

PREVALENCE AND RISK FACTORS OF VARICOSE VEINS AMONG NURSES : A REVIEW ARTICLE

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ABSTRACT :

Varicose veins are a common chronic venous disorder affecting 20 to 60% of adults worldwide. Varicose veins are a medical condition in which superficial veins become enlarged and twisted. A varicose vein is a palpable subcutaneous vein that is dilated, tortuous, saccular, and generally larger than 3mm and is mainly seen in lower limbs. Prolonged standing may lead to tiredness, loss of concentration and increased health risks. Some of the major risk factors are age, gender, pregnancy, family history, and prolonged standing. Nursing is a stressful profession. Due to the workload, long-standing hours and distressing incidence such as death that take place in every hospital unit, nurses are subjected to mental and physical stress that leads to mental and physical symptoms. The highest prevalence of varicose veins among the health care professionals are between nurses. The prevalence of this condition varies between professions but those with 75% of their working time in standing positions are 1.78 times more likely to develop this condition. The prevalence of varicose veins among nurses range between 16.18% and 64.6% and can go up to 73.9% in some instances when significant risk factors are present. The reported symptoms associated with this health condition were leg pain (67%), low back pain (54.4%) muscle stiffness (45.5%), heaviness (35.6%), leg swelling (30.3%), and leg numbness (19.8%). Varicose veins (VV) of the lower limbs is considered as the most common vascular disorders in humans, creating serious signs and symptoms in patients and sometimes leads to surgical treatments and widespread morbidity. Varicose veins is one of the chief preventable diseases which are associated with veins. It is a serious disease, which poses a threat to the life of patient when effective and efficient measures are not taken.

Key Words : prevalence, risk factors, varicose veins, nurses

INTRODUCTION :

Health is the level of functional or metabolic efficiency of a living being. Health is deeply related to lifestyle. Ideal health will, however, always remains a mirage, because everything in our life is subject to change. Health may be described as a potentiality or the ability of an individual or a social group to modify or itself continually in the face of changing conditions of life not only to function better in the present but also to prepare for the future. Moreover today increasing emphasis is placed on health, health promotion, wellness and self-care.^[1]

Millions of workers spend majority of the working day standing and many hours in static positions. Standing uses 20% more energy than sitting because the human body is not designed to stand continuously at work. Prolonged standing may lead to tiredness, loss of concentration and increased health risks. These health risks include swelling of feet and legs, feet and joint damage, varicose veins, heart and circulatory disorders, lower back problems and pregnancy complications. In the present scenario, one of the most important conditions that results from prolonged standing is varicose veins. Severe varicose veins can have an impact on the lives of the people who work on their feet, especially teachers, nursing staff, flight attendants, dental staff, traffic and bar workers, postal workers, construction workers and bank staff.^[2]

Nursing is a stressful profession. Due to the workload, long-standing hours and the distressing incidence such as death that take place in every hospital unit, nurses are subjected to mental and physical stress that leads to mental and physical symptoms. Among those physical symptoms are fatigue, headache, back pain and varicose veins.^[3]

Varicose veins are a common disease. Its reported prevalence all over the world varies between 10% to 30%. The majority of the cases are reported in developed and industrialized countries. The prevalence of varicose veins in the USA is estimated to be 23% of the adult population.^[4]

Varicose veins, also known as varicoses, are a medical condition in which superficial veins become enlarged and twisted. These veins typically develop in the legs, just under the skin.^[5] A varicose vein is a palpable subcutaneous vein that is dilated, tortuous, saccular, and generally larger than 3mm and is mainly seen in lower limbs. It is invariably associated with local valvular incompetency and is more common in women than men. Even though the exact cause of varicose veins is unknown, there are some contributory factors responsible for varicose veins. Some of the major risk factors are age, gender, pregnancy, family history, and prolonged standing. Among these risk factors, nurses have two important risks - gender and prolonged standing during duty hours. They are at higher risk of developing varicose veins because of their nature of job, which requires prolonged standing at the patient's bedside and this increases their risk of getting varicose veins later in their life.^[6]

The most common signs and symptoms include pain, itching, heavy sensation in the legs, skin discoloration and prominence. The prevalence of this condition varies between professions but those with 75% of their working time in standing positions are 1.78 times more likely to develop this condition.^[3]

The highest prevalence of varicose veins among the health care professionals are between nurses. The prevalence of varicose veins among nurses range between 16.18% and 64.6% and can go up to 73.9% in some instances when significant risk factors are present. Additionally, amongst the health care professions, nurses report the highest rates of leg cramping, feet swelling and numbness in the lower extremities. Other reported symptoms associated with this health condition were leg pain (67%), low back pain (54.4%) muscle stiffness (45.5%), heaviness (35.6%), leg swelling (30.3%), and leg numbness (19.8%).^[3]

