PREVENTION OF FOOT COMPLICATIONS OF DIABETES MELLITUS PATIENTS - A REVIEW

Mrs. Rosemine Kiruba Darwin* | Dr. Santhi Appavu**

* Ph.D. Scholar, Himalayan University, Itanagar, Arunachal Pradesh, India.
**Research Supervisor, Himalayan University, Itanagar, Arunachal Pradesh, India.

DOI: http://doi.org/10.47211/tg.2020.v07i02.013

ABSTRACT

Foot problems are a common complication in people with diabetes. Diabetic patients with foot ulcers have more frequent visits by healthcare providers and admissions to the hospital. Patients with diabetic foot complications also experience longer hospital stays when compared to diabetics without foot ulcers. Fortunately, most of these complications can be prevented with careful foot care. Tragedy for the person suffering from an ulcer and his/her family is that they also place a considerable financial burden on the healthcare system and society in general. Ulcers of the foot in diabetes are the source of major suffering and cost. If complications do occur, daily attention will ensure that they are detected before they become serious. Diabetic foot infection is most dreaded complications of diabetes. In the present study researchers has reviewed literature relevant to the study. This will help in the development of the research project and in broadening, understanding and developing an insight into the problem area.

Key Words: Foot problems, Diabetic patients, Diabetic foot infection.

ABOUT AUTHORS:

The author Mrs. Rosemine Kiruba Darwin is research scholar, Himalayan University, Itanagar, Arunachal Pradesh, India.

The author Dr. Santhi Appavu is research guide, Himalayan University, Itanagar, Arunachal Pradesh, India. She has presented papers in various national and international conferences.
INTRODUCTION
A literature review is defined as a critical summary of research on a topic of interest, often prepared to put a research problem in context. Polit and Beck (2008) discussed the importance of prevention of diabetic foot ulcers and our institution's protocol for prevention, reviewing the existing evidence in the literature regarding the effectiveness of the preventive approach. Diabetes mellitus is the second most significant cause of disease in Singapore after ischaemic heart disease. National University Hospital, Singapore, adopts a two-pronged strategy for the management of diabetic foot ulcers. The most important strategy is prevention, and education is the key to knowledge. Education should mainly be directed at patients and caregivers, but also professionals (general practitioners, allied health professionals and nurses) so that they can effectively educate patients and caregivers. Patient education includes care of diabetes mellitus, care of the foot and use of appropriate footwear. Patients also tend to have poor foot hygiene. Annual foot screening for diagnosed diabetics plays an important role. However, prolonged and sustained government intervention is necessary to provide education and screening on a national scale.

Maiya, Arun et al (2018) determined the prevalence of foot complications among people with type 2 diabetes mellitus in the rural part of Udupi district, Karnataka, India. A cross-sectional observational study design was conducted in the rural area of Udupi district. In the study, accredited social health activists were trained to screen people with type 2 diabetes mellitus for diabetic foot complications at a community level. Adults over 35 years of age were screened for the presence of type 2 diabetes mellitus by accredited social health activists who reside in the rural part of Udupi district. Participants with type 2 diabetes mellitus were included in the study. Blood glucose level was measured using a glucometer. Foot examination was done by visual inspection, monofilament, tuning fork, and pedal pulse. In the present study, 2110 among the total participants were found to have type 2 diabetes mellitus. The prevalence of musculoskeletal foot complications was 1218 (58%), vascular problem 466 (22.2%), sensory neuropathy 634 (30.2%), autonomic neuropathy 1729 (81.9%), ulcer 134 (6.38%), and infection 561 (26.7%) among people with type 2 diabetes mellitus. In the current study, we found 84.7% of people residing in rural Udupi had type 2 diabetes mellitus. Hence, there is a strong need to create awareness about diabetic foot care in these people.

Virendra Singh Choudhary, Geeta Chaudhary (2015) A Descriptive research to know the Knowledge Regarding Diabetes Mellitus, Its Risk Factors and Complication among the Rural Community .Majority of adults were unaware of DM itself and associated risk factor. Raising public awareness of the disease through outreach programmes and mass media should be planned and implemented.

