Original Article

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Varicose Vein Relationship With BMI In Male Desk Job Employees

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Abstract

Background: Many studies prove that age is an important risk factor for varicose veins but weight remains controversial. Therefore, this study aims at finding relation between varicose veins and BMI.

Materials and Methods: 110 male subjects were taken and were divided into 2 groups of 55 each. 1st group included people of age 30-45 years while the 2nd group included people of age 46-60 years. A self-made questionnaire containing 16 questions then distributed among the subjects and they were asked to choose the appropriate option. Analysis was done based on the response given by the subjects.

Results: The results showed that, pain in the legs was felt by 34% of the underweight population, 26% of the overweight population, 25% of the normal BMI population and 15% of the obese population.

Conclusion: The study concludes that varicose veins are at high risk for the population that belongs to the average and overweight groups.

Keywords: Varicose veins; BMI; Desk job workers.

Introduction

Varicose veins are caused due to the increased pressure on veins as seen in people who stand for a longer time such as people who have occupation which includes prolonged standing. However prolonged sitting also has its adverse effects on the veins as prolonged sitting job does not allow much movement of the lower limbs. Sitting for longer time increases the pressure on the veins of the lower limbs as in order to fulfil the venous return the veins have to work against gravity. The increased pressure on the veins causes the veins to become dilated, tortuous and elongated [5] (Akoijam Sangita Devi, 2014). This increase in pressure weakening of the valves (incompetent valves) which leads to backflow of blood and thus pooling of blood in that particular area giving the veins a tortuous appearance [3] (Kakani Renitha, 2015).

There are various risk factors which lead to varicose veins which include prolonged standing, prolonged sitting, age, previous leg injury, family history of varicose veins, smoking, alcohol consumption and obesity [4] (Kakani Renitha, 2015). However, other factors have been proven to be the factors influencing varicose, obesity remains controversial.

Desk job workers have to work for almost more than 8 hours a day as per their job demand. This does not allow them to have much movement or physical activity throughout the day putting them at high risk of gaining weight [16] (Choi B, 2010). Also, their sedentary lifestyle adds on to this. In today's world, obesity or overweight is a recognized risk factor for a host of disorders[9] (Musil D, 2011). Overweight leads to increase in intra-abdominal pressure which in turn results in increased pressure on pelvic veins causing greater reflux, increased veins diameter and venous pressures. This also causes an elevated iliofemoral venous pressure, which transmits via incompetent femoral veins, causing venous stasis in the lower limb[19] (Vines L,2013) [20] (Van Rij AM,2008).

Body mass index (BMI) is the anthropometric measure used to measure health status of an individual[21] (Gurav P.,2019). It is measured by using height and weight of the individual and is calculated by dividing weight in kilograms by height in meters square[22] (Must A,2006). BMI is graded in four categories which are underweight, normal, overweight and obese. More the BMI of a person more the person falls under obese category and more is he prone to a number of diseases. Hence, this study aims at finding the relation between varicose veins and BMI.

Methodology

By using the convenient sampling method, 110 male subjects were included in this study which were of age group between 30-60 years. Subjects included were all desk job workers who worked in companies and banks in and around Pune and worked for minimum 4 hours a day and 5 days a week. The ones who were already diagnosed with peripheral arterial disease were excluded from this study. The subjects were divided into two groups- Group I- 30 to 45 years of age and Group II- 46 to 60 years of age.

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Table 1: The International Classification of adult underweight, overweight and obesity according to BMI

Classification	BMI (kg/m^2)	
	Principal cut-off points	Additional cut-off points
Underweight	**<18.50**	**<18.50**
Severe thinness	<16.00	<16.00
Moderate thinness	16.00 - 16.99	16.00 - 16.99
Mild thinness	17.00 - 18.49	17.00 - 18.49
Normal range	**18.50 - 24.99**	**18.50 - 22.99**
		23.00 - 24.99
Overweight	**≥25.00**	**≥25.00**
Pre-obese	25.00 - 29.99	25.00 - 27.49
		27.50 - 29.99
Obese	**≥30.00**	**≥30.00**
Obese class I	30.00 - 34.99	30.00 - 32.49
		32.50 - 34.99
Obese class II	35.00 - 39.99	35.00 - 37.49
		37.50 - 39.99
Obese class III	≥40.00	≥40.00

Source: Adapted from WHO, 1995, WHO, 2000 and WHO 2004

Procedure

A Self-made questionnaire and assessment proforma were prepared and validated by 5 experts and a final questionnaire was made which included 16 questions based on the common sign and symptoms of varicose veins and some of the risk factors that lead to varicose veins. This questionnaire was then distributed among the subjects and each question was explained to them individually along with the brief idea of the disease.They were then asked to fill the details in the proforma and choose the appropriate option in the questionnaire.

