



## EFFICACY OF BUERGER'S EXERCISE VERSUS FARADISM UNDER PRESSURE IN VARICOSE VEINS

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### ABSTRACT

**Background:** The purpose of this study was to assess the comparativeness between Buerger's Exercise and Faradism under Pressure in Varicose Veins.

**Method:** A comparative study was conducted at physiotherapy department of Krishna College of physiotherapy. A total 40 patients were equally divided into two groups using convenient sampling with chit method (Group A and Group B). Group A was given Buerger's Exercise along with conventional treatment and Group B was given Faradism under Pressure (FUP) with conventional treatment.

**Result:** Pre and Post treatment protocol was analysed using paired t test and unpaired t test. Analysis for VAS ( $p = <0.0001$ ), Grades of Oedema ( $p = <0.0001$ ) and 6-Minute walk test ( $p = <0.0001$ ).

**Conclusion:** From this study, it can be concluded that there was extremely significant improvement in subjects who underwent conventional treatment and Buerger's exercise statistically and clinically which decreased the Pain and increased the walking distance of the subjects and was also beneficial in reducing localized swelling in the lower limb.

**KEYWORDS :** Varicose Veins, Buerger's Exercise and FUP

### INTRODUCTION

Generally, the leg veins, normally have one-way valve in them so that muscle contracts them and blood can go only in one direction that is up the leg which are seen in normal veins. Whereas in varicose veins, the valves are not functioning properly.<sup>(3)</sup> Due to which there is failure of valves to close properly and allows blood in both directions. This backward flow of blood is known as Venous Reflux.<sup>(4)</sup> Due to this there is accumulation of blood in legs causing varicose veins.<sup>(1)</sup> Varicose veins are torturous, widened superficial veins in the subcutaneous tissues of the legs which are often easily visible.<sup>(4)</sup> These are generally larger than 3mm in size. They are usually enlarged and are located on the inside of the calf muscles.<sup>(5)</sup>

According to the population in India Patients with varicose veins in India is about 15-20% of population and is increasing day by day. Varicose veins are more common seen in women than in men. Diagnosis of is done in patients with symptoms of prominent dark blue blood vessels, especially in the legs and feet or history of exposure to risk factors. Diagnosis requires assessment which is done on palpation and Colour Doppler Imaging. After the confirmation medications and compression stocking were given.

A Buerger's exercise program performed for 1month result in improvement of lower limb functions. This study aims to find the comparative effect between Buerger's exercise and Faradism under Pressure in patients having Varicose Veins.

### MATERIALS AND METHODOLOGY

A comparative study was conducted at physiotherapy department of Krishna College of physiotherapy. A total 40 patients were equally divided into two groups using convenient sampling with chit method (Group A and Group B). Group A was given Buerger's exercise along with conventional treatment and Group B was given FUP with conventional treatment. Patients were selected according to inclusion and exclusion criteria. Written informed consent was taken and whole study was explained to them. Inclusion criteria were as follows: 1) Both male and female participants willing to participate in study. 2) Patient with age group 35-55 years.3) Patients with diagnosis of Varicose Veins.4) Patients with Oedema grade 2. Exclusion criteria were as follows: 1) Patients with Deep Vein Thrombosis (DVT). 2) Patients undergone with recent lung surgical interventions in lower limb 3) Patients with recent lower limb

fractures. 4) Patients age less than 34 years. 5) Uncooperative Subjects. 6) Any Neuropathies or ulcers in lower limb.

### Measurement Procedure:

#### 1. VISUAL ANALOUGE SCALE (VAS):

Pain was measured using the visual analogue scale (VAS) each subject will asked to mark to 10 cm vertical line or horizontal line to indicate the perceived level of pain intensity when achieve. No pain is indicated with value of 0 cm and extreme pain indicated with a value of 10 cm.

#### 2. GRADES OF OEDEMA:

**Oedema will be differentiated according to its grades which are as follows:**

- 1:  $\leq 2$ mm pitting that disappears rapidly
- 2: 2-4 mm pitting that disappears in 10-15 seconds
- 3: 4-6 mm pitting that may last more than 1 minute; dependent extremity looks fuller
- 4: 6-8 mm pitting that may last more than 2 minute; dependent extremity is grossly distorted.