Varicose veins (VV) of the lower limbs is considered as the most common vascular disorders in humans, creating serious signs and symptoms in patients and sometimes leads to surgical treatments and widespread morbidity. Varicose veins is one of the chief preventable diseases which are associated with veins. It is a serious disease, which poses threat of life of patient when effective and efficient measures are not taken.^[7]

PREVALENCE :

Chronic venous disorders are an important cause of disease and disability worldwide.^[8] As per the WHO (2007) census, western population have 2% varicose vein whereas females have 3–4 times more than males. Eastern population have the least magnitude of VV. Prevalence Statistics as per the country on varicose veins is 45 per 1000 population. Approximately, 1 in 22 was found for U S A. VV showing an effect on 1 out of 2 individuals aged 50 years in India. Among the total population of Bangalore, about 3–5% suffer from venous disease, of which 10% of them have varicose veins.^[9]

It is estimated that varicose veins occur in up to 60% of the adult population in United States with an increased incidence correlated with increased age. The condition is most common in women and in people whose

occupations require prolonged standing, such as teachers, sales people, hairstylists, nurses, ancillary medical personnel and construction workers.^[10]

Globally, according to Davies review (2019), recent evidence supports the trends of varicose vein case rates of 51.9 cases per 1000 women and 39.4 cases per 1000 men. It also shows that the prevalence of CVD and varicose veins vary widely by region, though they are highest in Western countries [1]. A comprehensive review evaluated articles published in the English language over more than 55 years, and revealed prevalence estimates for varicose veins of < 1 to 73% in women and 2 to 56% in men.^[11]

Mishra N, et al. (2015) conducted a cross-sectional study on 364 nurses, who were working at various hospitals in Udaipur and Rajasthan. It was found that 88 nurses (24.17%) have lower limb varicose vein. The female nurses have slightly higher prevalence compared to the male nurses (24.50% vs 22.58%). The occupational risk factors responsible for lower limb varicose veins among nurses were longer work history (40.42% p8 hrs (38.70 %)).^[12]

The prevalence of varicose veins was found to be high in northern Indian population with approximately half of women and a third of men 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.^[13]

Varicose veins are a common chronic venous disorder affecting 20 to 60% of adults worldwide. However, the disease occurrence varies significantly by geographical region; with comparatively lowered incidence of 19% in the Asian ethnic group than the other ethnic groups. Varicose veins are often believed to be a cosmetic problem. However, they may cause serious complications including pain, discomfort, leg cramps, ulceration, poor quality of life, absenteeism, and even loss of life. Women have 2–3 times higher risk of having varicose veins than men. Nursing professionals are at high risk for developing varicose veins as their job requires physical work and prolonged standing.^[14]

Shakya R, et al. conducted a cross-sectional study on varicose veins and its risk factors among nurses at Dhulikhel Hospital. The results found that, among 181 nurses 83 (46%) had varicose veins. The mean standing time was 4.28 (0.8) hours /day, the mean sitting time was 1.28 (0.6) hours/day, mean walking time was 2.37 (0.8) hours/day. In the adjusted model the odds of having varicose veins were 27 times greater with every 1 hour increase in standing time per day (adjusted OR: 27.44; 95% CI 4.09–180.77; p-value <0.00).^[14]

Ali SA, et al. conducted a study on the Prevalence of Varicose Veins Among Nurses in Different Departments in Jazan Public Hospitals, Saudi Arabia. The results showed that, the prevalence of varicose veins was 67 (88.2%) in female nurses, compared with 9 (11.8%) in male nurses. The risk factors associated with varicose veins were ethnicity, carrying heavy items, lack of exercise, family history, use of hormonal therapy, use of contraceptive pills, type of delivery, number of children, and hours of sitting per shift. The comorbidities associated with varicose veins were deep vein thrombosis, hypertension, chronic constipation, diabetes, kidney disease, rheumatoid arthritis, coronary artery disease, and severe occupational injury to the lower extremities. Nurses are responsible for most of the health system's services. Increasing the number of nursing workers for patient care, encouraging physical exercise, and lowering the pension age appear to be required to avoid the occurrence and development of varicose veins among nurses.^[15]

RISK FACTORS :

The most important risk factors leading to the development of varicose veins are:

Age :

As a person get older, the tissues of vein walls lose elasticity and causing the valve system to fail. Evans CJ, et al.(1999) done cross-sectional survey on 1566 participants and concluded that approximately one-third of men and women aged 18-64 years had trunk varices.^[16]

Gender :

Women have a higher incidence of varicose vein disease due to female hormones and their effect on the vein walls. Brand FN, et al. (1988) examined 3,822 adults, concluded that the incidence of varicose veins is higher among women than men, and who had lower levels of physical activity and higher systolic blood pressure and higher smoking rates.^[17]

