



KNOWLEDGE OF DIABETIC PATIENT ON "PREVENTION OF DIABETIC FOOT ULCER"

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ABSTRACT

Background of the study: It is a study to assess the knowledge regarding prevention of diabetic foot ulcer among diabetic patients in a selected hospital, Dehradun, Uttarakhand.

Objective-The main objective of the study was to assess the knowledge regarding diabetic foot ulcer among diabetic clients and to associate the knowledge score with the selected demographic variable of diabetic client.

Methodology-Quantitative research approach. The study was done in selected hospital Dehradun, Uttarakhand. The sample comprised of 150 patients with diabetic mellitus who fulfilled the inclusion criteria. Data was collected from participants by structured knowledge questionnaire regarding prevention of diabetic foot ulcer.

Result-the result showed that there is no significant association between level of knowledge and age ($\chi^2=0.55$), gender ($\chi^2=3.85$), income ($\chi^2=0.728$), availability of health resources ($\chi^2=0.807$), occupation ($\chi^2=0.175$), source of diabetic education ($\chi^2=0.214$), age when diabetic mellitus diagnosed ($\chi^2=0.145$), any other problem ($\chi^2=0.739$), types of diet ($\chi^2=0.113$), habits and addictions ($\chi^2=0.129$), types of diabetes ($\chi^2=0.474$), RBS monitoring ($\chi^2=0.474$). There is significant association of knowledge regarding prevention of diabetic foot ulcer with their education i.e. $\chi^2=0.013$.

Conclusion-It was concluded that there is good knowledge in patients with diabetic mellitus regarding prevention of diabetic foot ulcer.

KEYWORDS : Study, assess, effectiveness, knowledge, diabetic patient, diabetic foot ulcer, prevention, hyperglycemia and hypoglycemia.

Introduction

Diabetes mellitus is a silent disease and is now recognized as one of the fastest growing threats to public health in almost all countries of the world. It is also called the "disease of prosperity". Diabetes mellitus is a group of metabolic diseases characterized by hyperglycemia resulting from defects in insulin secretion, insulin action, or both. (Palouse, 2005). Diabetes has emerged as a major health care problem in India. According to Atlas published by the International Diabetes Federation (IDF) there were an estimated 40 million persons with diabetes in India 2007 and the number predicted to rise to almost 70 million people by 2025. The countries with largest number of diabetic people will be in India, china and U.S.A by 2030. WHO estimates that mortality from diabetes, heart disease and stroke costs about \$210 billion in India in the year 2005. Much of the heart disease and stroke in these estimates was linked to diabetes. WHO estimates that diabetes, heart disease and stroke together will cost about \$ 333.6 billion over the next 10 years in India alone. Currently, there are an estimated 366 million people affected with diabetes mellitus globally².

India is estimated to have 61.3 million diabetics, which is projected to cross 100 million by the year 2030. Along with the rising prevalence of diabetes, an increase in its complications is expected. Diabetes along with its complications is expected to result in increasing morbidity, mortality and health expenditure due to the requirement of specialized care. Furthermore, amputations due to diabetic foot ulcer are characterized by loss of productivity, which adds to the economic burden of diabetes. The prevalence of diabetic foot ulcer among outpatient and inpatient diabetics in a rural Indian study was found to be 10.4%⁵.

Diabetic foot ulcer is a result of micro vascular and neuropathic complications in diabetics. Studies such as the United Kingdom Prospective Diabetes Study have shown that proper control of blood glucose through diet, exercise and medications prevents the development of micro vascular complications. Furthermore, the practice of diabetic foot care including daily foot examination and use of appropriate footwear is considered important in its early detection and prevention of complications. People with poor knowledge and practice regarding diabetic foot care are known to have a higher incidence of diabetic foot ulcers. On the other hand, simple health education measures can improve both the knowledge and practice regarding diabetic foot care. Adoption of foot care practice after education has also been shown to reduce foot problems such as corns and callosities and promote healing of foot ulcers. However, there is a dearth of studies in India, which assess the effect of health education on diabetic foot care practice of patients, especially in primary care setting. Thus, the objective of our study was to assess the risk factors for poor diabetic foot care and to determine the effectiveness of health education in improving diabetic foot care practice in a rural outpatient setting. Diabetes mellitus, commonly referred to as diabetes, is a group of metabolic diseases in which there are high blood sugar levels over a prolonged period. Diabetes is a silent killer. Diabetes is due to either the pancreas not producing enough insulin or the cells of the body not responding properly to the insulin produced. Fifteen percent of people with diabetes develop an ulcer in the course of their lifetime. 85% of the major amputations in diabetic mellitus are preceded by an ulcer¹².

Diabetic mellitus challenges patients with numerous complications even the proper treatment of diabetes type 2 goes with cardio

disease, neuropathy, nephropathy, retinopathy and diabetic foot syndrome. In addition more than 20% of patient who suffers from diabetic foot syndrome experience amputations during their lives. A study shows that 12% of diabetic foot related hospital admissions were due to diabetic foot complications. Diabetic neuropathy is a major factor for the development of lower limb ulcers affecting 50% of all diabetic patients over 60. This condition may be present before their loss of protective sensitivity and it makes them more susceptible to trauma and poses a 7-fold increase risk of ulcer. In a study to detect the prevalence of diabetic neuropathy in Sri Lanka shows that 30.6% of diagnosed patients with diabetes had neuropathy and 10.2% suffered with diabetic foot. Presence of amputations among 4.8% of the diabetic population highlights the importance of diabetic foot care. In developing countries walking barefoot is a common practice among rural population. This poses an additional risk for the development of diabetic foot complication. Diabetic foot is a complication¹⁸; its treatment is labor- and cost-intensive as it requires dressings, debridement, administration of insulin. Intravenous antibiotic, hospitalization and a multidisciplinary approach. Slow wound healing due to diabetes are the commonest of foot amputations. However, most such foot ulcer can be prevented by educating people with diabetes. Foot care education has not been given the importance it deserves¹⁹.

