4: sweating is not tolerable at all and always interferes with the daily activities, also we included patients with previous failure of medical treatment for 1ry hyperhidrosis such as Botulinum toxin injection.

Exclusion criteria

We excluded all cases who had the following conditions: Any disease affecting lung or pleura, or affecting sweating as thyroid problems, infection, or diabetes, patients with previous thoracic surgery with adhesion, as well as cases who had any drug causing hyperhidrosis as cholinesterase inhibitors, opioids or tricyclic antidepressants.

Methods: Complete a history taking, including Age, sex, occupation, history of night sweating for no apparent cause, palmer sweating affecting daily activities, and numbness.

Clinical evaluation: Assessment of vital signs (blood pressure, heart rate, respiratory rate, body temperature) and general look (Palmer over sweating). Radiological imaging included plain Chest X-rays. Laboratory: Blood tests were done on admission and included a complete blood count, coagulation profile, and kidney and liver functions.

Radiological intervention

All 36 patients underwent CT-guided temporary local sympathetic block at the level of T2 and T3 with a mixture of (Ropivacine 37.5mg, Dexamethasone, and 0.1%Epinephrine solution).

Before the local sympathetic block, the specific para-vertebral spaces were identified by dye injection.

Patients were followed up for one week to detect compensatory hyperhidrosis.

After the CT-guided local sympathetic block, 2 cases developed moderate compensatory hyperhidrosis, and 6 cases developed severe compensatory hyperhidrosis, so they refused to undergo permeant Thoracoscopic sympathectomy. The remaining 28 patients who didn't suffer from compensatory hyperhidrosis underwent permeant Thoracoscopic sympathectomy.

Surgical maneuver

Starting with the right side, the operation was performed in a supine or semifowler position with a pad placed under the vertebral column under general anesthesia using a double-lumen endotracheal tube. The incision should be minimal due to the trocar size. Double ports with 5mm trocar were used. The first incision was made in the fourth submammary intercostal space just below the pectoral muscle as an access route for the camera, and a second incision was made at the third midaxillary intercostal space to introduce surgical instruments. The 5mm trocars were employed during brief disconnection of the endotracheal tube to deflate the lung when the pleural cavity was entered to avoid damaging the lung parenchyma and for adequate visualization of the surgical field. Prior to the insertion of the camera, 8-10 mmHg 2L/min carbon dioxide insufflation was performed to collapse the lung and assist visibility. Also, semifowler position allowed gravity to help pull the upper lobes out of the field of dissection. The first rib was most often not visible. The rib heads from T2 to T4 were easily identifiable through the parietal pleura and were important landmarks during the thoracoscopic sympathectomy surgery. The second rib constituted the superior boundary, so it was typically the first visible rib in thoracoscopic sympathectomy. The sympathetic chain courses are superficial to the segmental and intercostal vessels. The stellate ganglion lies within the first intercostal space cephalid. The second rib head was generally found underneath a fat pad at the superior limit of dissection.

During the examination of the thoracic cavity, the sympathetic chain was located; this structure, which runs parallel to the spine and is somewhat elevated, is easy to identify. In order to prevent bleeding during cauterization, the hook was utilized to raise the chain. Careful cauterization of any detectable Kuntz fibers was employed to prevent the regrowth of fibers and symptom recurrence when the T2 ganglion level or both the T2 and T3 levels were ablated using the diathermy hook. Expansion of the lung was supervised under direct eyesight as the thoracic cavity was deflated utilizing an underwater closure. Using the identical port locations on the left side of the chest, as stated before, the left sympathectomy was performed after the right one. The thoracic aorta and left subclavian vein served as references. The remaining steps of the process were mirror images of the one carried out on the other side.

***Post-operative care & follow-up*.**

All patients were followed up immediately post-operative, one week and three weeks postoperatively, then every month for six months.

Early post-operative follow-up: To rule out light reflex and Horner's syndrome, the surgeon used a torch light to check the patient's pupils after the end of the operation. A chest radiograph was obtained to exclude pneumothorax, hemothorax, pleural effusion.

During follow-up visits, Pain score was assessed using a visual analogue pain scale (0-10). Wound infection and sepsis were assessed till Stitches were removed ten days to 2 weeks following surgery. Symptoms and signs of remission. Patient satisfaction. Compensatory hyperhidrosis: The severity of compensatory hyperhidrosis was assessed using the hyperhidrosis disease severity scale (HDSS). Time of onset and site of Compensatory hyperhidrosis were documented.

