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Original Article

Risk Factors Of Lower Extremities Varicose Vein At Mohammad Hoesin Hospital

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Backgrounds: Varicose veins are defined as subcutaneous veins in the lower extremities that are dilated to ≥3 mm in diameter. There are several risk factors that can cause varicose veins. These factors are divided based on lifestyle such as prolonged standing or sitting position, hormonal such as estrogen levels in women, familial such as family history, height, and age, and acquired such as obesity and pregnancy. The disease can then weigh on economies globally. In Palembang, there has been no research that discusses the risk factors for varicose veins in the lower legs.
Methods: This study is a descriptive study of medical records with a cross-sectional design. The aim of this study was to determine the distribution of risk factors that cause leg vein disease in inpatients who were treated at RSMH Palembang in the period January 2019-December 2019.
Results: In the study, there were 28 research subjects, of whom had jobs (85.7%) consisting of 95% male and 62.5% female. The age groups most affected by various ages were under the age of 16-24 and 55-64 years (28.6%). Most patients have a normal body mass index (45%) than male subjects and 75% in the female population. The majority of patients were male (71.4%). Most of the population denied the existence of varicose veins of the lower leg in the family (96.4%).
Conclusion: Appropriate education for risk factors of varicose vein and early detection is a key for management of lower extremities varicose vein.

Keywords: Lower extremities, Varicose veins
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INTRODUCTION

Varicose veins are defined as subcutaneous veins in the lower extremities that are dilated to 3 mm in diameter[1]. Varicose veins occur due to increased pressure in the veins accompanied by insufficiency of the venous valves which causes retrograde current or backflow to the legs which then causes the veins to accumulate (congestion). Varicose veins are commonly found in the pelvis and lower legs, precisely in the great saphenous vein because there is a flow against gravity and high hydrostatic pressure[2].

Varicose veins are a multifactorial disease[3]. There are several risk factors that can cause varicose veins. These factors are divided based on lifestyle such as prolonged standing or sitting position, hormonal such as estrogen levels in women, familial such as family history, height, and age, and acquired such as obesity and pregnancy[4]. Based on gender, women tend to experience varicose veins due to high levels of estrogen and progesterone. While a person's high BMI can result in an increase in blood vessel pressure and volume. With increasing age, there can be a process of smooth muscle degeneration in blood vessels. The patient's occupation and physical activity are also one of the risk factors for varicose veins due to the long duration used to stand. Lifestyle-based lifestyles such as a low-fiber diet, long-term smoking, and alcohol abuse can also cause endothelial dysfunction. Family or genetic history also plays an important role in the formation of varicose veins[5].

The disease can then weigh on economies globally. Based on an epidemiological study conducted by Mansilha, as many as 15% of patients reported having lost their work time accompanied by a decrease in quality of life. There was also a significant increase in emotional disabilities and medical conditions[6]. Therefore, this disease should be treated as early as possible. In Palembang, there has been no research that discusses the risk factors for varicose veins in the lower legs. Based on the description above, this study was focused on determining the distribution of risk factors for lower extremities varicose veins at Mohammad Hoesin Hospital. The results of this study are expected to increase knowledge about risk factors for leg varicose veins, as information in assessing the prevalence of leg veins and the basis for further research.

METHODS

This study is a descriptive observational study with a cross-sectional design and the sample was taken using

a total sampling technique. The sample of this research is the medical record of inpatients for varicose veins in the lower leg at the Vascular Surgery Department, Mohammad Hoesin Hospital period January 2019-December 2019.

Family History	N	%
No	27	96,4
Yes	1	3,6
Total	28	100

The variables of this study were occupation, body mass index (BMI), age, gender, and family history. The data will be processed using the Statistical Package for Social Sciences (SPSS) software with univariate analysis.

RESULTS

In this study, 28 research subjects were obtained which had been taken from the medical records of inpatients for varicose veins in the lower leg at Mohammad Hoesin Hospital from the period January 2019-December 2019.

