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RESEARCH ARTICLE

TREATMENT OF SEVERE HYPERHIDROSIS AND TIME FOR INTERVENTION.

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Manuscript Info

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Abstract

Introduction:

Palmer hydrosis may cause many troubles to the patients. many modalities of treatment were used.

Patient and methods:

Eighty patients complaining of bilateral severe hyperhidrosis in the palmar area and axillary region. Our analysis of 40 bilateral thoracoscopy sympathectomies and 20 patients had radiofrequency ablation and 20 patients had other medical treatment.

Aim:

To evaluate the end results of surgical intervention and time of intervention in severe cases of hyperhidrosis in comparison with others methods.

Results:

The incidence of CS after surgery was 6 patients (15%) and this compared RF that was one patient (5%). Also these symptoms were relived within 6 months follow up. No Horner or transient Horner had been reported with both intervention methods.

Conclusion:

RFT is effective treatment for palmar and axillary hyperhidrosis that provide immediate and long-term success rate with a little complication, simple and with recurrence rate 2.5%.

Key words:-

Hyperhidrosis sympathectomy radiofrequency ablation

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Introduction:-

The palmer hyperhidrosis incidence is between 0.6-1%, that may cause work-related troubles and some psychological and some emotional annoyance for affected peoples (1, 2). For these patients there was 12.5 to 56.5 % family history (3). The medical treatment has limited and short acting period. After the initial success of endoscopic thoracic sympathectomy (ETS) by dr. kux in 1951 the success rate was not determined for long time results. That was done first for treatment of cases of hyperhidrosis in upper limb only (4).

Radiofrequency ablation (RF) technology is recent modality for hyperhidrosis through the spinal thermo coagulation of sympathetic nerves now used successfully.

The axilla, abdomen, trunk, chest and soles are sites that may be affected by hyperhidrosis .The pictures of medications can be used for treatment of hyperhidrosis like anti cholinergic drugs, botulinum toxin (type A), topical uses of aluminum are available with unsatisfied results with severe types.(5)

Aim of our work:

The aim of this study is to evaluate the end results of surgical intervention and time of intervention in severe cases of hyperhidrosis in comparison with others methods.

Patients and methods:-

We had 80 patients complaining of bilateral severe hyperhidrosis in the palmar area and axillary region. Our analysis of 40 bilateral thoracoscopy sympathectomies and 20 patients had radiofrequency ablation and 20 patients had other medical treatment.

Our study was done in zagazig university hospital between May 2016 and June 2018. There were 60 male and 20 female patients. The mean age of the patients was 19 years (ranged 14–30).

ETS procedure:

were done by the same surgical team and the results and complications were detected. The procedure was done under general anesthesia by using a double-lumen end tracheal intubation. The patients were lying in semi-sitting position at 45–60° with abducted both arms up to 90°. We use three ports first one at 5th intercostals space midaxially line for camera and the second at 3rd. space anterior axially and the third at 4th, space posterior axillary line.

Low-volume one lung ventilation manner for produce lung collapse. Carbon dioxide insufflation was up to 10 mmhg. The sympathetic chain is seen running over the rib heads at its junction with the articulation. The superior aspect of the sympathetic chain must be seen for the extent of surgical dissection by the subclavian artery identification.

The azygous, innominate and subclavian veins, the phrenic and vagus nerves, all must be identified and preserved. The pleura is identified and exposed between the T2 and the T4 levels. We used the hook cautery or Mirland forceps for chain separation and diathermy coagulation from underlying structures. Sympathetic chain coagulation also was done between lower level of the second rib and communication between T2 and T3 (don't forget the nerve of Kuntz that arises from the postganglionic fibers of T2 and T3, bypassing the stellate ganglion carrying sympathetic fibers to the inferior part of the brachial plexus.).

We used extended ablation down to T4 if the axillary area was affected.

