Effect of Planned Teaching on Knowledge Regarding Prevention of Selected Peripheral Vascular Disease Among Class IV Workers with Diabetes Mellitus Working in a Selected Hospital

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Abstract: **Having perceived the impact of doing planned teaching for class IV workers with diabetes to Assess the "effect of planned teaching on knowledge regarding Prevention of selected peripheral vascular disease among class IV Workers with diabetes mellitus working in a selected hospital" by investigator in partial fulfillment of requirement for the degree of Master of Science in Nursing.**

Keywords: **Peripheral Vascular Disease, Diabetes Mellitus**

1. Introduction

A. Problem statement

"Effect of planned teaching on knowledge regarding prevention of selected peripheral vascular disease among class iv workers with diabetes mellitus working in a selected hospital.

B. Objectives

- To determine the effect of planned teaching on the knowledge regarding prevention of selected peripheral vascular disease among class IV workers with diabetes mellitus before and after planned teaching.
- To find association between the variable.

C. Hypothesis

H0 - There will be no difference between pretest and Posttest knowledge score and of class IV workers with diabetes mellitus on prevention and management of peripheral vascular diseases.

(H01) - There will be difference between pretest and Posttest knowledge score and of class IV workers with diabetes mellitus on prevention and management of peripheral vascular diseases

D. Introduction

"Poor health is not caused by something you don't have; it's caused by disturbing something that you already have. Health is not something that needs to get, it's something you have already if you don't disturb it." [1]. *Dean Ornish*

Peripheral vascular disease is increasingly common and has the potential to cause loss of limb or occasionally life. Peripheral vascular disease includes disorders that alter the natural flow of blood through the arteries of the peripheral circulation. Peripheral vascular disease affects the lower extremities much more frequently than the upper extremities. Peripheral vascular disease is a chronic condition in which partial or total arterial occlusion deprives the lower extremities of oxygen and nutrients. Body tissues cannot live without an adequate oxygen and nutrient supply, and tissue eventually dies [2]. Peripheral arterial disease involves progressive narrowing and degeneration of the Arteries of the neck, abdomen and extremities. Atherosclerosis is responsible for the Majority of Peripheral vascular disease. It appears in the sixth to eighth decades, but it Can occur at an earlier age in persons with Diabetes Mellitus. Men in their sixties are Almost twice as likely to have Peripheral vascular disease as are women. As women age, the incidence of Peripheral vascular disease is similar to or greater than that in men [3]. The onset and the severity are influenced by the type and number of atherosclerotic factors such as age, gender, familial predisposition, nicotin use (tobacco smoking, chewing), hypertension, diet (contributing to hyperlipidemia) obesity, sedentary lifestyle, stress and Diabetes Mellitus [4].

India continues to be the "diabetes capital" of the world, and by 2030, nearly 9 per cent of the country's population is likely to be affected from the disease, warns the fourth edition of the World Diabetes Atlas launched by the International Diabetes Federation (IDF) at the 20th World Diabetes Congress in Montreal, Canada. In 1970s the prevalence of diabetes was approximately 2% among urban populations in India, but at present the prevalence is more than 12%. A recent study conducted in 6 different cities support the prevalence rate, which shows very high prevalence in Chennai (13.5%), Bangalore (12.4%), Hyderabad (16.6%), Mumbai (9.3%), Delhi (11.6%) and Kolkata (11.7%) [5]. There is compelling evidence from several lines of research which indicates that

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atherosclerosis is partially genetically determined.