STATISTICAL ANALYSIS

The information was analyzed using Stata (version 23.0), statistical software designed for the social sciences (SPSS Inc., Chicago, Illinois, USA). The t-test or Mann-Whitney test was used to compare normally distributed continuous variables, while the chi-square test or Fischer's exact test was used to compare categorical variables with a frequency of less than 5.

RESULTS

The sample included a total of 36 subjects, with an average age of 31.69 ± 6.47 years. The distribution of gender revealed that 61.11% of the participants were male, while 38.89% were female. The average Body Mass Index (BMI) of the subjects was 24.55 ± 2.33 kg/m2. Regarding occupation, most of the participants, accounting for 61.11%, were engaged in the specified occupations. Notably, 100% of the participants exhibited normal chest X-rays. Vital signs were within expected ranges; all hematological parameters, coagulation profile parameters, liver functions, and kidney functions demonstrated normal values (Table 1).

The distribution of hyperhidrosis sites revealed that 27.78% of participants experienced craniofacial hyperhidrosis, while 72.22% reported palmar hyperhidrosis. The severity of hyperhidrosis, categorized by grade, indicated that 55.56% of participants were classified as Grades 3, and 44.44% were classified as Grade 4 (Table 2).

After the Sympathetic nerve block was performed. Notably, 50% of participants showed no signs of compensatory hyperhidrosis, while 22.22% experienced mild compensatory hyperhidrosis. Additionally, 11.11% reported moderate compensatory hyperhidrosis, and 16.67% exhibited severe compensatory hyperhidrosis. The majority of the subjects, comprising 77.78%, underwent the operation, while 22.22% did not due to moderate and severe compensatory hyperhidrosis that occurred after CT-guided local nerve block (Table 3).

All 28 cases (100%) included in the analysis underwent the specified operation. The operative time for the procedure was recorded at 76.71 ± 8.62 minutes, and the length of hospital stay post-operation averaged 3.39 ± 2.97 days. Among the 28 cases, 7.14% experienced wound infection, while sepsis was not reported. Horner syndrome occurred in 21.43% of cases, and pneumothorax was observed in 28.57% (Table 4).

Among the 28 cases who continued the study and agreed to do the permanent thoracoscopic sympathectomy, compensatory hyperhidrosis was absent in 42.86%, while 21.43% experienced mild compensatory hyperhidrosis, another 21.43% reported moderate compensatory hyperhidrosis, 14.29% exhibited severe compensatory hyperhidrosis, Of the 28 cases, 14.29% expressed dissatisfaction, 42.86% reported satisfaction, and an additional 42.86% reported being very satisfied with the procedure (Table 5).

For absent compensatory hyperhidrosis, after CT guided Sympathetic nerve block, 42.86% developed compensatory hyperhidrosis after surgery; the sensitivity and specificity were recorded at 33.33% and 40%, respectively, with a positive predictive value (PPV) of 50%, a negative predictive value (NPV) of 25%, and an overall accuracy of 35.71%. In the mild grade of compensatory hyperhidrosis was present, 21.43% of cases continued to experience mild compensatory hyperhidrosis after surgery; the sensitivity and specificity for this grade were 25% and 80%, with a PPV of 33.33%, an NPV of 72.73%, and an accuracy of 64.29%. For a moderate grade of compensatory hyperhidrosis, 21.43% progressed to experience moderate compensatory hyperhidrosis after surgery; the sensitivity for this grade was 0%, the specificity was 76.92%, and the NPV was 90.91%, with an accuracy of 71.43%. Remarkably, for a severe grade of compensatory hyperhidrosis, cases showed a statistically significant increase to 14.29% after surgery, with a significant p-value of 0.0385*. The specificity for this grade was notably high at 85.71%, and the NPV was 100%, resulting in an accuracy of 85.71% (Table 6).

Table 1: Demographic data and general evaluation of included subjects

Parameter	**Value (N = 36)**
Age (years)	31.69 ± 6.47
Sex	
Male	22 (61.11%)
Female	14 (38.89%)
BMI (Kg/m2)	24.55 ± 2.33
Occupation	22 (61.11%)
Parameter	Value (N = 36)
Normal Chest x-ray	36 (100%)
Vitals	
RR (breaths per minute)	16.44 ± 2.12
HR (beats per minute)	79.64 ± 13.82
Blood Pressure (mmHg)	
SBP	107.11 ± 10.14
DBP	69.14 ± 5.43
Temperature (oC)	37.19 ± 0.34

