

Effect of UVR on Hyperhidrosis in Nanded Physiotherapy College Going Students

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Abstract: Background: Hyperhidrosis (HH) is excessive sweating that's not always related to heat or exercise it is common condition in which a person sweats excessively. The sweating may affect the whole of your body, or it may only affect certain areas, commonly affected areas. Include armpits, palm of your hand, face and feet. The prevalence of HH is 3%. Sweating doesn't usually pose a serious threat to your health, but it can be embarrassing and distressing. It can also have a negative impact on your quality of life and may lead to feeling of depression and anxiety. Eccrine sweat glands opens on epidermis layer of skin and UVR plays important role in thickening of epidermis which may reduce sweating on palmar surface study is needed to check the effectiveness of UVR on HH. Objective: To find the effect of UVR on Hyperhidrosis on palms of hand Material & Methodology: Total of 10 subjects were selected, based on inclusion and exclusion criteria. Then they were collected for treatment of UVR in electrotherapy lab. Material used were collected before subjects are collected. Outcome measures were HDSS and Visual Quantification Scale for Sweating. The intervention applied for 2 weeks (3 sessions per week) Assessment were taken pre and post intervention. Data analysis was done using SPSS version 21. Result: The study states that HDSS and Visual quantification scale for sweating score in physiotherapy students with hyperhidrosis showed improvement in students. Conclusion: The study concluded that the effect of UVR on hyperhidrosis in physiotherapy students are effective in terms of HDSS and Visual quantification scale score. Subjects shown significant improvement in symptoms.

Keywords: UVR, HDSS, Hyperhidrosis, Eccrine glands, palmar aspect.

1. Introduction

Hyperhidrosis is excessive sweating that's not always related to heat or exercise

It is common condition in which a person sweats excessively.

The sweating may affect the whole of your body, or it may only affect certain areas, commonly affected areas include –

- 1) Armpits
- 2) palms of your hand
- 3) soles of your feet
- 4) Face and chest
- 5) Groin



Both sides of your body are usually affected equally - Ex. both feet/both hands

Sweating doesn't usually pose a serious threat to your health, but it can be embarrassing and distressing

It can also have a negative impact on your quality of life and may lead to feeling of depression and anxiety

What is excessive sweating?

There is no guidelines to determine what "normal" sweating has started to interfere with your everyday life, you may have hyperhidrosis.

For Ex,

- 1) You avoid physical contact, such as shaking hands, because you feel self-conscious about your sweating.
- 2) You don't take part in activities, such as during exercise, fear they will make your sweating worse.
- 3) Excessive sweating is interfering with your job for Ex. you have difficulty holding tools or using a computer keyboard
- 4) Problem in normal daily activities like driving
- 5) You become socially withdrawn and self-conscious

Causes of Hyperhidrosis:

1) Primary Hyperhidrosis hyperhidrosis (PHH)

Hyperhidrosis has no obvious cause and is thought to be the result of a problem with part of the nervous system that controls sweating called as primary Hyperhidrosis hyperhidrosis

2) Secondary Hyperhidrosis

Hyperhidrosis that does have an identifiable cause is known as secondary Hyperhidrosis. This can have many different triggers including:

- Pregnancy/menopause
- Anxiety
- Certain medications
- Low blood sugar
- Overactive thyroid gland
- Infection

The causes of Hyperhidrosis depends on type of sweating thats happening

There are 2 types of HH:

- Primary hyperhidrosis or (Focal HH), or (Essential HH)
- Secondary hyperhidrosis or General HH

Primary Hyperhidrosis

If your sweat glands has an “on” switch, the glands of someone with PHH would always be flipped up. People with PHH generally sweat from a certain type of sweat gland called eccrine sweat glands. Theses sweat glands make up to majority of 2 to 4 million sweat glands in your body. Eccrine sweat glands are numerous on the the feet, palms, face and armpit

Nerves activate the sweat glands:

- when yours body overheated
- when you are moving around
- when you are feeling emotional
- as a result of hormones

When those nerves overreact it causes Hyperhidrosis

Secondary Hyperhidrosis



What is UVR?

UV light has shorter wavelength than visible light. UV waves are invisible to the human eye, some insects can see them.