Heredity :

If parents and grandparents had the problem, it will increase risk of varicose veins. Lee AJ, et al. (2003) conducted a study which conclude that, self-reported evidence suggested a familial susceptibility^[18]. Cornu Thenard, et al (1994) conducted a case-control study on 134 families that demonstrated a prominent role of heredity in the development of varicose veins.^[19] Kohno K, et al. (2016) reviewed the data and concluded that genetic factors make a strong contribution to the familial transmission of varicose veins from parents to offspring.^[20]

Prolonged Standing :

Occupations that involve prolonged standing cause increased volume and pressure of blood in the lower limbs due to the effects of gravity. Kohno K, et al. (2014) concluded that exposure to both prolonged standing at work and being overweight exacerbate varicose vein development.^[21]

Tuchsen F, et al. (2000) interviewed 5940 participants and concluded that working in a standing position is associated with subsequent hospitalization due to varicose veins for both men and women.^[22]

Hormonal Changes :

These occur during puberty, pregnancy, multiparous, and menopause, post-menopausal, hormone replacement and other medicines containing estrogen and progesterone may contribute to the forming of varicose veins. Lesiak M, et al. (2012) critically examined the data and conclude that Caesarean section, pregnancy, and family factors are associated with the inheritance of the formation of varicose changes and venous insufficiency.^[23]

M. Dindelli, et al. (1993) conducted survey on 611 women it concluded that to be second para or more was associated with an increased risk of developing the venous disease in pregnancy. Women who developed the venous disease in pregnancy reported more frequently a family history of varicose disease than those who did not.^[24]

Obesity :

Being overweight can put extra pressure on veins, leading to varicose veins. Seidell JC, et al (1986) conducted a retrospective cohort study it concluded that the incidence of registered morbidity in the overweight group was higher for varicose veins for women.^[25]

Alcohol and Smoking :

Alcohol/ smoking also increases the risk of varicose veins. Ahti TM, et al. (2010) conducted a cross-sectional study on 4903 participants, It is concluded that alcohol is likely to increase the risk of varicose veins in women and Smokers had a higher incidence of varicose veins compared with non-smokers in both genders.^[26]

Musil D, et al. (2016) conducted a retrospective study on 641 patients concluded that age ≥ 70 years and obesity were strongly associated with an occurrence of venous thromboembolism.^[27]

PREVENTION :

Oliver R, et al. (2007) reviewed 24 articles investigated the different parameters, concluded that leg ulceration has an impact on quality of life.

Exercise:

Regular exercise is a way to promote increased blood circulation, as well as vein and muscle strength. If already the patient has varicose veins, overly strenuous exercises should be avoided.

Weight Control: Weight control avoids placing increased pressure on leg circulation. Avoid sitting for long periods by taking short walks every 30 minutes.

Clothing:

Be sure to wear loose-fitting comfortable clothing to help promote good circulation throughout the body.

Elevate legs:

Take several short breaks throughout the day to elevate legs above the heart level. This will improve venous circulation.^[28]

Compression Stockings:

It helps veins and leg muscles move blood more efficiently. Joseph N, et al. (2016) were reviewed retrospectively medical records of 170 varicose vein cases concluded that use of compression stocking at work place could help in betterment in quality of life.^[29]

Healthy Diet:

Eat low sodium and high-fiber diet. Eating low sodium diet can help to prevent swelling in legs. Lozano SA, et al. (2014) report a clinical case, it is concluded that, nutrition is an important factor in chronic wound prevention and treatment. The prevalence of low extremity wounds increases in population ≥ 65 and malnutrition risk is related due to physiological changes in ageing.^[30]

Eat a low salt, high fibre diet food: Eating fibre reduces the chance of constipation which can contribute to varicose veins. Eating too much salt can retain water or swell.^[31]

Preferred foods:

Whole food diet with emphasis on the following foods: fresh fruits, including berries and cherries, and citrus fruits, whole grains especially buckwheat, and millet, garlic, onion, ginger and cayenne pepper. Eat plenty of fish and cut down on red meat as much as possible. Moderately restrict fats and refined carbohydrates in the diet.^[31]

Foods to avoid:

Sugar, salt, fried foods, processed and refined foods, animal protein, cheeses and ice cream.^[31] Avoid long periods of standing or sitting: If you must stand for a long time, shift your weight from one leg to another every few minutes. Sit down frequently and elevate your legs. Bounce up and down on the tips of the toes several times an hour. Take a walk if you can. Some people use a small stool to prop up first one foot, then the other when standing at work.