Parameter	Value (N = 36)
CBC	
Hgb (g/dL)	13.83 ± 1.44
WBCs (*10^3 cells/µL)	7.61 ± 2.22
RBCs (*10^6 cells/µL)	4.89 ± 0.25
Plt (*10^3 cells/µL)	286.03 ± 63.36
Coagulation profile	
PT (S)	11.72 ± 1.61
PTT (S)	30.17 ± 3.3
Bleeding time (Min.)	5.28 ± 2.46
Liver Function Test	
Bilirubin (mg/dL)	0.76 ± 0.23
Total proteins (g/dL)	6.89 ± 0.89
Albumin (g/dL)	4.72 ± 0.63
AST (U/L)	25.33 ± 8.82
ALT (U/L)	28.19 ± 13.86
Kidney Function Test	
Urea (mg/dL)	14.25 ± 3.7
Creatinine (mg/dL)	0.99 ± 0.25
eGFR (mL/min/1.73 m²)	104.14 ± 4.52

BMI: body mass index, RR: respiratory rate, HR: Heart rate, SBP: Systolic blood pressure, DBP: Diastolic blood pressure, CBC: Complete blood count, HGB: hemoglobin, WBCS, White blood cells, RBCS: Red blood cells, PLT: Platelets, PT: prothrombin time, PTT: Partial thromboplastin time, AST: Aspartate aminotransferase, ALT: Alanine transaminase, eGFR: estimated glomerular filtration rate

Table 2: Hyperhidrosis Data among the studied patients

Parameter	Value (N = 36)
Hyperhidrosis site	
Craniofacial	10 (27.78%)
Palmar	26 (72.22%)
Grade	
3	20 (55.56%)
4	16 (44.44%)

Table 3: Data of CT guided Sympathetic nerve block and Surgery performance among the studied patients

Sympathetic nerve block Data	
Parameter	Value (N = 36)
Procedure time (Minutes)	36.61 ± 6.96
Effective duration (Hours)	31.03 ± 9.43
Compensatory hyperhidrosis Grade	
Absent	18 (50%)
Mild	8 (22.22%)
Moderate	4 (11.11%)
Severe	6 (16.67%)
Perform the operation	Value (N = 36)
Yes	28 (77.78%)
No	8 (22.22%)

Table 4: Thoracoscopic Sympathectomy data

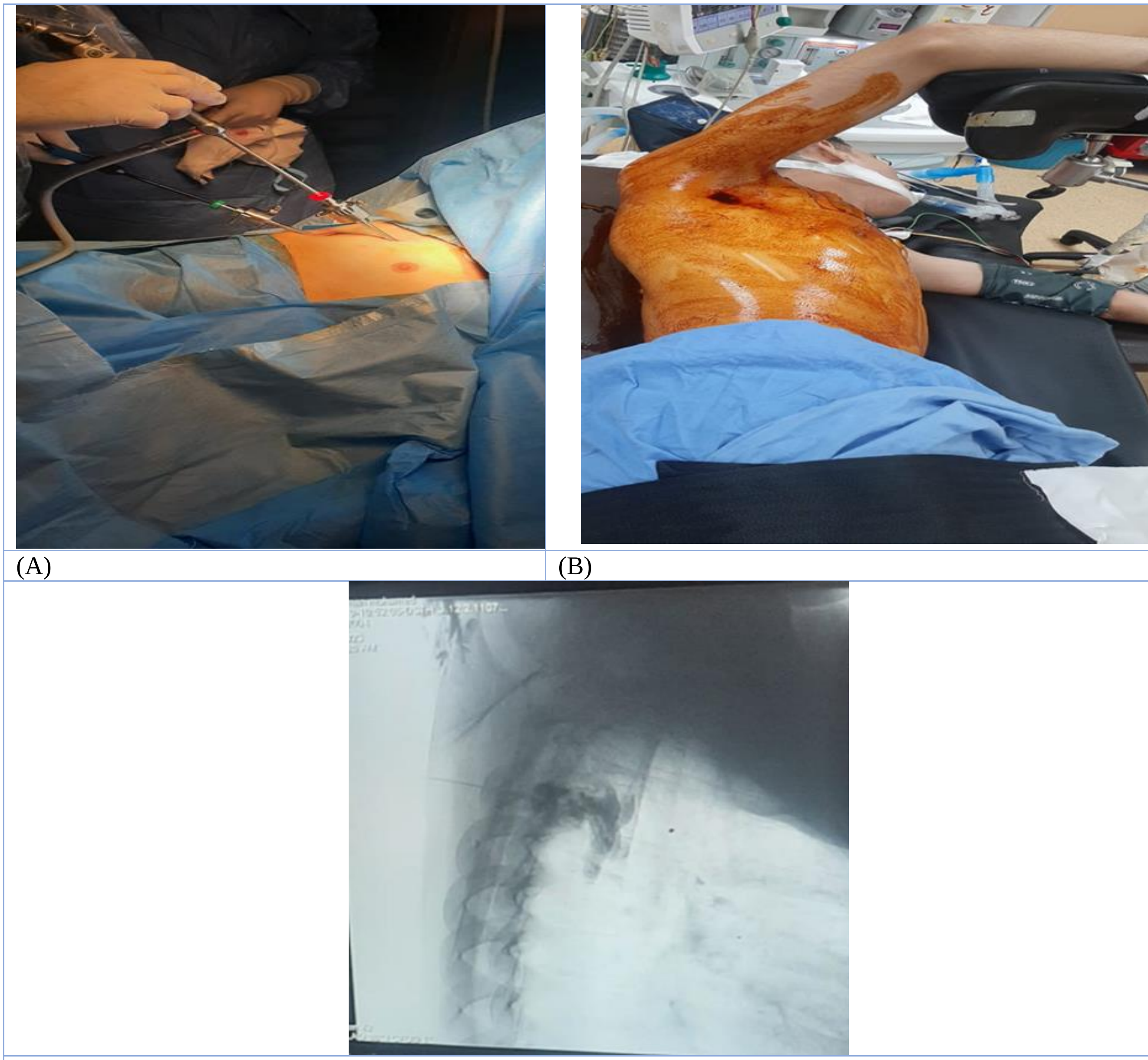
	Value (N = 28)
Perform the operation	28 (100%)
Operative time (minutes)	76.71 ± 8.62
Length of hospital stay (Days)	3.39 ± 2.97

