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An Observational Study On Prevalence And Severity Of Varicose Vein In Diabetic Compared To Non-Diabetic In Tertiary Care Centre

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ABSTRACT

Varicose veins are a common vascular condition characterized by enlarged, twisted veins that often cause discomfort and swelling, primarily in the legs. They are usually the result of prolonged standing, obesity, pregnancy, and aging, but they can also be influenced by genetic factors. This study aimed to investigate the prevalence and severity of varicose veins in diabetic compared to non-diabetic patients. Data from 120 patients aged 20 to 80 years were collected using a self-designed questionnaire. The majority of varicose vein cases were observed in patients aged 51 to 60 years (27.5%), followed by those aged 41 to 50 (25.8%) and 61 to 70 years (21.7%). Men were found to be more susceptible to varicose veins (54.16%) compared to women (45.8%). Among the comorbidities studied, hypertension was most prevalent (37.5%), followed by diabetes mellitus (31.6%), thyroid disorders (13.6%). Smoking prevalence among the population was noted at 40%. Statistical analysis using a paired T-test indicated a highly significant difference (<0.001) between diabetic and non-diabetic patients regarding varicose vein prevalence. Surprisingly, the study found a higher prevalence of varicose veins in the non-diabetic population, particularly among those with hypertension. In conclusion, while this study suggests a notable presence of varicose veins in both diabetic and non-diabetic populations, hypertension appears to be a more significant comorbidity associated with varicose veins in this cohort. Further research could explore the complex interactions between diabetes, hypertension, and varicose veins to better understand their interplay and implications for management strategies.

Keywords: *Varicose-veins, Diabetic, Non-diabetic, Smoking, Comorbidities and CEAP classification.*

1. INTRODUCTION

DEFINITION:

Varicose veins are tortuous, twisted, or lengthened veins. Unless the enlargement is severe, size alone does not indicate abnormality because size can vary depending on ambient temperature and, in women, hormonal factors. In addition, normal superficial veins in a thin person may appear large, whereas varicose veins in an obese person may be hidden [1]. Varicose veins most commonly affect the legs and can cause pain, swelling, and discomfort. They are usually the result of prolonged standing, obesity, pregnancy, and aging, but they can also be influenced by genetic factors.

2. EPIDEMOLOGY

Varicose veins disease is one of the most commonly observed medical condition influencing teenagers, adults, and elders around the globe. Developing countries have a lower prevalence rate than developed countries. It is assessed that 33% of the general population aged between 18 and 64 years are influenced by Varicose veins.[2]. A study done in India found that 24.17% of participated nurses had lower limb Varicose veins with a slight difference between both genders (24.50% in females v/s 22.58% in males) the prevalence of Varicose veins among both sexes of the population, but there were not many studies that described the association between varicose veins and the type of occupation or the number of hours sitting or standing at work and lifestyle factors such as smoking and exercising.[3]. The prevalence of varicose veins was found to be high in northern Indian population. Approximately half of women and a third of men were found to be affected. 46.7% of females and 27.8% of males were found to be having varicose veins whereas 49.3% of females and 18.9% of males were having venous symptoms. [4].

Varicose veins with Diabetes: -

Varicose veins are accompanied by the changes in carbohydrate metabolism that has gender characteristics and is associated with the severity and clinical manifestations of comorbid DM2 (angiopathy, neuropathy, arthropathy), local production of fructose amine by the affected vein, at the same time determining the severity of venous insufficiency, it depends on the state of the varicose veins (trunk lumen, previous phlebothrombosis) and arterial vascular system.[5].

Diagnosis: -Evaluation of patient risk factors, symptoms, and typical physical examination findings helps determine a diagnosis.[6]. Diagnostic tests for varicose veins are primarily non-invasive and focus on assessing the structure and function of the veins. **Physical Examination, Duplex Ultrasound, • Doppler Ultrasound, Venography**, **Computed Tomography Venography (CTV)**, **Blood Culture, MRI.**

PATHOPHYSIOLOGY: - The pathophysiology involves a combination of venous valve dysfunction, venous wall weakness, and increased venous pressure. Normally, one-way valves in the veins prevent blood from flowing backward as it returns to the heart. When these valves become incompetent, blood pools in the veins, increasing pressure and causing the veins to enlarge and become varicose. Contributing factors include genetic predisposition, prolonged standing or sitting, obesity, pregnancy, and hormonal changes. The increased pressure stretches and weakens the vein walls, exacerbating valve incompetence and further impairing venous return. Over time, the chronic venous hypertension leads to inflammation, edema, and potential complications such as pain, skin changes, and ulceration.

