



A Prospective Study on Comparison of Health Related Quality of Life in Surgical Intervention and Non Surgical Intervention Patients with Varicose Veins in A Tertiary Care Hospital

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ABSTRACT

BACKGROUND AND OBJECTIVES: Varicose veins are large swollen veins that often appear on the legs and feet. They happen when the valves within the veins don't work properly, therefore the blood doesn't flow effectively. This study aims to assess and compare the health related quality of life in surgical intervention and non-surgical intervention patients with varicose vein by reassessing the condition at follow up and also provide patient counselling. **METHODS:** This prospective interventional study was carried out in general surgery department over a period of 6 months on a total 100 patients in which 68 patients underwent surgery and 32 were non surgery patients. The patient's quality of life was assessed using medical outcome study 36-item short form (SF-36) questionnaire and Aberdeen varicose vein questionnaire (AVVQ). Both questionnaires were scored according to the respective scoring guidelines. Using unpaired student t test the comparison of scores were statistically determined for both surgery and non surgery groups based on which patient counselling was also done. **RESULTS:** In a total of 100 majority of patients belonged to age group of 31-40 years (N=32) and majority of the subjects affected with varicose were females (55%) than males (45%). Occupation of most of the patients' demanded longer hours of continuous standing or sitting like home makers (31%), labourers (20%) etc. Data on symptomatic distribution revealed that pain (77%) and hyperpigmentation (40%) were found to be the most common symptoms along with left limb varicose veins (56%). For AVVQ after reassessment, patients who underwent surgery had significantly better HRQoL scores compared to non surgery group (22.22 ± 12.36 vs 50.58 ± 17.923 , student T test, $P < 0.01$). Similarly correlation of overall SF-36 score and its sub domains for surgery and non-surgery groups before and after follow up indicated an increase in scores of 8 sub domains of SF-36 after surgery which shows statistically better QoL in those patients than non surgery group (71.87 ± 15.40 vs 34.68 ± 19.28 , Student T test, $P < 0.01$). **INTERPRETATIONS AND CONCLUSIONS:** The results of the present study showed that surgery will certainly better the quality of life in varicose veins and effective patient counselling will also add to a much better recovery rate and also decrease the chance of recurrence of the condition. This was confirmed by using the SF-36 and Aberdeen questionnaire.

KEYWORDS: Aberdeen questionnaire; health related quality of life; patient counselling; SF-36; surgical intervention; varicose veins

INTRODUCTION

The term varicose is derived from Latin word "varicosus" which means dilated.^[1] Varicose veins are twisted, enlarged veins near the surface of the skin and they mostly develop in the legs and ankles. When sitting or standing for an extended time, the blood within the veins of the legs can pool and therefore the pressure within the veins can increase and cause stretching. Stretching of veins can sometimes weaken the walls of the veins and damage the vein valves resulting in varicose vein.^[2]



Varicose veins aren't only dilated veins but also tortuous and elongated, but physiologically speaking a vein is one which allows reverse flow through its faulty valves. Varicose veins, though a common condition, many time remains asymptomatic.^[3] It affects 10–20% of population in the Western world but in India, it is 5%.^[4]

This is a type of interventional study in which the participants are divided into groups which will receive one or more treatment. It helps to find out clinical outcomes and biomedical outcomes.^[5]

Quality of life is the degree of well being of individuals and societies. In the surgical specialties it's becoming increasingly important to justify surgical intervention in terms of improved quality of life also as clinical improvement, and this is often particularly true for the treatment of non-life-threatening conditions such as varicose veins. Assessment of general quality of life (QoL) was made using the Short Form–36 General Health Survey (SF-36), and disease-specific health-related quality of life (HRQL) was measured using the Aberdeen Varicose Vein Questionnaire (AVVQ).^[6]

Chronic venous disease in the lower extremities has a substantial effect on physical health aspects of quality of life but not on mental health components.^[7] Patient counseling does not limit to merely educating people about their health state, but also contributes in improving the bond between the patients and their healthcare providers. In varicose veins patient counselling plays a very important role to better the condition. Points like maintaining a healthy weight, eat low salt diet that is rich in high fibre food to reduce retention of water or swelling^{[2],[8]} are helpful.