Table 5: Complications occurrence after Thoracoscopic Sympathectomy, and satisfaction among cases managed with Thoracoscopic Sympathectomy

Complications occurrence after Thoracoscopic Sympathectomy	
	Value (N = 28)
Absent	12 (42.86%)
Mild	6 (21.43%)
Moderate	6 (21.43%)
Severe	4 (14.29%)
Satisfaction among cases managed with Thoracoscopic Sympathectomy	
	Value (N = 28)
Not Satisfied	4 (14.29%)
Satisfied	12 (42.86%)
Very Satisfied	12 (42.86%)

Table 6: Comparison analysis among cases managed with Thoracoscopic Sympathectomy regarding the occurrence and grade of Compensatory Hyperhidrosis after Block and after surgery

Grades	**Compensatory Hyperhidrosis after block**	**Compensatory Hyperhidrosis after surgery**	**P. Value**	**Sensitivity**	**Specificity**	**PPV**	**NPV**	**Accuracy**
Absent	18 (64.29%)	12 (42.86%)	0.1118	33.33	40	50	25	35.71
Mild	8 (28.57%)	6 (21.43%)	0.5456	25	80	33.33	72.73	64.29
Moderate	2 (7.14%)	6 (21.43%)	0.1313	0	76.92	0	90.91	71.43
Severe	0 (0%)	4 (14.29%)	0.0385*	-	85.71	0	100	85.71



(A) (B)

(C)

Figure 1: (A): Trocker sites, (B): Position of the patient, (C): Identification of the specific space before injection

DISCUSSION

In recent years, the management of primary hyperhidrosis has seen significant advancements, particularly with the emergence of thoracoscopic sympathectomy as a preferred surgical intervention. Primary hyperhidrosis, characterized by excessive sweating beyond physiological needs, significantly impacts the quality of life for affected individuals. The prevalence, especially in adolescents, underscores the need for effective and minimally invasive treatments to alleviate the social and professional challenges associated with this condition [9].

The sympathetic nerve block involves injecting a local anesthetic to temporarily block the sympathetic nerves responsible for regulating sweat production. This diagnostic procedure allows clinicians to observe how the body responds to the interruption of sympathetic nerve activity. By gauging the patient's response to the nerve block, we can predict the likelihood and severity of compensatory hyperhidrosis post-sympathectomy [10].

Furthermore, the role of sympathetic nerve block extends beyond prediction; it also serves as a valuable tool for patient selection. Not all individuals with hyperhidrosis may be suitable candidates for thoracoscopic sympathectomy, and the nerve block aids in identifying those who are more likely to benefit from the surgery without experiencing severe compensatory hyperhidrosis. This personalized approach enhances the overall efficacy and satisfaction of the procedure [11].