TamilSELVI, Rajasankar, N. Kokilavani (2015) A Study to assess the knowledge Regarding Diabetic foot Ulcer among Diabetic Clients in a selected Hospital, Kancheepuram District, Tamil Nadu . The findings revealed that there is need planned teaching programme regarding diabetic ulcer foot.

Roshan B. Kanade, Tukaram Zagad (2013) a quasi-experimental method with a description of research approach, the researcher conducted the research in a selected hospital, among the 30 clients. The investigator concludes that the knowledge of the target population was significantly improved after receiving information in the form of planned teaching Programme on diabetic foot care. The improvement was found in all subjects irrespective of their demographic characteristics.

Mohan D et al (2003; 2005; 2007) conducted a study was concluded that awareness and knowledge regarding diabetes is still grossly inadequate in India. Massive diabetes education programs are urgently needed both in urban and rural India. There are virtually no epidemiological studies from India assessing the level of awareness of diabetes in a whole population. The aim of the present study was to assess the awareness of diabetes in an urban south Indian population in Chennai. Methods: The Chennai Urban Rural Epidemiology Study (CURES) is an on-going population based study conducted using a systematic sampling method on a representative population (aged ≥ 20 years – 26001 individuals) of Chennai [formerly Madras], the largest city in Southern India. A structured questionnaire was used to obtain information related to demography, education and medical history. The questionnaire included five questions on diabetes awareness. Results: Of the total 26,001 individuals, only 75.

SitiKhuzaimah Ahmad Sharoni, et al. (2016), a self-efficacy education programme on foot self-care behaviour among older patients with diabetes, a Quasi-experimental Pilot Study. The study found improvements in the foot self-care behaviour, foot care self-efficacy (efficacy-expectation), foot care outcome expectation, knowledge of foot care and quality of life (physical symptoms) following the programme.
Jagroop Kaur (2014) A descriptive and exploratory research was concluded that the study subjects had deficit knowledge related to diabetic foot complications as compared to the corresponding attitude that was found to be favourable. If this knowledge deficit is reduced, it may assist them to prevent diabetic foot complications. Pieter de Mol, et al. (2014), Physical activity at altitude and challenges for People with Diabetes. In their study says that Subjects with diabetes can take part in activities at high, and even extreme, altitude. However, careful assessment of diabetes-related complications, optimal preparation, and adequate knowledge of glycemic regulation at altitude and altitude-related complications is needed.

Faroq Mohyud Din Chaudhary, et al. (2010) conducted research on Evaluation of Lifestyle Modifications in Diabetic Patients. It was concluded that Diabetes was more common in female and middle age people. Healthier lifestyle modifications were noted more frequently in males, well-educated and those on oral plus insulin medication.

Raymond G. Mabaso, Olalekan A. Oduntan (2015) found that most of the samples aware about the diabetic diet (84.5%) and physical activity (64.4%) in DM management; however, only 52% knew about the importance of losing weight. Many (71.5%) followed a special diet as advised and 48.3% engaged in physical activity.

Saurabhu, et al. (2014), found that poor practice was a result of poor knowledge resulting in diabetic foot ulcers. However, simple individual health education of about five to six minutes improved foot care practices (toe space examination, foot inspection and footwear inspection) improved 50.0%, 48.3% and 35% respectively, only after two weeks.

However, a study of 110 patients that were affected by diabetic foot disease showed that non-healing ulcers were present among 82.7% and amputations amounted to 38.2%. More than 50% of the sample had knowledge on diabetic foot care principles but 12 practices were sub-standard. There was a statistically significant difference between foot care knowledge and foot care practice scores. Historically, diabetes education has been recognized as the best practice for effective diabetes care. Since the paradigm for diabetes education has shifted from a content driven practice to an outcome-driven practice, the need for evaluation of disease management programs is necessary. Mandates from federal and accreditation agencies influence the need to evaluate the outcomes of diabetes care (Beebe & Schmitt, 2011).