METHODOLOGY:

The medical records of patients who were admitted in the hospital during the period were collected from the General Surgery Ward and entered with knowledge questionnaires. A total 100 patients in were selected on the basis of inclusion and exclusion criteria. The patient's quality of life was assessed using knowledge questionnaires and statistical test were applied to find significant relations between before and after counselling.

METHODS OF DATA COLLECTION

This is a prospective interventional study conducted in patients with Varicose veins who are admitted in the hospital General Surgery ward during the period of 2019-2020 in accordance with inclusion and exclusion criteria.

- **Study Design, Source Of Data And Study Setting:-**

A prospective interventional study was conducted on the inpatients admitted in The Oxford Medical College And Research Centre.

- **Sampling size and technique:-**

A sample size of 100 was calculated using the following sample size equations, considering the prevalence of 20%, with confidence limits 95% and with margin of error 5%.

$$X = Z^2 P(1-P) / e^2$$

$$n = N X / X+N-1$$

- **Sampling Criteria:-**

All patients within age limit of 18-65 of both genders admitted to the general surgery department with varicose veins. Patients those who are non-cooperative and refused to participate.



• **Collection of Data and Method of Data Analysis:-**

All the documents using in the study were translated to the local language (Kannada). The consent from the patient was obtained through informed consent form in English and Kannada language. The demographics of the patient (Name, Age, Sex etc) and the data regarding past medical history, past medication history, drug induced problems, diagnosis, prescribed drugs etc were collected from case sheets and medical records. The Health Related Quality of Life was assessed using Aberdeen questionnaire and SF-36 of both patients who underwent surgery and those who didn't. Follow up was also done using the same 2 questionnaires and HRQOL was evaluated and compared. Patient counselling was done using patient information leaflet.

RESULTS:

3.1 Demographic characteristics of study population

Out of the total 100 patients with varicose veins, 68% (n=68) patients underwent surgery and 32% (n=32) were non-surgery patients. Mean age of the patients was 42.9 years. Majority of the subjects 32% (n=32) were of the age group 31-40 years and majority out of the total were females 55% (n=55) who were homemakers. Around 31% (n=31) and 66% (n=66) of patients were from rural areas. Most of the subjects in the study were homemakers as mentioned before followed by laborers 20% (n=20). Hence this distribution gives an evidence that the above occupations inevitably require standing or sitting for long periods of time continuously and carrying heavy weights.

Data collected on professional qualification also signifies that a majority 85% (n=85) subjects were non healthcare professionals indicating their unawareness about varicose veins and importance of immediate care for a better health outcome.

The educational status indicates a significant lack of knowledge about the condition and its risk factors which could have definitely led to the worsening of the present disease condition. Detailed description is provided in table.

Table I: Demographic details of study population.

Socio demographic features	Items	Underwent surgery (n=68)	Non surgery (n=32)
Gender			
	Male	29	16
	Female	39	16
Age			
	21-30	09	06
	31-40	18	14
	41-50	15	11
	51-60	15	04
	61-70	05	03
Occupation			
	Agriculture	01	02
	Business	10	02
	Construction worker	07	01
	Home maker	17	14
	Labourer	15	05
	Receptionist	03	00
	Software	10	07
	Teacher	03	00
	Others	02	01
Residence			
	Rural	25	41
	Urban	21	13



3.2 Data based on socioeconomic division.

Socioeconomic classification was done based on Kuppuswamy's socioeconomic status scale 2020 which scores the socioeconomic status based on education and monthly family income and categorizes them based on the final score into 5 different classes. According to this study the majority of patients 35% (n=35) belonged to the lower (V) class followed by upper lower (IV) 26% (n=26). This data given in table II and III very clearly depict that a vast majority of patients in this study were from poorer backgrounds indicating significant lack of knowledge about the condition and its risk factors which could have definitely led to the worsening of the present disease condition.