The results of the distribution of occupational status in patients with varicose veins were shown on table 1.

Table 1. Distribution of occupational status

Occupation	Sex				Total	
	Male		Female			
	n	%	n	%	n	%
Working	19	95	5	62,5	24	85,7
Non-working	1	5	3	37,5	4	14,3
Total	20	100	8	100	28	100

The results of the distribution of sex in patients with varicose veins were shown on table 2.

Table 2. Distribution of sex

Sex	n	%
Male	20	71,4
Female	8	28,6
Total	28	100

The result of the distribution of age in patients with varicose veins were shown on table 3.

Table 3. Distribution of age

Age	n	%
16-24 y.o	8	28,6
25-34 y.o	3	10,7
35-44 y.o	1	3,6
45-54 y.o	5	17,9
55-64 y.o	8	28,6
65-74 y.o	3	10,7
Total	28	100

The results of the distribution of BMI in patients with varicose veins were shown on table 4.

Table 4. Distribution of BMI

BMI	Sex				Total	
	Male		Female			
	n	%	n	%	n	%
Underweight (<18,5 kg/m^2)	0	0	0	0	0	0
Normal (18,5-25,0 kg/m^2)	9	45	6	75	15	53,6
Obesity (>25,0 kg/m^2)	11	55	2	25	13	46,4
Total	20	100	8	100	28	100

The results of the distribution of family history in patients with varicose veins were shown on table 5.

Table 5. Distribution of family history

DISCUSSION

Distribution of Lower Limb Varicose Vein Risk Factors Based on Occupation

In a study conducted by Shakya et al. showed that about 46% of the population of health workers such as nurses experienced varicose veins in the lower legs with a longer period of standing time increasing the percentage risk of their occurrence by 27 times per hour.[7] A study conducted by Chen et al., on 182 hairdressers found that patients who stood for long periods of time at work had more lower leg varicose veins (11.3%).[8] Then in the research conducted by Criqui et al. it was found that a prolonged sitting posture can increase the risk factor for the incidence of varicose veins in the lower legs, namely by 0.96%, especially in women, but it is said that in this position the severity is lower because pooling can occur before the sitting position.[9] This is because long periods in a standing or sitting position while working can cause a decrease in pump activity in the calf muscles which causes accumulation of blood in the lower extremities which causes changes in the valves of the veins.[10]

Distribution of Lower Limb Varicose Vein Risk Factors Based on Age.

This study is in line with research conducted by Robertson et al, where the results obtained that the age group with the highest percentage of incidence is 55-64 years old, which is 55.7% and the 18-24 years age group is 11.5%.[12] Then in the research conducted by Evans et al, it was found that the age group with the highest percentage of incidence was 55-64 years of age with a percentage of 55.7%, followed by 45-54 years of age, which was 41.9%.[13] This can be caused by the increased pressure in the superficial veins caused by weakening of the calf muscles and deterioration of the vein walls over time.[14] With aging, the smooth muscle cells in the blood vessels get older, which causes insufficiency in the valves of the blood vessels, coupled with high blood pressure, which can lead to varicose veins in the lower legs.

Distribution of Lower Limb Varicose Vein Risk Factors Based on Body Mass Index

Generally according to theory, obesity can increase the risk of varicose veins and thromboembolism, especially in women.[15] Excessive fat accumulation in the body or obesity can cause inflammation which then causes thromboembolism which can then lead to venous valve insufficiency. In addition, obesity can make it difficult for individuals to move or walk coupled with excessive body weight which can increase the risk of lower leg varicose veins.[16] Obesity can also cause premature aging of smooth muscle cells in the blood vessels which causes insufficiency in the valves of the veins, which are inadequate, and high blood pressure.[17] This result is not in accordance with some theories and previous research.