Atherosclerosis is likely to be caused by genetic variation in multiple cardiovascular candidate genes that each exerts a small effect on development of Peripheral vascular disease. The environment or context, in which these genes are exposed, has a substantial impact on the natural history of the atherosclerotic process. Candidate genes that influence peripheral arterial disease are likely to contribute to inflammation, including hemostatic factors, dyslipidemia, hypertension, diabetes and obesity. Identification of genetic loci that contribute to variation in atherosclerosis under specific environmental contexts would provide new insight into the pathways and mechanisms, opening up new avenues for prevention and treatment of Peripheral vascular disease in future [6]. The problem with the disease is the fact that the disease can already reach an advanced stage without any symptoms appearing. This is one reason why it is massively under diagnosed. Studies have shown that patients who suffer no pain have an equally high mortality risk as those with symptoms. The best way to help prevent Peripheral vascular disease is to modify or eliminate the risk factors for atherosclerosis. Prevention includes the measures such as quitting smoking, controlling diabetes, lowering high blood pressure, lowering high cholesterol levels, lowering high homocysteine level, losing weight and engaging in regular physical activity [8].

2. Background of the study

Peripheral vascular disease is a nearly pandemic condition that has the potential to cause loss of limb or even loss of life. Peripheral vascular disease manifests as insufficient tissue perfusion caused by existing atherosclerosis that may be acutely compounded by either emboli or thrombi. Many people live daily with peripheral vascular disease; however, in settings such as acute limb ischemia, this pandemic disease can be life threatening and can require emergency interventions to minimize morbidity and mortality [9]. Peripheral vascular disease refers to the narrowing of the lumen of arteries in the leg, causing a reduction in circulation. It can result from atherosclerosis, inflammatory processes leading to stenosis, an embolism, or thrombus formation. It causes either acute or chronic ischemia. Although peripheral vascular disease includes any disorder that affects any of the blood vessels, it is often refers to peripheral arterial disease [10]. Peripheral vascular disease is a common complication of both type – 1 and type – 2 non-diabetic individuals and is often more severe and diffuse. Peripheral vascular disease apart from its associated morbidity of intermittent claudicating and possible amputation, strongly relates to generalized vasculopathy and cardiovascular death. The risk of atherothrombotic events in patients with peripheral vascular disease increases when concomitant diabetes is present. Diabetic arteriopathy, which includes endothelial dysfunction, inflammation, hypercoagubility, changes in blood flow and platelet abnormalities, contributes to the early evolution of these events [11]. Once peripheral arterial disease has developed in a patient with diabetes, the prognosis is poor.

Over a 5-year period, approximately 4% of affected patients undergo amputation, 20% have a nonfatal cardiovascular event (myocardial infarction or stroke), and 30% die. Mortality is cardiovascular related in approximately 25% experience limb loss and 25% have a fatal cardiovascular event within 1 year. These results confirm the clearly increased risk of early death in diabetic patients with peripheral vascular disease and urge to an aggressive management of all risk factors [4]. Although both big and small blood vessels can be affected by diabetes, known as macro vascular and micro vascular disease respectively, in diabetic peripheral vascular disease it is the blockage of large arteries in the thigh and leg which causes most of the clinical problems. Peripheral vascular disease can affect both legs but it is more often severe in one leg. This can cause various symptoms depending on which system is affected. The symptoms range from pain, cold feet, and bluish discolouration to stroke or gangrene; if it is not reserved, the body part affected is injured and eventually starts to die. It is important to detect the narrowed artery before damage occurs. The pulses in the arm or leg are decreased or absent, indicating a lack of arterial blood flow [12]. Diabetes is a slow killer with no known curable treatments. However, its complication can be reduced through proper awareness and timely treatment. It is important to keep the blood glucose levels of patients under strict control for avoiding complications.

3. Research methodology

A. Introduction

This chapter deals with the methodology used in the present study which includes the research approach setting of the study, plan for data collection, data gathering process and the plan for data analysis.

B. Research design

Research design refers to the research overall plan for obtaining an answer to the research question and to test the hypothesis. 20 In this study one group pre-test and post-test design is used. The one group pre-test and post –test design is simple type of pre-experimental design. Essentially this design measures what has happened to the experiment group based on the way it was before the beginning of the experiment (pre-test state) and the difference achieved at the end of the experiment (post-test state).

P1 X P2
P1 =Pretest score of the knowledge and practice
X = Planned teaching
P2 = posttest score of knowledge and practice.

C. Criteria for sample selection

List of the characteristics essential for inclusion or exclusion in the target population.