3. PHARMACOLOGICAL THERAPY

Pharmacotherapeutics for varicose veins primarily aim to alleviate symptoms, reduce inflammation, improve venous tone, and prevent complications. Here are some commonly used pharmacological treatments. Venoactive Drugs (VADs): saponins, flavonoids, pentoxifylline. Anti-inflammatory Medication: Ibuprofen, Aspirin, Naproxen. Compression stockings are often used in conjunction with medications to provide symptomatic relief and improve venous return.

Non-pharmacological treatments for varicose veins focus on lifestyle changes, physical therapies, Dietary Changes: A diet high in fiber and low in salt can prevent swelling and improve vein health. Weight Management: Maintaining a healthy weight reduces pressure on the veins.

Lifestyle Adjustments

Avoid Prolonged Standing or Sitting. Avoiding tight clothing, especially around the waist, groin, and legs, can improve circulation. Wear low-heeled shoes, which can help tone calf muscles and improve circulation.

METHODOLOGY: This prospective study was conducted in KIMS multispecialty hospitals located at secunderabad and Kondapur. The study duration was 6 months. during this period of time, we collected 120 patients' data. The data was collected based on the self-designed questioner form, paper-based data collection forms. The criteria we included in our study was Individual aged above 20 years to below 80 years. Individual with complications like comorbidities. C2-C6 VARICOSE VEIN CASES/CVI.

4. RESULTS

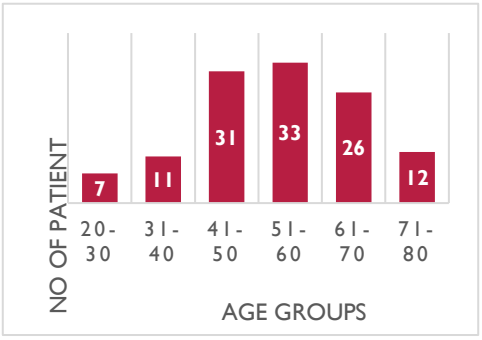

FIG.NO.1 DISTRIBUTION BASED ON AGE

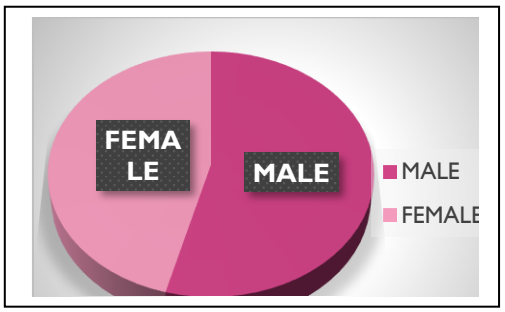

FIG.NO.02 DISTRIBUTION BASED ON AGE

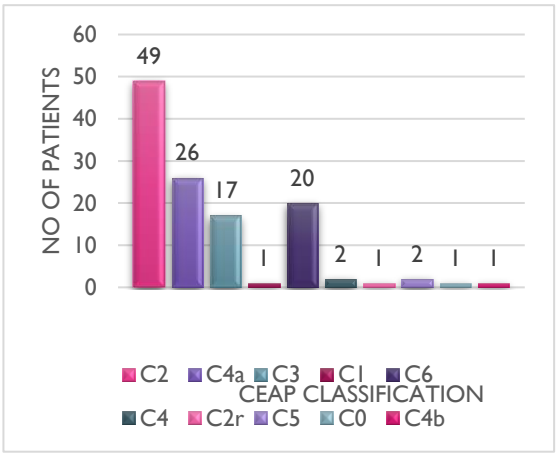

FIG NO.03: Distribution of patients based on Comorbidities

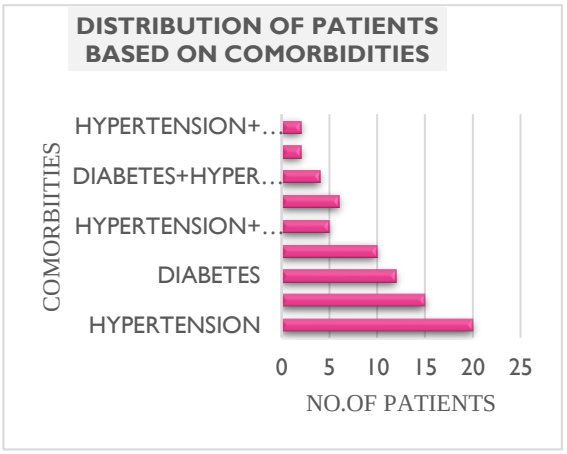

FIG. NO.04: Distribution of patients based on CEAP Classification

Paired Samples Test

		Paired Differences							Significance	
					95% Confidence Interval of the Difference					
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	One-Sided p	Two-Sided p
Pair 1	AGE GROUPS - CEAP CLASS	1.20833	2.30416	.21034	.79184	1.62483	5.745	119	<.001	<.001
Pair 2	GENDER - COMORB	-1.85526	2.23728	.25663	-2.36650	-1.34402	-7.229	75	<.001	<.001