These results are in accordance with the research conducted by Tuchsen et al. which states that patients with varicose veins in the lower legs have a BMI in the range of 18.5-25 kg/m^2 (58.8%), followed by a BMI >25

kg/m^2 (28.36%), then a BMI of 18.5 kg/m^2 (12.74%).[11] In a study conducted by Beebe dimer showed that women with a BMI of 25-29.9 kg/m^2 had a 3 times greater risk of developing varicose veins in the lower legs than female patients with a BMI 30 kg/m^2, but this was uncertain in male patients. This could be due to the possibility of greater average body weight of multiparous women with higher estrogen levels compared to nulliparous bodies. In a study conducted by Yun et al. With a population of nurses at University Hospitals in South Korea, the results showed that the percentage of lower leg varicose veins was more in nurses with a body mass index <25 kg/m^2 or normal category.[18,19] In the research conducted by Misbahiyah et al. The percentage of incidence from 62 respondents were mostly in patients with normal body mass index, which were 87%.[20]

Distribution of Lower Limb Varicose Vein Risk Factors Based on Sex

Based on the theory stated that the hormones estrogen and progesterone in women are vasodilators which can cause weakness in the veins which often causes varicose veins.[21]

Therefore, the results of this study are not in line with the theory. In this study found more men than women. This research is in line with the research conducted by Komsuoğlu et al. and Beaglehole et al. found that there was no significant difference in gender differences. Based on the results of research conducted by Komsuoğlu et al. the results obtained were 34.5% varicose veins in men and 38.3% varicose veins in women, these results were not significant (p>0.005).[22] In addition, research conducted by Beaglehole et al. in Cook Island showed a non-significant difference of 15.6% for women and 14.9% for men. Then in a study conducted on Tokelau Island, the results were also not significant, namely 2.9% in women and 0.8% in men.[23] This can be caused by the workload of the male population in the form of long working hours which can be a risk factor for patients with varicose veins in the lower legs. In addition, the small number of cases which can be caused by the lack of awareness of patients to carry out reports and examinations causes the results to be inconsistent with other studies.

Distribution of Lower Limb Varicose Vein Risk Factors Based on Family History

A study conducted by Shakya et al., based on his research found 18.23% of the study population had a family history of varicose veins in the lower limbs.[7]

Based on this, it was found that the data was not significant at the age of more than or equal to 45 years. In a study conducted by Chen, it was found that family history can play a role as a risk factor in patients who are still young, namely in the age range of 25-39 years (59%), but no significant results were found in patients older than 60 years (27%).[2] These results are not in accordance with the theory that family history is a major risk factor in the occurrence of varicose veins in the lower legs. This can occur due to the lack of knowledge of lower leg varicose veins patients regarding their family history of varicose veins. In addition, a family history of varicose veins can not only be caused by genetics, but can also occur due to lifestyle and environment.

CONCLUSION

The conclusions from the study regarding the distribution of risk factors for varicose veins in the lower limbs at RSMH Palembang in the period January 2019-December 2019 are:

1. The highest percentage of lower leg varicose veins in Dr. RSUP. Mohammad Hoesin Palembang is a working patient, which is 85.7% with a distribution of 95% in men and 62.5% in women.
2. The age group with the most varicose veins in the lower leg at Dr. RSUP. Mohammad Hoesin Palembang is 16-24 years old and 55-64 years old with the number of each group is 8 people (28.6%).
3. The Body Mass Index category of patients with the highest percentage of varicose veins in the lower limbs at Dr. RSUP. Mohammad Hoesin Palembang is normal (18.5-25.0 kg/m^2), which is 57.1% with a distribution of 45% in the male population and 75% in the female population.
4. The percentage of lower leg varicose veins in Dr. Mohammad Hoesin Palembang in the period January 2019-December 2019 were 28 incidents with the most male sex being 71.4%.
5. Patients with varicose veins in the lower leg at Dr. RSUP. Mohammad Hoesin Palembang was found in patients without a family history of lower leg varicose veins with the percentage of 96.4%.

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