WipaSae-Sia, et al. (2012). Effect of a self-management support program on diabetic foot care behaviours The results showed that the DFCB Diabetic foot care behaviour in the experimental group was significantly higher (M = 67.43, SD = 5.83) than that in the control group (M = 52.60, SD = 8.6)

Knowledge will involve general understanding of diabetes and foot care and is the informal application of facts and instructions learned (Ornstein, Levine, Gutek, & Vocke, 2011). Knowledge and education are synonymous and may be used interchangeably. For this project, knowledge in the prevention of foot ulceration is defined as the patients’ understanding of foot care management. The research supports the understanding that knowledge and education are related. The central purpose of diabetes self-management education is to help patients make knowledgeable healthcare decisions and to define their self-care activities. The rapid increase in the number of people affected by diabetes compels the healthcare provider to be more perceptive to the need for effective self-management education. It is predicted that, globally, the number will increase by 35% by the year 2025 (American Association of Diabetes Educators, 2012, p. 2) Findings from a descriptive correlation study measuring knowledge foot care practices in Bangladesh, showed a high level mean (M = 84.55) of the total level of foot care knowledge. All of the questions were basic foot care and personal hygiene related. The study revealed that there is a statistically significant positive low relationship between total knowledge and total foot care. Begum, Kong, & Manasurakan (2010).

Jobin (2009), a study to assess the effectiveness of structured teaching programme and video assisted teaching programme on knowledge regarding prevention of diabetic foot complications among patients diagnosed with diabetes mellitus. Desalu, et al., (2011), a cross-sectional study in Nigeria proves that 30.1% had good knowledge and 10.2% had a good practice of diabetes foot care. The majority of the patients (78.4%) 13 with poor practice had poor knowledge of foot care. With regard to knowledge, 68.8% were unaware of the first thing to do when they had redness or bleeding between their toes. Sixty-one (61.4) percent were unaware of the importance of inspecting the inside of their shoes for objects. This study also highlights the association between poor knowledge and poor practice of foot care in diabetes patients.

Sperli-Hillen, et al., (2011), A study to measure knowledge before and after diabetes education showed a significant increase (p<0.05) in participants knowledge regarding their disease. There is evidence that long-term diabetic patients, with glycosylated haemoglobin of 7% or higher, had improved outcomes and a greater likelihood of achieving better control when they were educated using evidence-based methods.