#### 3. 6-MINUTE WALK TEST:

The six-minute walk test measures the distance of an individual who is able to walk over a total of six minutes on a hard, flat surface. The goal is for the individual to walk as far as possible in six minutes. The individual is allowed to self-pace and rest as needed as they traverse back and forth along a marked walkway.<sup>(11)</sup>

### Therapeutic protocol

**Group A:** Conventional treatment along with Buerger's Exercise for Varicose Veins patients.

#### Treatment given:

- Buerger's Exercise
- Compression Stalking
- Medications Prescribed

**Group B:** Conventional treatment with Faradism under pressure Treatment given:

- FUP
- Compression Stalking
- Medications Prescribed

**STATISTICAL ANALYSIS**

**Age distribution:** - Age Group of all patients ranged between 35-55 years with the mean age of individual Group A was 45.9 and Group B was 48.2.

Groups	Mean Age (Yrs!)
Group (A)	45.9
Group (B)	48.2

**Table no. 1-Age distribution**

	VAS		
	PRE	POST	PAIRED T TEST P VALUE
GROUP A	7.2±1.240	2.3±1.081	<0.0001
GROUP B	6.95±1.432	3.45±1.356	<0.0001
UNPAIRED T TEST P VALUE	0.5585	0.0052	

**Table no.2 Comparison of VAS**

	GRADES OF OEDEMA		
	PRE	POST	PAIRED T TEST P VALUE
GROUP A	2(1-2)	1(1-2)	0.0009
GROUP B	2(1-2)	1(0-2)	<0.0001
UNPAIRED T TEST P VALUE	0.1761	<0.0001	

**Table no.3 Comparison of Grades of Oedema**

	6-MINUTE WALK TEST		
	PRE	POST	PAIRED T TEST P VALUE
GROUP A	351.3±27.821	402.5±25.105	<0.0001
GROUP B	340.95±33.619	386.5±39.507	0.0004
UNPAIRED T TEST P VALUE	0.2955	0.1346	

**Table no. 4- Comparison of 6-Minute Walk Test**

**DISCUSSION**

The purpose of present study was to find out the comparative effect between Buerger’s Exercise and Faradism under Pressure in Varicose veins. Varicose veins are torturous, widened superficial veins in the subcutaneous tissues of the legs which are often easily visible. Buerger’s Exercise given as an adjunct to conventional treatment in Varicose Veins patients. The feasible training program aims to improve the activity - oriented outcome measure.

Reviewing various studies it was analysed that the use of compression therapy, various exercises, and surgical Therapy like stripping were the lines of treatment routinely used for Varicose Veins .This study was undertaken considering all the mentioned points and the sole aim of this study was to evaluate the comparative effect between Buerger’s Exercise and Faradism under Pressure in Varicose veins subjects. Based on different studies, the subjects were asked to perform Buerger’s exercises and were then asked to continue with the same exercises as a home programme.

The study was carried out and the result was drawn by using VAS, Grades of Oedema score and 6-Minute Walk Test as the outcome measures.40 patients (13 Males and 27 Females),out of which 20 were Right and 20 were Left side affected, diagnosed as Varicose Veins. The age Group was between 35-55 years. Study place was Krishna College of Physiotherapy, OPD. Patients were evaluated and were divided into two Groups by convenient sampling with random allocation. Group A Included 20 subjects treated with Buerger’s exercises and Compression Stalking along with medications prescribed. Group B included 20 subjects treated with Faradism under Pressure and Compression Stockings along with medications. Pre-treatment outcome measures were Visual Analogue Scale, Grades of Oedema and 6-Minute Walk Test. The specific treatment

protocol was followed as per the Group for 6 days in 1 week for a month and the post treatment outcome using Visual Analogue Scale, Grades of Oedema and 6-Minute Walk Test were documented accordingly.

In this study an attempt was made to analyse to compare the study between Buerger’s Exercises and Faradism under Pressure in Varicose Veins. This study was done to investigate the reduction of symptoms after giving Buerger’s Exercise and Faradism under Pressure along with compression stalking in Varicose Veins patients and its post treatment evaluation in a standardized manner using VAS, Grades of Oedema and 6-Minute Walk Test. The result shows extremely significant improvement with combination of Buerger’s Exercise along with compression stalking.