As regard demographic data, we found that our study participants had an average age of 31.69 ± 6.47 years. The majority were male (61.11%), and the average BMI was 24.55 ± 2.33 kg/m2. A significant proportion (61.11%) had occupation.

Similarly, In the study conducted by Alkosha et al. [12], which focused on predictors of compensatory sweating following video-assisted thoracoscopic sympathectomy in primary palmar hyperhidrosis, a total of 194 patients were included. The mean age of the patients was 20 ± 3.6 years, with the majority being male (53.6%). The mean BMI was 27 ± 4.9, emphasizing the prevalence of primary hyperhidrosis in a relatively young population, predominantly composed of males.

In the current study, the hyperhidrosis data among included subjects indicated that 27.78% experienced craniofacial hyperhidrosis, while 72.22% reported palmar hyperhidrosis. The severity of hyperhidrosis, categorized by grade, showed that 55.56% of participants were classified as Grades 3, and 44.44% were classified as Grade 4.

In the research conducted by Toolabi et al. [13], the distribution of primary hyperhidrosis sites among the participants revealed that the most prevalent combination was the involvement of hand, axilla, and head in 22% of cases, followed by hand and axilla in 39%, and hand and head in 10%. Additionally, there were variations such as head and axilla (3.5%), hand only (17.5%), head only (4%), and axilla only (4%). These findings underscore the heterogeneity in the manifestation of primary hyperhidrosis among individuals.

In our study, the sympathetic nerve block data among included subjects showed that the paravertebral sympathetic nerve block had an average procedure time of 36.61 ± 6.96 minutes, and its effective duration was 31.03 ± 9.43 hours. Notably, 50% of participants showed no signs of compensatory hyperhidrosis, while 22.22% experienced mild compensatory hyperhidrosis. Additionally, 11.11% reported moderate compensatory hyperhidrosis, and 16.67% exhibited severe compensatory hyperhidrosis.

Our results were in agreement with the study conducted by Lee et al. [14]**;** the mean procedure time for the predictive procedure was 32.6 minutes. The results showed that compensatory hyperhidrosis (CH) occurred in 32 patients (29.9%), while it did not occur in 52 patients (48.6%). Additionally, 23 patients (21.5%) were uncertain about the presence of sweating.

In our study, the surgery performance among included subjects indicated that the majority (77.78%) underwent thoracoscopic sympathectomy, while 22.22% did not. The comparison between subjects who performed and did not perform the operation regarding demographic data and general evaluation revealed significant variations. Those who underwent the operation were younger and had higher SBP, lower DBP, and lower levels of WBCs and urea compared to those who did not undergo the operation. As for the thoracoscopic sympathectomy, data of cases that performed the operation showed that the average operative time was 76.71 ± 8.62 minutes, and the length of hospital stay post-operation averaged 3.39 ± 2.97 days.

Our results were in line with Jeong et al. [15] study involving 20 patients underwent thoracoscopic sympatheti cblock, 17 individuals (constituting 85%) chose to proceed with sympathectomy, while 3 patients, accounting for 15%, opted to decline the final procedure.

Meanwhile, In the study by Lee et al. [14], 72.9% of patients (78) chose to undergo sympathectomy after the predictive procedure, which is the thoracoscopic sympathetic block, while 27.1% (29) opted against it due to compensatory hyperhidrosis (CH).

In our study, complications that occurred after thoracoscopic sympathectomy included wound infection (7.14%), Horner syndrome (21.43%), and pneumothorax (28.57%).

However, The post-thoracoscopic sympathectomy complications in the study by Lee et al. [14] are reported as follows: pneumothorax occurred in 6 cases (7.7%), subcutaneous emphysema in 1 case (1.3%), and compensatory hyperhidrosis in 60 cases (76.9%).

In our study, the compensatory hyperhidrosis occurrence after thoracoscopic sympathectomy varied in severity, with absent cases in 42.86%, mild cases in 21.43%, moderate cases in 21.43%, and severe cases in 14.29%.

As well as the study by Alkosha et al. [12] revealed varied patterns across different regions. The results indicated that compensatory hyperhidrosis occurred in the back only in 15 cases (16.7%), chest only in 9 cases (10%), abdomen only in 11 cases (12.2%), back and chest in 7 cases (7.8%), back and abdomen in 9 cases (10%), back and genitals in 5 cases (5.5%), abdomen and genitals in 6 cases (6.7%), abdomen and thighs in 4 cases (4.4%), and three regions or more in 24 cases (26.7%).