Table II: Kuppuswamy's socioeconomic status scale 2020.

Features	Items	Patients (n=100)	Score
Education based			
	Profession or honours	15	07
	Graduate	22	06
	Intermediate or diploma	08	05
	High school certificate	25	04
	Illiterates	30	01
Monthly family income based			
	≥ 1,99,862	08	12
	99,931-1,99,861	06	10
	74,751-99,930	07	06
	49,962-74,755	09	04
	29,973-49,961	27	03
	10,002-29,972	17	02
	≤ 10,001	24	01

Table III: Socioeconomic classification of study participants.

Socio-economic class	Patients (n=100)	Percentage
Upper (I) Score- (26-29)	08	8%
Upper middle (II) Score- (16-25)	18	18%
Lower middle (III) Score- (11-15)	13	13%
Upper lower (IV) Score- (5-10)	26	26%
Lower (V) Score- (<5)	35	35%

3.3 Influence of socio demographic variables with the most common clinical presentations

The most common presentation in varicose veins was pain 77% (n=77) followed by hyperpigmentation 40% (n=40). A detailed investigation proved that based on occupation, the category including homemakers, labourers and construction workers complained primarily of severe pain along with bleeding on the limb affected and category including software programmers, business persons, receptionists complained of significant hyperpigmentation. Detailed description is given on table IV and V.



Table IV: Symptomatic distribution among the subjects.

(N=100)	BLEED-ING	PAIN	OEDEMA	INFLAM-MATION	HYPERPIGMENTATION
POSITIVE (%)	20	77	32	18	40
NEGATIVE (%)	80	23	68	82	60

Table V: Association between socio demographic variables with most common clinical presentations.

Occupation	Bleeding (n=20)	Pain (n=77)	Oedema (n=32)	Inflammation (n=18)	Hyperpigmentation (n=40)
Agriculture	01	06	03	03	02
Business	00	04	02	02	11
Construction worker	03	11	02	03	01
Home maker	10	25	06	04	05
Labourer	04	19	06	02	02
Receptionist	00	03	02	00	03
Software	00	04	05	03	14
Teacher	02	03	03	00	01
Others	00	02	03	01	01

3.4 Characteristics of varicose veins presentations.

The study reveals that left leg 56% (n=56) was predominantly affected with varicose veins followed by right leg 25% (n=25) and both legs 19% (n=19). The rationale behind varicose vein predominance on the left leg could be explained by the May Thurner Syndrome. It is a condition during which compression of the common venous outflow tract of the left lower extremity may cause discomfort, swelling, pain or blood clots (deep venous thrombosis) in the iliofemoral veins. Detailed description given in table VI and VII.

Table VI: Details about which limb is involved.

Limb involved	No. of patients (N=100)	Percentage
Right	25	25%
Left	56	56%
Both	19	19%

Table VII: A summary of limb involvement with surgery vs non surgery.

Limb involved	Right (n=25)	Left (n=56)	Both (n=19)
Operated (n=68)	13	50	05
Not operated (n=32)	12	06	14

3.4 Effective patient counselling intervention methods.

Patient counselling was carried out including points like maintaining ideal weight, avoid prolong standing, avoid tight clothing that constricts waist, groin or legs, avoid crossing legs when sitting, avoid wearing high heels, regularly elevating legs, usage of compression stockings, eat low salt diet that is rich in high fibre food to reduce retention of water or swell. Patient information leaflets were used which proved very effective and helpful as it was translated to the local language and the patients understood information better and retained it.



3.5 Status of HRQoL of study population

It was statistically evident from the results of the two questionnaires done after follow up that patients in surgery group had a better QoL when compared to the non-surgery group.

During patient counselling the patients approached with questions regarding the usage of compression stockings, any dietary restrictions, exercises to be practiced to better blood flow in the limbs. Patients also expressed concern about the cost of continuous treatments, any recurrent hospitalization and worsening of the disease condition. These were few limitations faced by the patients. Hence patient counselling turned out to be effective for those set of patients who followed the patient counselling tips as told and who faced not many limitations.