Proforma

Sample No.: _____

Date: ____/____/_____

Name:

Age:

Gender:

Contact Number:

Address:

Occupation:

Height (cm):

Weight (kg):

BMI:

Duration of years working in this profession:

No. of days working per week:

Questionnaire

TO IDENTIFY THE RISK FACTORS OF VARICOSE VEINS IN DESK JOB WORKERS

1] For how many hours do you attain a sitting position at work?
a) >8 hours c) 6-4 hours
b) 8-6 hours d) < 4 hours

2] Do you take any break during your working hours?
a) Yes b) No

3] If yes, how many breaks do you take in between your working hours?
a) >4 breaks c) 2-3 breaks
b) 3-4 breaks d) 1-2 breaks

4] What is the duration of your break?
a) >45 minutes c) 15-30 minutes
b) 30-45 minutes d) 15 minutes

5] What do you prefer during your break time?
a) walk c) stand
b) stretch (calf) d) sit

6] How often do you exercise?
a) Never c) Frequently
b) Sometimes d) Always

7] How much amount of water do you consume per day?
a) 2.5 liters c) 1.5 liters
b) 2 liters d) 1 liter

8] How often do you consume alcohol or smoke?
a) Never c) Frequently
b) Sometimes d) Always

9] Do you experience pain in your legs?
a) Never c) Frequently
b) Sometimes d) Always

10] Do you see any visible veins in your legs (calf)?
a) Yes b) No

11] If yes, do you feel itching around these veins?
a) Never c) Frequently
b) Sometimes d) Always

12] Have you experienced any swelling in your ankle during the last 6 months to 1 year?
a) Never c) Frequently
b) Sometimes d) Always

13] Do your legs feel heavy after prolonged sitting or get easily fatigued while performing any activity?
a) Never c) Frequently
b) Sometimes d) Always

14] Do you experience cramps in your legs at night?
a) Never c) Frequently
b) Sometimes d) Always

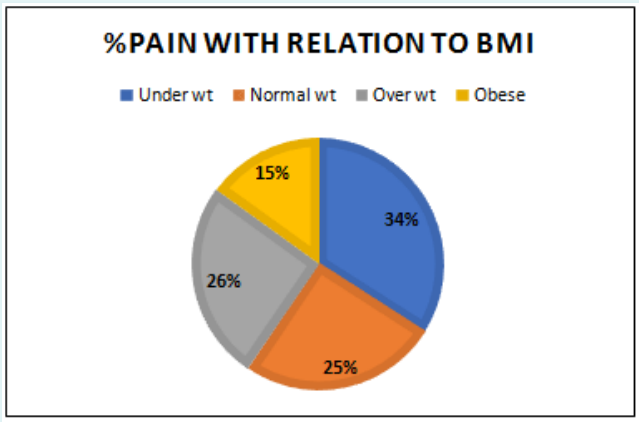
15] Do you have knowledge about varicose veins?
a) Yes b) No

16] If yes, what precautions do you take for the same?

Results

• Graph 1-

Interpretation-
Graph 1- The graph shows that, pain in the legs was experienced by 34% population who were overweight, 25% of population who had normal BMI and 15% population who were obese.



GRAPH 1

Discussion

Varicose veins is a chronic venous disorder that results due to overpressure on the veins of the lower extremities which makes the veins dilated, tortuous and elongated and the valves incompetent leading to pooling of blood in the lower extremities [5] (Akoijam Sangita Devi,2014). As discussed earlier, obesity remains a controversial factor as a leading cause of varicose veins, this study aims at finding a relation between BMI and varicose veins.

According to a study done by Bongkyoo Choi in 2010, stated that; obesity, an excess of body fat is recognized as a serious public health issue in general population and among workers.It has also been documented as key risk factor leading to many chronic diseases such as hypertension, coronary heart disease, osteoarthritis, dyslipidaemia, Type II diabetes and some cancers as well as increased mortality.

Overall increase in body weight leads to increased pressure on the veins of the lower extremities thus increasing the risk of varicose veins in these individuals[13] (Vlajinac HD,2013). Obesity arises from change in environmental and health behaviour rather than from changes in the genes [16] (Choi B,2010). Lifestyle also acts as the leading cause of obesity in general population. The working population who attain a sitting position for longer hours as per their job demands are more prone towards obesity as lack of work-related physical activity seems to be a prime suspect in the growth of obesity [16] (Choi B,2010).

As we have discussed earlier about effects of obesity on the body and that obesity is the leading factor for many diseases, this study aims at finding relation between varicose veins and BMI. According to our study it was found that the population belonging to the average and overweight BMI group is at greater risk of developing varicose veins. Therefore, this study states that, increase in BMI is an important risk factor that can lead to varicose veins and is also an aggravating factor in already diagnosed cases.

This study has its limitations as the sample size taken for carrying out this study was less also assessment of varicose veins was subjective and only male population was included in this study. A further detailed study can be carried out on the preventive measures that can be taken in this population to reduce varicose veins, taking into account the numerous risk factors that lead to it and emphasizing obesity as the leading risk factor.

Conclusion

This study concludes that BMI and varicose veins are interrelated and due to their longer sitting hours and lack of work-related physical activity, increase in BMI is also the leading cause of varicose vein development in male desk-job workers.

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