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1) Inclusive criteria
- Class IV workers who are diagnosed as diabetes mellitus.
- Class IV workers who are willing to participate in the study.
- Class IV workers who are available

2) Exclusive criteria
- Class IV worker who are not able to understand English, Marathi, Hindi.
- Class IV workers having complications.

4. Findings of the study

This section deals with analysis of demographic data under study. It is analyzed and presented in form of frequency and percentage table.

A. Data related to age of sample

It depicts maximum sample 11 (36.7 %) belongs to the age group of 40-49 years. At next level 10 (33.3%) sample in age group of 50 years and above, minimum 9 (30 %) sample in 30-39 years, nil samples were there in age group 18-29 years.

B. Data related to gender

Maximum sample 16 (53.3 %) belonged to male group and remaining 14(46.7%) sample were female.

C. Data of education

Maximum sample 14 (46.7%) of the sample had studied till primary followed by 8(26.7%) of the sample were illiterate, very few 7(23.3%) had studied up to Secondary School; minimum 1(3.3%) sample had studied up to HSC.

D. Data of Personal habits

Maximum 11 (36.7%) of the sample had habit of gutkha. At next step 9(30%) of the sample had no personal habit, very few 8(26.7%) had habit of alcohol consumption, few 7 (23.3%) sample does the smoking, minimum 3(10%) sample has habit of chewing pan.

E. Data of working pattern

Maximum 9 (30%) of the sample had working Patten of standing continuously and sitting intermittently. 6(20%) of the sample work as standing intermittently and walking intermittently.

This section deals with assessment of knowledge regarding prevention and management of peripheral vascular diseases in pretest and posttest. It is presented in terms of frequency and percentage.

F. Part A

1) Data analysis and comparison of knowledge scores regarding diabetes

Majority 23(76.7 %) of the sample knew about the normal value of fasting blood sugar level in adults in the pre-test, which is increased to 30(100%) in posttest. Also 19(63.3%) of the sample knew about meaning of diabetes mellitus in pre-test, which increased to 30(100%) in posttest. Most of the 17(56.7%) were aware about the common complaints of clients with diabetes mellitus in pre-test which increased to 26(86.7%) in posttest showing significant difference. Regarding knowledge about the vascular complication for diabetes mellitus means, only 15(50%) sample were aware in the pre-test, which is increased in posttest by 25(83.3%). In pretest minimum 14(46.7%) sample were aware about the risk factor for diabetes and it increased in numbers as 26(86.7%) in the post test. Increase in posttest frequency shows increase in knowledge due to planned teaching

2) Data analysis and comparison of knowledge scores regarding peripheral vascular disease

Half 15(50%) of the sample knew about mean by Intermittent claudication in the pretest, which is increased to double 30(100%) in posttest. In pretest very few 14(46.7%) sample were aware about the prevention of peripheral vascular disease and the Complication of peripheral vascular disease, it increased in numbers as 26(86.7%) and 26(86.7%) in the post test respectively. Minimum 10(33.3%) of the sample knew about the mean by Peripheral vascular disease and the risk factor for peripheral vascular disease in pretest which shows increased in values as 24(80%) and 28(93.3%) in posttest. Increase in posttest frequency shows increase in knowledge due to planned teaching.

3) Data analysis and comparison of knowledge scores regarding Raynaud's syndrome

Highest no of sample 21(70%) were aware about the protection of yourself from Raynaud's syndrome is in pre-test increased to 27(90%) in posttest showing significant difference. Regarding knowledge about the causative factor for Raynaud's syndrome can, only 18(60%) sample were aware in the pre-test, which is increased in posttest by 28(93.3%). In pretest 9(30%), 8(26.7%) and 7(23.3%) sample were aware about identification Raynaud's syndrome, meaning Raynaud's syndrome and causes of Raynaud's syndrome in descending order and the numbers increased to 26(86.7%) , 30(100%) and 24(80%) in the post test respectively. Increased posttest frequency shows improvement in knowledge due to planned teaching.