The chest tube not used in all cases, then the lung was reinflated by a positive pressure about 30–40 mm Hg, and good ventilation and inflation was done by the use of endoscope. The ports were closed using 3-0 Dexon sutures. The reoperation on the other side by the same procedure was repeated in the same sitting. Early postoperative chest

X-ray is needed. Postoperative follow up for one week and for one month and for three months then six months up to two years was done.

Radiofrequency procedure:

We had 20 patients underwent of radiofrequency thermo coagulation (RFT) that was applied bilateral on the same sitting for all 20 patients under local anesthesia and sedation at the level of the second third and fourth thoracic ganglions under C-arm guidance. The patients were put in prone position on the table. Skin scrapping, the needle puncture was passed 2.5 to 3 cm lateral from the midline at the base of the spinous process of the second thoracic vertebra. The needle then passed through the 2nd intercostal space. Under screen of C-arm radiological control we attained the ideal position of the needle to the second thoracic vertebra and thermo coagulation done only under the level of second thoracic vertebrae. Radiofrequency thermal ablation was done also for third thoracic ganglion and was done all so for forth thoracic ganglion if there is axillary hyperhidrosis. Postoperative 2 to 3 hour follow up then after one week and after one month and for three months then after six months up to two years follow up.

Medical intervention:

We had 20 patients with severe symptoms underwent medical therapy for hyperhidrosis can be compared challenge for both the patient and the physician. Both topical and systemic treatments have been used for severe hyperhidrosis. Other treatment options for severe hyperhidrosis include iontophoresis and botulinum toxin injections.

Topical agents for hyperhidrosis include topical anticholinergics, boric acid, 2-5%, potassium permanganate and formaldehyde. All of these agents are had staining, contact sensitization, irritancy, or limited effectiveness. The action of these agents is reducing perspiration by denaturing keratin so, by occluding the pores of the sweat glands. All they have a short-acting effect.

Injections of botulinum toxin must be repeated at 3-4 months intervals to maintain long-term results. But usually need dependant injection that no tolerated by the patients. We use of a novel microwave radiofrequency device has been suggested for axillary and inguinal hyperhidrosis.

Results:-

ETS procedure:

Totally 40 bilateral ETS were done and there was no operative mortality detected. The palms of all operated patients were warm and dry after operation soon. Postero-anterior plain chest X-ray was done early postoperative for pneumothorax or hemothorax. No chest complications were observed in x-ray in our patients. For postoperative pain, we gave analgesic voltaren injection i.m for 3 days with intervals of 12h first day then every 24 hours for the next 2 days. All of the patients were discharged from hospital after one day. All patients recovered soon on table with no recurrence of palmar hyperhidrosis were reported at the first 6-month follow-up period. Mild Compensatory sweating was seen in 6 patients (15 %), which were observed between 4 and 6 months after the operation. Pain at the time of discharge affected 6 patients 15% and was related to the surgical wounds pain. After 8 days of postoperative period, 4 patients 10 % of the patients complained about pain at site of ports got better with NSAIDs. We observed improvement of symptoms in 40 patients 100 %, no other complication as Horner's syndrome. Follow up after two years no recurrence observed.

Regarding RF thermolysis:

It was done on both sides for all twenty patients either on the same sitting or after 2 weeks. RFT was successful for palmar dryness or hyperemia in the affected side without Postoperative morbidity or mortalityBut compensatory hyperhidrosis occurred in only one patient 5% in the trunk that responded well to 20% aluminum chloride. Another one patient 5% had axillary pain. All the patients had immediate relief of sweating. Follow up of the patients after two years we had one patient 2.5% had recurrence on left side with repeat the sitting of RF thermo coagulation with complete relieve and with 97.5% success rate

Regarding the medical treatment

Topical agents for hyperhidrosis include topical anticholinergics, boric acid, 2-5%, potassium permanganate and formaldehyde. All of these agents had staining, contact sensitization, irritancy, or limited effectiveness. They have a short-acting effect with rapid recurrence in all severe cases of hyperhidrosis. But botulinum toxin type A was more effective than topical 20% aluminum chloride for the management of moderate-to-severe primary focal axillary and inguinal hyperhidrosis. Also microwave local radiofrequency device has been suggested for axillary hyperhidrosis with high recurrence. Follow up the patients after medical treatment for 4-6 months with high rate recurrence for all patients whose need regular and sustained treatment with unsatisfactory results.