UVR is defined as the portion of electromagnetic spectrum between 100nm to 400nm

The sun is the source of full spectrum ultraviolet radiation which is commonly subdivided into

- UVA – 315nm to 400nm
- UVB – 280nm to 315nm
- UVC – 100nm to 280nm

Sweating from secondary HH is different from primary HH in that it tends to happen all over or in one general areas instead of just the hands, underarms, face or feet

Unlike primary HH, this type is more likely to cause sweating during sleep

Number of medical conditions have the potential to cause HH some of them

Pregnancy, diabetes, hyperthyroidism, anxiety, obesity, Parkinson’s disease, rheumatoid arthritis, lymphoma, gout, infection, heart attack, respiratory failure.

Medications can also cause excessive sweating like –

- 1) Alzheimer’s drugs
- 2) Antidepressants
- 3) Diabetes drugs, including insulin and sulfonylureas

Prevalence of HH is rare affecting about 1% of population. However, for those affected the condition often linterferes with their daily activities

HH not just disturb the physical life but also social life. Excessive sweating is an issue that affects nearly 3% of population, resulting to sweaty arms, palms and feet

Clinical features:

- 1) Sweating disturbs you’re your daily routine
- 2) Sweating causes emotional distress/ social withdrawal
- 3) You suddenly begin to sweat more than usual
- 4) You experience night sweat for apparent reason

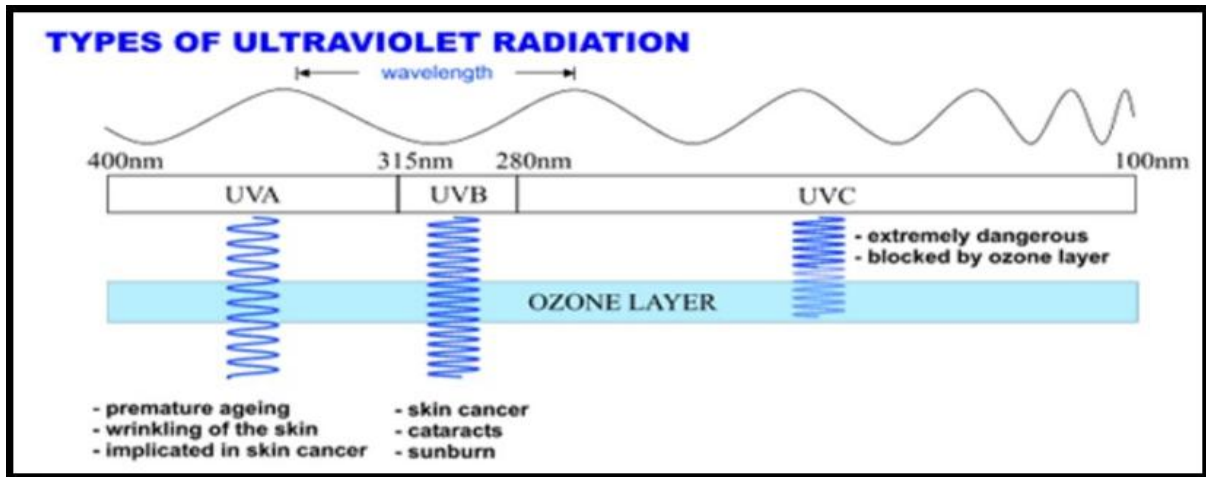
Commonly sweating occurs in following regions:

UVC are most harmful and are almost completely absorbed by our atmosphere

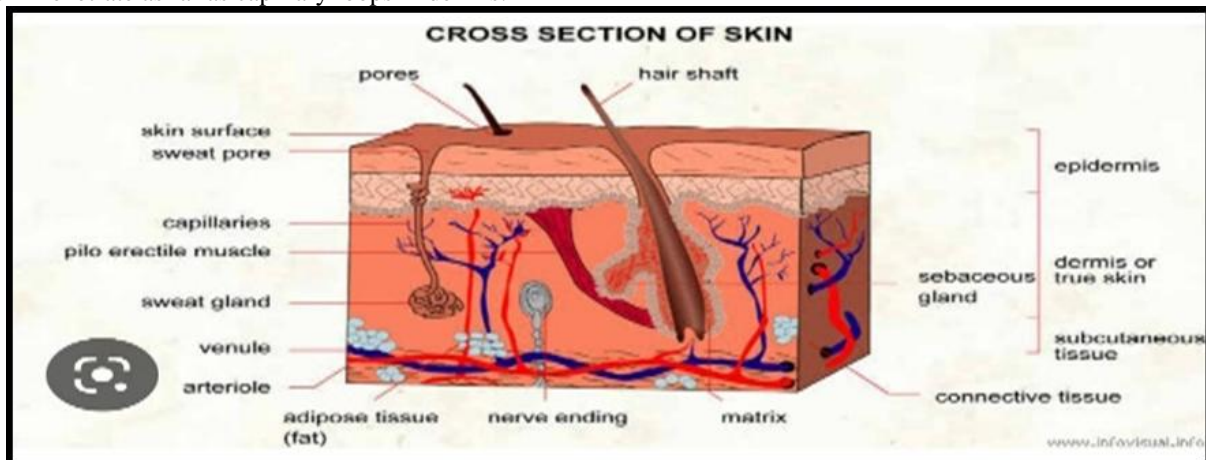
UVB are harmful and that cause sunburn exposure to UVB rays increases the risk of DNA and other cellular damage in living organisms.

Types of UVR

- 1) UVC and UVC absorbed in epidemic:



2) UVA Penetrate as far as capillary loops in dermis:



2. Materials and Method

Materials Used

Paper and pen, Water, Goggle, chair, Bedsheet or cloth sheet, Pillow, Tester, UV lamp (fluorescent)

Procedure

This study protocol was presented for approval in front of the protocol committee & institutional ethics committee of Nanded Physiotherapy College and Research Centre, Nanded

Population

Total 10 post Hyperhidrosis survivors were selected from Nanded Physiotherapy College. Out of 10 subjects 2 subjects were males and 8 subjects were females. Subjects fulfilling the inclusion and exclusion criteria were selected.

Intervention

The purpose of study and nature of intervention was properly explained to the subjects. Written informed concern was taken prior to the assessment. The patients with Hyperhidrosis disease severity scale (HDSS) score 2 and above were included. During pre - treatment and post treatment, severity of Hyperhidrosis was measured by HDSS for quality of sweating and visual quantification scale for quantity of sweating.

The treatment was given for 2 weeks and 4 session per week.

Post treatment assessment was taken after completion of 2 weeks.



Statistical Analysis

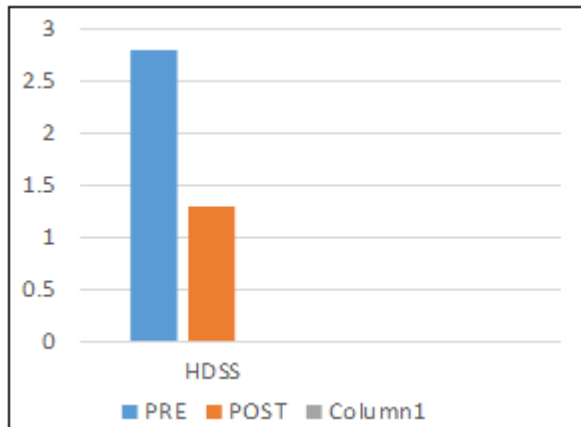
Data analysis was done using the statistical package for social (SPSS Version 2). Basic descriptions were presented in the form of mean and standard deviation. The data were assessed for normality using the Wilcoxon test. Paired 't' test and unpaired 't' test was used to analyse the pre & post differences for HDSS scale and visual quantification scale for sweating scores. Pre & post HDSS scores compared using Wilcoxon rank sum test. The level of significance was

set at $P < 0.0001$ for all tests. Pre & post visual quantification scale scores compared using Wilcoxon rank sum test the level of significance was set at P is 0.0004.