If you must sit for long periods of time, stand up and move around or take a short walk Every 30 minutes to let the legs pump blood back to the heart. Stop for a brief walk every 30-45 minutes during long car trips.^[31]

Avoid crossing legs: Try not crossing the legs at the knees when sitting. If you can't prop up the feet, set them flat on the floor or cross them at the ankles. Crossing legs at the knees squeezes veins and blocks blood flow.^[31]

Alternative remedies:

To cope with varicose veins, try a two-pronged strategy of natural remedies to ease the discomfort and preventive maintenance to keep your body fit and strong.^[31]

Acupuncture and acupressure:

Legs may be pressed for ten minutes daily. Cannot help aesthetically; only prevent the situation from worsening.^[31]

Colour therapy:

Use red and yellow colour all over the affected area for thirty minutes once per day. In cases of ulcers in the legs use blue light radiation for thirty minutes followed by ultraviolet for forty-five minutes, everyday for ten to sixty days.^[31]

Aromatherapy:

Diet of rosemary (*Rosmarinus officinalis*) massaged gently into the affected area may help stimulate circulation by causing capillaries to dilate. Oils of cypress and chamomile (*Matticaria recutita*) may soothe swelling and inflammation and help relieve pain.^[31]

Herbal therapies:

Witch hazel: Application of this ointment three or more times is necessary for 2 or more weeks before results can be expected (may cause minor skin irritation in some people and is not recommended for internal use).

- Horse chestnut: Used both internally and external application for problems of venous circulation, including varicose veins (should be avoided by anyone with liver or kidney disease and internal use is contraindicated during pregnancy and lactation).
- Gotu kola, Ginkgo and hawthorn: Strengthen blood vessels and improves peripheral circulation.
- Bilberries: Supports normal formation of connective tissue and strengthens capillaries in the body and in this way help prevent varicose veins.^[31]

Homoeopathy:

- Hamamelis: Tincture or lotion may be applied locally at night. Hamamelis 3X every three hours when veins are affected.
- Carbo vegetabilis: When constipation and with poor circulation. In cases of ulcers of varicose veins.
- Ferrum metallicum: If legs look pale, but redden easily and walking slowly relieves the weak, achy feeling^[31]

Hydrotherapy:

It is beneficial to alternate between hot and cold baths to stimulate circulation in the legs. Take 2 buckets or plastic waste buckets tall enough to submerge the legs up to the knees. Fill one container with hot water to cover the lower legs and the other container with the same amount of cold water. Add 2 tablespoons of Epsom salts per quart of water or can add aromatherapy oil to the water. Soak feet and legs in the hot water for about 3 minutes. Then immerse them in the cold water for about 30 seconds. Repeat three times, finishing with cold soak. Perform this treatment once a day for at least one month to see the results (for diabetes use warm water). Sponging or spraying legs with cold water can relieve aches and pain from superficial varicose veins.^[31]

Juice therapies:

Fresh fruit juices can be very helpful for those with varicose veins. Dark coloured berries such as cherries, blackberries and blueberries contain anthocyanins and proanthocyanidins, pigments that tone and strengthen the walls of veins. Pineapples are rich in the enzyme bromelain, which helps prevent blood clots (uncommon but serious complication of varicose veins). One or two glasses of fresh fruit or vegetable juices – especially any combination of apple, beet, carrot, celery, citrus, parsley or pineapple – and dietary may be helpful in preventing and treating varicosities.^[31]

Yoga:

Yoga's stretching and relaxation techniques can be particularly beneficial for varicose veins. The deep breathing exercise in yoga may further alleviate discomfort. by getting more oxygen into the bloodstream (start by lying on the back on the floor, arms at sides with your feet resting above you on a chair. Breathe deeply through nose and gravity helps pull blood from legs. The deep breathing creates a pull in chest cavity that also draws blood from the legs. Fresh blood then enters the legs, easing the pain. The exercise should be done once a day for about ten minutes.^[31]

Control Blood Pressure:

High blood pressure, putting an extra strain on blood vessels and making them more susceptible to becoming varicose veins. Brown A (2012) reviewed 16 papers, concluded that there is some evidence that increasing physical activity, improving mobility and foot exercises may be beneficial in preventing ulcer recurrence.^[32]

CONCLUSION :

So, it can be concluded from this review article that, Varicose veins was found prevalent among nurses. Prolonged standing was found to be a significant factor for varicose veins. The reported symptoms associated with this health condition were leg pain, low back pain, muscle stiffness, heaviness, leg swelling and leg numbness. However, some preventive measures may also play an important role for the prevention of varicose veins. Nurses are responsible for most of the health system's services. Increasing the number of nursing workers for patient care, encouraging physical exercise, and lowering the pension age appear to be required to avoid the occurrence and development of varicose veins among nurses.

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