TABLE.NO :- 01 : The p for one-sided P for pair 1 was found to be <0.01 , the two-sided P for pair 1 was observed as <0.001 which is a significance value for the test.

Same as pair -2 for both one-sided P and two-sided P the significance value was found to be <0.01 which is the sign for the test is significant

5. DISCUSSION

The data presented provides a detailed overview of the demographic and clinical characteristics of a cohort of 120 patients.

- **Age Groups**: The largest proportion of patients is in the **45-59 years** age group (39.2%), followed by **60-74 years** (33.3%). Cumulatively, 96.7% of patients are aged between 18 and 74 years, with only a small percentage (3.3%) in the 75-89 age group. This suggests that the condition may be less common in the very elderly population, or it may indicate a selection bias in the study.

- **Male vs. Female**: Among the 120 patients, 65 (54.2%) were male and 55 (45.8%) were female. This finding may suggest that males are at a higher risk for the condition or may be more likely to seek medical attention, although further research would be needed to explore these potential reasons.
- **Prevalence of Smoking**: Out of 120 patients, 48 (40%) were smokers, while 72 (60%) were non-smokers. This distribution indicates that a significant portion of the population engages in smoking, which is a known risk factor for various vascular conditions. However, the higher percentage of non-smokers suggests that other factors may also contribute to the condition.

Prevalence of Swelling: A significant 72 patients (60%) reported experiencing swelling, a common symptom associated with various vascular disorders

Calf Cramps: 43 patients (35.8%) experienced calf cramps, while 57 patients (47.5%) reported calf heaviness.

Presence of Ulcers: 26 patients (21.7%) had ulcers, indicating a serious complication associated with chronic vascular conditions.

Prevalence of Comorbidities: The most common comorbidity was hypertension (16.7%), followed by hypertension combined with diabetes mellitus (12.5%).

Statistical Analysis

Paired Samples Statistics

The paired samples statistics provide valuable insights into the relationships between variables:

- **Age Groups vs. CEAP Classification**: The mean difference of 1.20833 ($p < 0.001$) indicates a statistically significant relationship between age and disease severity as measured by the CEAP classification. This suggests that older patients tend to have more severe manifestations of the condition, which may be due to cumulative risk factors over time.
- **Gender vs. Comorbidities**: The significant p-value (< 0.001) for the difference between gender and comorbidities indicates a strong relationship, suggesting that gender may influence the presence of comorbid conditions, which could have implications for treatment strategies.

Effect Sizes

The effect sizes calculated (Cohen's d and Hedges' correction) provide further context:

- **Effect Size for Age Groups and CEAP Classification**: The effect size of 2.30416 indicates a large effect, suggesting that age is a strong predictor of disease severity.
- **Effect Size for Gender and Comorbidities**: The effect size of -0.829 indicates a moderate negative effect, suggesting that gender differences may play a role in the prevalence of comorbidities.

6. CONCLUSION

- The demographic data also show a slight male predominance, suggesting potential gender-specific risk factors that warrant further investigation.
- Statistical analyses highlight the significant relationships between age, gender, and disease severity, with effect sizes indicating that age is a strong predictor of the condition's severity. These findings underscore the importance of personalized treatment approaches that consider both demographic factors and comorbidities to improve patient outcomes.
- In conclusion, the data underscores the need for a multifaceted approach to managing patients with vascular conditions, integrating demographic insights, symptom management, and comorbidity treatment to enhance overall health outcomes. Future research should focus on exploring the underlying mechanisms of these associations and the development of tailored interventions to address the specific needs of diverse patient populations.

In our prospective study of 120 patients, varicose veins were more common in males and frequently associated with hypertension. Although previous studies suggest diabetes increases varicose vein risk, our findings indicate diabetes itself is not a direct cause but exacerbates the condition due to poor circulation and nerve damage. In non-diabetic patients, hypertension was the most prevalent comorbidity, leading to vein wall damage and varicose veins.

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