4) Data analysis and comparison of knowledge scores regarding varicose veins

Regarding knowledge about meaning of Varicose veins and of treatment of varicose vein half 16(53.3%) sample were aware in the pre-test, which is increased in posttest by 30(100%) and 27(90%) In pretest 12(40%) sample were aware about the common cause of varicose vein and the numbers increased to 25(83.3%) in the post test. Few 9(30%) were aware the surgical management of client with varicose vein in the pre-test. In the posttest 27(90%) were aware the surgical management of client with varicose vein. Minimum no of sample 8(26.7%) were aware about the chief complaint of client with varicose vein in pre-test increased to 27(90%) in posttest showing significant difference Increased posttest frequency shows improvement in knowledge due to planned teaching.

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5) Data analysis and comparison of knowledge scores regarding Buerger's disease

Highest no of sample 18(60%) were aware about the clinical manifestation of Buerger's disease is in pre-test increased to 27(90%) in posttest showing significant difference. Regarding knowledge about the meaning of Buerger's disease, only 14(46.7%) sample were aware in the pre-test, which is increased in posttest by 19 (63.3%). In pretest 13(43.3%), 12(40%) and 11(36.7%) sample were aware about etiology for Buerger's disease, other name for Buerger's disease and management of Buerger's disease in descending order and the numbers increased to 24(80%) , 19(63.3%) and 23(76.6%) in the post test respectively. Increased posttest frequency shows improvement in knowledge due to planned Teaching.

6) Data analysis and comparison of knowledge scores regarding deep vein thrombosis

Regarding knowledge about Complication of deep vein thrombosis and the risk factor for deep vein thrombosis 19(63.3%) and 18(60%) sample were aware in the pre-test, which is increased in posttest by 28(93.3%) and 30(100%) respectively. In pretest half of sample 15(50%) sample were aware about the deep vein thrombus meaning and Clinical manifestation of deep vein thrombosis the numbers increased to 25(83.3%) and 19(63.3%) in the post test respectively. Few 13(43.3%) were aware of the Prevention of deep vein thrombosis in the pre-test. In the posttest 29(96.7%) knew of the same Increased posttest frequency shows improvement in knowledge due to planned teaching.

7) Analysis and comparison of overall knowledge levels

Pretest score 17 (56.7%) sample had average knowledge, 12 (40%) samples with good knowledge level. 1 (3.3%) samples were there in a poor category. Nil samples were there in an excellent range. The Posttest score highlights drastic shift as 27 (90%) sample had excellent knowledge followed by 3 (10%) samples in good knowledge category. None of the sample was there in poor and average range.

G. Part B

This section deals with Evaluation of the effectiveness of plan teaching programme by comparing pretest and Posttest knowledge scores of sample analyzed in terms of t test to find out the level of significance and proving of hypothesis.

Before calculating the 't' value Null hypothesis (H01) and alternate hypothesis (H1) was stated. The table 't' value for 0.05 level of significance was 2.05 for degree of freedom of 29.

The calculated t value was found to be 7.35 for Diabetes, 15.37 for Peripheral vascular disease, 11.03 for Raynaud's syndrome, 16.15 for varicose veins, 6.72 for Buerger's disease and 9.78 for Deep vein thrombosis.

5. Conclusion

- This study has helped to assess the knowledge regarding prevention of selected peripheral vascular disease in class IV workers with diabetes mellitus working in the selected urban hospital. Knowledge regarding prevention of selected peripheral vascular disease in class IV workers with diabetes mellitus was inadequate before the planned teaching programme.

- The knowledge regarding prevention of selected peripheral vascular disease in class IV workers with diabetes mellitus in the post-test was significantly higher than the pre-test score. The findings of the study proved that planned teaching was really effective to increase and improve the knowledge of class IV workers with diabetes mellitus.

- The study reveals that it is important to have regular in-service education programme for class IV workers to improve their knowledge and practice skills while caring out their duties in ward in order to impart knowledge and prevent complications.

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