Pre interventions mean and standard deviation of HDSS was 3.00 ± 1.00 whereas post interventions mean and standard deviation of visual quantification scale was 1.5 ± 0.5

Table 1: Descriptive statistics

Groups	Mean	Standard deviation	Mean Difference	t value	p value
HDSS					
Pre	2.8	0.6325	1.500	5.960	0.0037
Post	1.3	0.4830			<0.0001

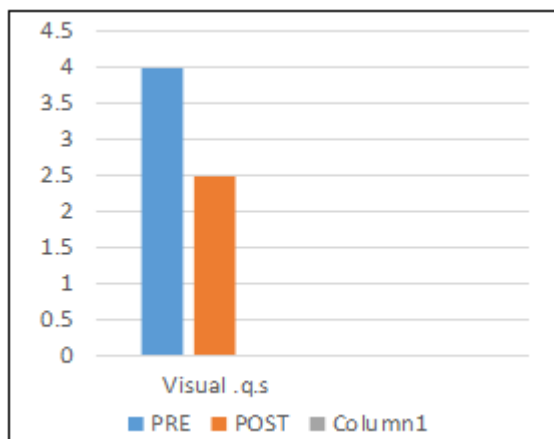


Graph 1: Comparison of pre & post intervention of hyperhidrosis disease severity scale

Graph 1 denotes pre & post comparison of HDSS scores. Blue color denotes pre treatment values & orange color denotes post treatments value of HDSS. Pre HDSS mean value was 2.8 & post HDSS is 1.3 which seems decrease in sweating rate.

Table 2: Pre and post comparison of parameter

Site	Mean + SD	Mean difference	t value	p value
Visual Quantification scale for sweating				
Pre	4.00+1.00	1.500	4.392	>0.10
Post	3.00+1.00			0.0006



Graph 2: Comparison of pre & post intervention of visual quantification scale for sweating

Graph 2 denotes pre & post comparison of visual quantification scores. Blue color denotes pre treatment values. Pre visual quantification mean value was 4 & post value is 2.5 which seems decrease in sweating rate

3. Result

The population of 10 subjects (8 Females & 2 Males) were survived for effectiveness of UVR in Hyperhidrosis in age group between 18 to 25 yrs. Out of 10 students HDSS score is compared between pre - treatment and post treatment & result shown significant decrease in scoring between pre & post result and same in result is seen in visual quantification scale for sweating. The study states that HDSS and Visual quantification scale for sweating score in physiotherapy students with hyperhidrosis showed improvement in students

4. Discussion

Hyperhidrosis is excessive sweating that's not always related to heat excess it is common condition in which a person sweat excessively.

Hyperhidrosis is rare condition affecting only 1% of population, however for those affected, the condition often interferes with their daily activities.

To study the effect of UVR on Hyperhidrosis in college students.

Hyperhidrosis is excessive sweating without any reason or activity. It is most commonly seen on palms of hand, feet, face and armpits.

The main symptom of Hyperhidrosis is heavy sweating.

David M. Pariser MD conducted a study on effect of in hyperhidrosis, Regardless of why it works, studies have shown that into phorsv does provide relief from excessive sweating symptoms for many patients.

For instame an early (1952) observational study of UVR in 113 patients with hyperhidrosis reported a palmar response rate of 91% & share the positive result

Ayamia Naylaa F MD PhD, Sobhy Ngat MD PhD; Abd - Eiraof, Amira MS; Tawfic Abeer MD PhD Conducted study on 30 adults patients with idiopathic palmar hyperhidrosis. The palms of the patients were divided into 2 groups. Conclusion of laser assisted drug delivery of botulinum toxin can be considered an effective & safe alternative for treatment of palmar HH with minimal side effects & complications.

We conducted the study on hyperhidrosis with UVR lamp in 10 college going students, in terms of HDSS & visual quantification scale for sweating scores the conclusion is shown significant improvement in symptoms within 2 weeks with alternate 1 day gap it seems effective

The population of 10 subjects (8 Females & 2 Males) were survived for effectiveness of UVR in Hyperhidrosis in age group between 18 to 25 yrs.

Out of 10 students HDSS score is compared between pre - treatment and post treatment & result shown significant decrease in scoring between pre & post result and same in result is seen in visual quantification scale for sweating.

5. Conclusion

The above study shows that hyperhidrosis in subject between age 18 to 25 yrs old. College going students showing palmar sweating. The study was conducted for 2 weeks & 3 sessions in a week in gap of 1 day on 20 subjects. The study concluded that the effect of UVR on hyperhidrosis in physiotherapy students are effective in terms of HDSS and Visual quantification scale score. Subjects shown significant improvement in symptoms.

Declaration by Authors

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Conflict of Interest: The authors declare no conflict of interest.

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