**Improvement of the subjects:**

- There was decrease in Pain in legs of subjects.
- There was increase in the walking distance of the subjects.
- There was also beneficial in reducing localized swelling in the lower limb.
- There was increase in Functional activities of the subjects.
- The subjects could perform exercises independently

This study was done to investigate the comparison between Buerger’s exercise and Faradism under Pressure in Varicose veins. Its post treatment evaluation was conducted in a standardized manner using VAS, Grades of Oedema and 6-Minute Walk test. The result shows extremely significant improvement with combination of Buerger’s Exercise and conventional treatment i.e. compression stalking and medications in patients with Varicose Veins as compared to FUP with conventional treatment.

**REFERENCES**

- Jennifer A Heller and Natalie S Evans: Varicose Veins; Vascular Medicine 2015, Vol. 20(1) 88–90 © the Author(s) 2015.
- Mr J.E. Teasdale FRACS, FRCS Vascular Surgeon: Management of Varicose Veins WAVC;
- Fan Lin, Shiyi Zhang, Yan Sun, Shiyuan Ren, Peng Liu: The Management of Varicose Veins; Int Surg 2015;100:185–189 DOI: 10.9738/INTSURG-D-14-00084.1
- Neeta Mishra, Shiv Lal Solanki, Surya Mishra: 6LOWER LIMB VARICOSE VEINS AMONG NURSES: A CROSS SECTIONAL STUDY IN UDAIPUR; IJCRR Section: Healthcare Sci. Journal Impact Factor 4.016
- Flávia de Jesus Leal1, Renata Cardoso Couto1, Taciana Pimentel da Silva1, Vanessa de Oliveira Tenório1 ET.AL Efficacy of vascular physiotherapy in treatment of Chronic Venous Disease. J Vasc Bras. 2015 July-Sept.; 14(3):224-230Balaji Nujella: Efficacy on Compressive Stockings versus electrical stimulations in improving maximal walking distance in peripheral vascular disease patients; Indian Journal of Mednodent and Allied Sciences Vol. 1, No. 1-3, November 2013, pp- 19-21.
- D.Bieri, M.A.P.A, J. Health, M A.P.A., R. Samios, M.C.S.P, M.A.P.A: The Effects of Faradism under pressure on Venous pressure; Aust.J. Physiotherapy. XVI, 4, December, 1970.
- Chung Sim Lim MBBS PhD, Alun H. Davies DM: Graduated compression stockings; CMAJ 2014. DOI:10.1503/cmaj.131281
- Claudio Allegra, Armando Mansilha, Karel roztočil: Phlebolympology; Vol 22 • No. 1 • 2015 • P1-52 No. 85
- Sherra Solway, MSc (candidate), BSc, (physical therapy), Dina Brooks, PhD, MSc, BSc, (physical therapy), Yves Lacasse, MD, MSc and Scott Thomas, PhD, MSc, BSc: A Qualitative Systematic Overview of the Measurement Properties of Functional Walk Tests Used in the Cardiorespiratory Domain; CHEST / 119 / 1 / JANUARY, 2001
- Chyong-Fang Chang, Chang-Cheng Chang, Mei-Yen Chen: Effect of Buerger’s Exercises on improving peripheral circulation; Open Journal of Nursing, 2015, 5, 120-128
- Chyong-Fang Chang, Chang-Cheng Chang, Mei-Yen Chen: Effect of Buerger’s Exercises on improving peripheral circulation; Open Journal of Nursing, 2015, 5, 120-128
- Carolyn Kisner, (PT,MS): Therapeutic Exercise, Foundation and Techniques; (Fifth Edition).
- C J Evans, F G R Fowkes, C. V. Ruckley, A J Le: The prevalence of varicose veins and chronic venous insufficiency (CVI) in the general population.; J Epidemiol Community Health 1999;53:149-153
- M. Hirai, Y. Nukumizu, H. Kidokoro, N. Hayakawa, H. Iwata, N. Nishikimi , K. ShoT. Tsujisaka and R. Komatsubara: Effect of elastic compression on edema prevention in healthy controls evaluated by three-dimensional measurement system; Skin Research and Technology 2006;12,32,35
- Diagnosis and treatment of Varicose veins Book