Roshan B. Kanade1, Tukaram Zagade (2013) A Study to Assess the Effectiveness of Planned Teaching Programme on Knowledge Regarding Foot Care among Diabetic Clients. The investigator concludes that the knowledge of the target population was significantly improved after receiving information in the form of
planned teaching programme on diabetic foot care. The improvement was found in all subjects irrespective of their demographic characteristics.
Morris (2014), An Evaluation of the effectiveness of providing foot care education in a rural clinic setting by Gloria Green. This project has proven that type 2 diabetics have an increase in knowledge when basic foot health education is provided.
Harpreet Kaur (2014). Effectiveness of structured teaching programme regarding self-care management in relation to prevention of complications among diabetics. The present study aimed to evaluate the effectiveness of structured teaching programme regarding self-care management in relations to prevention of complications of diabetes mellitus among diabetics. The findings of the research have lead the conclusion that the structured teaching programme was effective in improving the knowledge among the diabetics regarding self-care management in relation to prevention of complications of Diabetes mellitus.
Suman Saurabh, et al., (2014), findings of foot care education among people with diabetes patients in rural. Foot care education for diabetics in a primary care setting improves their foot care practice and is likely to be effective in reducing the burden of diabetic foot ulcer.
Neha Patel, Ravindra H.N (2015), Impact of Health Education Programme on knowledge regarding prevention of complications of diabetic mellitus among diabetes veterans at selected old age home. The study finding revealed that health education programme was highly effective in improving knowledge of prevention of complications of DM in Diabetes.
Esther Shirley Daniel (2015), Efficacy of Video-Assisted Teaching Program (VATP) on Diabetic Foot Care: The study found Knowledge score about foot care practices among the subjects increased from 38% to 61% after the VATP was administered. This study explored the efficacy of using a Video Assisted Teaching Program (VATP) for foot care education as a means of public education for diabetic patients to determine the significant role if any on the foot care practices in prevention of lower limb amputations and ulcers among diabetics.
Begum, Ph.D. Scholar, Saveetha (2015), a research to analyse the assisted teaching regarding aerobic exercise and practice to maintain blood glucose level among diabetics. The present study result shows the effect of aerobic exercise in reduction of blood glucose level among diabetics. Over the years, research has shown a direct correlation between positive self-care behaviours and positive patient outcomes. The expectation is that those with the greatest knowledge will have a fuller understanding of how to manage their diabetes on a daily basis. Having a fuller understanding enables individuals to slow or halt the progression of the disease and their risk of complications. As a result, nurses must focus their teaching on health promotion and finding innovative ways to encourage patients to assume more responsibility in their care (Hohdorf, 2010).
The American Association of Clinical Endocrinologists emphasizes the importance of patients becoming active, knowledgeable participants in their care (Rodbard et al., 2009). Likewise, the World Health Organization’s Joint Task Force for Diabetes (2011) recognized the importance of patients learning to manage their diabetes.
The American Diabetes Associations Task Force (as cited in a position statement by American Association of Diabetes Educators, 2012) reviewed the National Standards of Diabetes Self-Management Education and found that there was increase in diabetic complications for individuals who did not receive formal education concerning self-care practices. With the rapid growth of an aging population, healthcare professionals must fill an increasing demand for specialized training in educating on 14 chronic illnesses. Self-care or the lack of it plays an essential role in the outcomes of diabetic patients. Since the inability to read and write at a competent level is common in Patients with type 2 diabetes. There is little consistency in the education provided to patients with diabetes. Hence, it is important to empower patients with the knowledge necessary to alleviate educational barriers regarding foot health. There are few studies with supporting evidence regarding the provisions of foot care for diabetic patients with no clinical symptoms of neuropathy. Therefore, the need for the development of innovative, low literacy, didactics, to prevent complicated foot problems is imperative. Having the knowledge to remove educational barriers will have a positive impact on diabetic foot health and overall health outcomes of persons affected. The spectrum of foot lesions varies from region to region because of the differences in socio-economic conditions, standards of foot care, and quality of footwear. Therefore, diabetic foot care guidelines are the most cost-effective form of healthcare expenditure. These diabetic foot care guidelines must be goal focused and properly implemented (Bakker & Schaper, 2011)
There have been numerous studies that evaluated the effectiveness of education program components. A meta-analysis on the effectiveness of a diabetes management program documented that despite well-established recommendations for diabetes care, quality of care still needed to be improved (Pimouguet, LeGoff, Thiebaut, Dartigues, & Helmer, 2011). A cross-sectional research using the context, input, process, and product (CIPP) evaluation model showed an overall satisfaction with the training objectives and the teaching
methods used (Dukhail & Khathami, 2012), thus proving program evaluation is required to access its ability to maintain a high quality of education or training provided to its participants.

CONCLUSIONS
The review gave information that foot problems are a common complication in people with diabetes. Fortunately, most of these complications can be prevented with careful foot care. If complications do occur, daily attention will ensure that they are detected before they become serious. The burden of diabetes mellitus and its various complications brought the researchers attention to select the title. The recent trend in nurse’s role is extended and expanded. Nurses’ play a major role in prevention of diseases helps in reducing the mortality rate and improvement of quality of life. The researcher had the clinical experience with the diabetic patients and identified they have lack of knowledge on foot complications and how to preventive it, this made the researcher to think about doing research on the topic to Study the Knowledge, Attitude And practice regarding prevention of foot complications among patients with Diabetes Mellitus before and after Video Assisted Programme.

REFERENCE