For the 100 patients the mean and standard deviation is calculated for patients who underwent surgery and those who did not. A p value of < 0.05 is taken into account significant.

Table VIII and IX clearly exhibits that the HRQoL of patients who underwent surgical intervention was better compared to those who did not undergo surgery as per the statistical analysis performed.

Table VIII: Comparison of the HRQoL & QoL in both surgery and non surgery groups before reassessment.

Parameters	Before reassessment		T statistic	P value
	Non surgery	Surgery		
AVVQ (HRQoL)	56.66 \pm 12.80	35.26 \pm 14.06	6.67	$< 0.05^*$
SF 36 (QoL)	40.61 \pm 16.83	61.59 \pm 19.04	4.88	$< 0.05^*$

Table IX: Comparison of the HRQoL & QoL in both surgery and non surgery groups after reassessment

Parameters	After reassessment		T statistic	P value
	Non surgery	Surgery		
AVVQ (HRQoL)	50.58 \pm 17.923	22.22 \pm 12.36	9.21	$< 0.05^*$
SF 36 (QoL)	34.68 \pm 19.28	71.87 \pm 15.40	10.37	$< 0.05^*$

*unpaired t test; significant if $p < 0.05$

DISCUSSION

The demographics and clinical characteristics of our study population were similar to the reports of other studies on health related quality of life in varicose veins. A total of 100 patients within the study.

The study conducted by **T Beresford**^[6]*et al.*, 2003 assessed the quality of life using the Aberdeen varicose vein questionnaire and the SF-36 questionnaire which included 211 subjects who were given both questionnaires to evaluate their QOL. The study conducted by **Evans C**^[9]*et al.*, 1999 on prevalence of varicose veins and chronic venous insufficiency in men and women in the general population reveals that varicose veins is predominantly higher in case of females (55%) when compared to males (45%) also similar to the findings of study by **Sakurai T**^[10]*et al.*, 1998 which assessed correlation of the anatomical distribution of venous reflux with clinical symptoms and venous haemodynamics in primary varicose veins found 77.5% of female and 22.5% of male subjects. As per study conducted by **Kiran Shankar**^[11]*et al.*, 2017 varicose veins usually effects people in the 2nd and 3rd decades of life which includes the age group of 21-30 and 31-40 years. A study conducted by **Min Ran**^[12]*et al.*, 2018 regarding the association between QoL and health literacy concluded by saying that inadequate literacy may contribute to poorer quality of life which would have led to the ignorance of symptoms and primary manifestations. It also lines up with the conclusion of the study conducted by **Nagaraj H**^[13]*et al.*, 2014 that said stated definite relationship exists between the occupation and the incidence of varicose veins. The patients who fell under occupations which required standing for longer time had increased chances of acquiring varicose veins. A study conducted by **Shiksha Sharma**^[14]*et al.*, 2013 found that the prevalence of varicose veins increases with age.



Above results prove these veins are most commonly found in people who sit or stand in one position for prolonged periods of time, people who habitually sit with their legs crossed, and those who lack proper regular exercise. Female sex, pregnancy, history of varicose veins, obesity, standing or sitting for increased periods of time and heavy lifting also increase the likelihood of developing varicose veins as all of these put increased pressure on the body.

CONCLUSION

This study concludes that the proportion of patients who underwent surgery had a better quality of life when compared those who didn't. This is significantly confirmed by the results obtained from the scoring in SF-36 questionnaire and Aberdeen varicose veins questionnaire. The result from the study reassures the importance of surgical intervention in patients with varicose veins and especially in recurrent varicose vein conditions. Age and occupational status found to be major triggers from the study as majority of study subjects belong to ages falling within 2nd and 3rd decades of life and occupations calling for prolonged standing or sitting and heavy lifting. The study also found that female gender were more effected with varicose veins than male subjects. For better quality of life in varicose veins it is important that patients have a good knowledge about the risk factors and its complications if untreated. Hence appropriate and effective patient counselling/education regarding disease, causes, treatment options and also their quality of life.

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