In the study conducted by Toolabi et al. [13], compensatory hyperhidrosis (CHH) emerged in 176 out of 200 patients, constituting 88% of the cases. Among those with CHH, 22% (44 patients) reported mild symptoms, 40% (79 patients) developed moderate CHH, 16% (32 patients) experienced troublesome CHH, and 10% (20 patients) described their compensatory hyperhidrosis as intolerable.

In our study, satisfaction among cases managed with thoracoscopic sympathectomy indicated that 42.86% were very satisfied, 42.86% were satisfied, and 14.29% were not satisfied with the procedure.

However, In the study conducted by Toolabi et al. [13] a total of 173 patients, accounting for 87%, expressed satisfaction with endoscopic thoracic sympathectomy (ETS) and recommended the procedure to other individuals suffering from hyperhidrosis (HH). Conversely, 9% (19 patients) were dissatisfied with ETS, and 4% (8 patients) regretted undergoing the procedure.

In our study, the analysis of the role of sympathetic nerve block in predicting compensatory hyperhidrosis before thoracoscopic sympathectomy reveals significant findings. Notably, compensatory hyperhidrosis after the block exhibited a distribution of 64.29% absent, 28.57% mild, 7.14% moderate, and 0% severe cases. When compared to compensatory hyperhidrosis after surgery, the occurrence of severe cases demonstrated a statistically significant association, as evidenced by a p-value of 0.0385. This implies that the severity of compensatory hyperhidrosis following sympathetic nerve block may serve as a predictive factor for the development of severe compensatory hyperhidrosis after thoracoscopic sympathectomy.

As the number of sweat glands in the body decreases, the remaining sweat glands' ability to regulate body temperature becomes more important, and this is the mechanism by which CH works [16]. Unfortunately, CH treatment is often ineffective. Avoiding becoming a cause of CH is the best defense against it. It is crucial to exhaust all non-surgical options before resorting to sympathectomy. Thanks to effective medical treatment, a sympathectomy is not necessary for many patients. Unfortunately, most of these therapies are not only uncomfortable but also expensive and inconvenient. Additionally, medical resistance builds over time, making many of these therapy approaches less effective. To find out whether CH could be an issue after surgery, a brief nerve block could be performed first [17].

Over the last decade, Lee et al. [14] have perfected a method to temporarily sedate a patient's nerves in order to mimic a final sympathectomy and foretell the patient's prognosis following surgery. They used a percutaneous spinal needle to inject 10 ml of a mixture of ropivacaine, steroids, and epinephrine into predefined ganglia under thoracoscopic guidance (a 2 mm camera, a single port, and CO2 insulation). Patients were asked to rate their satisfaction with the management of PH and the onset of CH one week following the temporary blocks. Patients were given the option to forego final sympathectomy if the outcomes were positive. The majority of cases had a high positive predictive rate and high specificity (94.4 percent); therefore, their results were optimistic. The predictive process was also safe (95.2 percent). Because of this, the authors were able to draw the conclusion that their strategy provides patients with a realistic chance to feel the benefits of definitive surgery, which boosts post-operative satisfaction.

Several limitations should be acknowledged in our study. Firstly, the relatively modest sample size of 36 participants may limit the generalizability of our findings. A larger and more diverse cohort could provide a more comprehensive understanding of the predictive capabilities of sympathetic nerve block in compensatory hyperhidrosis. The absence of long-term follow-up data is another limitation, preventing us from assessing the enduring effects of thoracoscopic sympathectomy and monitoring late-onset complications.

CONCLUSION

Our study provides valuable insights into the predictive role of sympathetic nerve block in compensatory hyperhidrosis before thoracoscopic sympathectomy. The significant association between the severity of compensatory hyperhidrosis after the block and the development of severe cases after surgery highlights the potential utility of this preoperative assessment. Recognizing and stratifying the risk based on the severity observed during sympathetic nerve block can inform clinicians and patients about the likelihood of severe compensatory hyperhidrosis post-surgery, facilitating more informed decision-making in the management of primary hyperhidrosis.

Conflict of interest: None
Financial Disclosure: None

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Citation

Salah, E., Ibrahim, A., Bayoumi, S., Elsayed, M., Elshahidy, T. The Role of Sympathetic Nerve Block in Predicting Compensatory Hyperhidrosis before Thoracoscopic Sympathectomy. *Zagazig University Medical Journal*, 2024; (3973-3982): -. doi: 10.21608/zumj.2024.265015.3131