Discussion:-

Primary hyperhidrosis (PH) is a socially problem condition of unknown pathogenesis or true etiology. About 40% of patients seeking medical treatment have high recurrence rate. In severe hyperhidrosis several treatment varieties have been recommended for the treatment of PH. One of the earlier treatments have involved topical agents with alcoholic solution of aluminum chloride hexahydrate 20% with successful results in moderate inguinal or axillary sites only or anti-cholinergic topical or systemic with significant side effects (blurred vision, dry mouth, difficult micturation and dizziness) with ineffective relief and dependable daily treatment that lead to intolerance. Another injection of botulinum toxin with significance recurrence rate or short micro-waves radiofrequency to damage sweat glands in axillary area but all previous methods had temporary effect and had high recurrent rate especially in the palmar area. Surgical management in the form of Endoscopic Thoracic Sympathectomy (ETS) is as an alternative method which allows symptomatic relief and improves life style. The most common side effect of ETS is excessive compensatory sweating (CS). In our study, the incidence of CS was 6 patients 15% percent and this compared RF that one patient 5% may be due to that ablation was done under fluoroscopy guidance at possible sites of sympathetic ganglion and the ganglia were not actually seen by operator like thoracoscopic thermo coagulation. Also these symptoms were relived within 6 months follow up, no Horner or transient Horner had been reported with both intervention methods. other study done by TarikPurtuloglua, and, AbdulkadirAtima, et al 2013 done on 48 patients after RF found compensatory severe excessive hyperhidrosis CS in one patient 2% and moderate CS occurred in 5 patients 10.10% that may because the thymatholysis is near to T4 level (TarikPurtuloglua, AbdulkadirAtima, SuleymanDeniza, Kutankavaklib, Ersin Sapmazb,2013). Also when we compare our study with retrospective study done in 2011 by Waelfouad (Management of essential hyperhidrosis of upper limbs by radiofrequency thermo coagulation of 2nd ganglion on 10 patients with RF at T2 to T3) we found only one patient 10% complicated with CS.

Regarding to the pain the results of our study we had 6 patients 15% at time of discharge and 4 patients 10% after 8 days of ETS but the results after RF we had one patient 5% suffered from axillary pain after the first week of RF. After RF all patient bed rest and discharged in the same day 4 hours but after ETS all patient discharged after 1-2 days. After the 2 years follow up we found after (ETS) no any recurrent rate 100% success rate but one patient recurrent on the left side after RF 97.5% success rate.

The advantage of RF is simple operation under sedation with little complication but it had rate of recurrence but the ETS has no recurrence in our study.

Conclusion:-

In last years of treatment of severe cases of hyperhidrosis we start treatment with medical methods for 2 years as chance for hope of avoiding of intervention treatment but with high recurrence, unsatisfied results and time consuming and some medical treatment was effective in mild to moderate cases and not used in severe cases that not need daily uses. With skin staining or allergy or tachycardia that temporary or permanent skin changes with unsatisfactory relieve.

After the results of this study RFT is effective treatment for palmar and axillary hyperhidrosis that provide immediate and long-term success rate with a little complication, simple and with recurrence rate 2.5%. Those done under local anesthesia and sedation save and easy with less cost effect than ETS. RF is also effective as a retreatment of recurrences. The ETS is also effective in the treatment of hyperhidrosis without recurrence and effective treatment 100% success rate in long term treatment but cost effect, general anesthesia, with some not harmful complication. So, the treatment of sever hyperhidrosis is surgical intervention either ETS or RF thymatholysis according to patient choice and fitness for general anesthesia without trials of medical treatment that consume the time with many local complication.

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