Diabetic foot ulcers frequently become infected and are a major cause of hospital admissions²⁰. They also account for more than half of non-traumatic lower limb amputations in this patient population²¹. They also account for more than half of non-traumatic lower limb amputations in this patient population.²²

Objectives

- To assess the knowledge regarding diabetic foot ulcer among diabetic clients.
- To associate the knowledge score with the selected demographic variable of diabetic client.

Materials and methods

Quantitative research approach was adopted for the present study. Cross sectional design was used to assess the knowledge regarding prevention of diabetic foot ulcer among the diabetic patient in selected hospital of Dehradun, Uttarakhand. The study was confined 150 diabetic patients fulfilling the exclusion criteria. Non probability, purposive sampling technique was used for selecting the sample for the study. The knowledge of participants was assessed by using structured knowledge questionnaire regarding prevention of diabetic foot ulcer

Results

Section A; Analysis of socio- demographic variables of participants

Table No .1 Illustrates the frequency and percentage distribution of socio demographic characteristics of patients. Males and females both genders are included in the study, 25.33% were aged between (61-70years), 52% were females. 35.33% patients were having primary education. Majority 36.66% were having their monthly family income 1000 -10000 INR. 66.66% of patients have health services near 5 km from their residential area. Majority of 38% were housewife. 83.33% of the patients got the information regarding diabetes mellitus from healthcare workers. 44% of the patients were diagnosed at the age between 31-40 years. 84% of patients do not have any foot problem due to diabetes mellitus. Majority of 50.66% patients were vegetarian, 43.33% of the patients were weighing between 61-70. 49.33% of the patients were having no addiction/habits. Most 58% of patients were suffering from type 1 diabetes mellitus, 27.33% of the patient have no specific time for checking their blood sugar.

Table no.1 : Frequency and percentage distribution of demographic variables.

| Sr. No | Subject Profile | Frequency | Percentage |
|--------|--|-----------|------------|
| 1. | AGE | 26 | 17.33% |
| | 31-40 | 37 | 24.66% |
| | 41-50 | 38 | 25.33% |
| | 51-60 | 38 | 25.33% |
| | 61-70 | 11 | 7.33% |
| | 71-80 | | |
| 2. | GENDER | 72 | 48% |
| | Male | 78 | 52% |
| | Female | | |
| 3. | EDUCATION | 37 | 24.66% |
| | Uneducated | 53 | 35.33% |
| | Primary | 39 | 26% |
| | Secondary | 21 | 14% |
| | Professional education | | |
| 4. | INCOME | 55 | 36.66% |
| | 1000-10000 | 37 | 24.66% |
| | 11000-20000 | 30 | 20% |
| | 21000-30000 | 6 | 4% |
| | 31000-40000 | 15 | 10% |
| | 41000-50000 | 7 | 4.66% |
| | >50000 | | |
| 5. | AVAILABILITY OF HEALTH SERVICES WITHIN 5 Km | 100 | 66.66% |
| | Available | 50 | 33.33% |
| | Non-available | | |
| 6. | OCCUPATION | 21 | 14% |
| | Government job | 19 | 12.66% |
| | Private job | 53 | 35.33% |
| | Business | 57 | 38% |
| | Housewife | | |
| 7. | SOURCE OF DIABETIC EDUCATION | 125 | 83.33% |
| | Medical consultant | 7 | 4.66% |
| | Internet | 15 | 10% |
| | Television | 3 | 2% |
| | Books | | |
| 8. | AGE WHEN DIABETIC MELLITUS IS DIAGNOSED | 66 | 44% |
| | 31-40 | 59 | 39.33% |
| | 41-50 | 22 | 14.66% |
| | 51-60 | 3 | 2% |
| | 61-70 | | |
| | | | |
| 9. | COMPLICATIONS | 7 | 4.66% |
| | Fracture | 12 | 8% |
| | Wound | 5 | 3.33% |
| | Blister | 126 | 84% |
| | No other problem | | |
| 10. | TYPE OF DIET | 74 | 49.33% |
| | Non-vegetarian | 76 | 50.66% |
| 11. | WEIGHT | 4 | 2.66% |
| | 31-40 | 23 | 15.33% |
| | 41-50 | 58 | 38.66% |
| | 51-60 | 65 | 43.33% |
| | 61-70 | | |
| 12. | HABITS AND ADDICTION | 34 | 22.66% |
| | Smoking | 18 | 12% |
| | Alcohol | 24 | 16% |
| | Tobacco | 74 | 49.33% |
| | No addiction | | |
| 13. | TYPES OF DIABETES | 87 | 58% |
| | TYPE 1 | 63 | 42% |
| | TYPE 2 | | |

Section-B Level of knowledge regarding prevention of diabetic foot ulcer

Table no. 2 shows that the total number of participants involved in the study. 8% of diabetic patient were having average knowledge regarding prevention of diabetic foot ulcer where as 58.66% has good knowledge and 33.33% has excellent knowledge.

Table no. 2 Level of knowledge

| S.No | Level of knowledge | Score | Frequency | Percentage |
|------|--------------------|-------|-----------|------------|
| 1. | Average | 0-8 | 12 | 8% |
| 2. | Good | 9-16 | 88 | 58.66% |
| 3. | Excellent | 17-24 | 50 | 33.33% |

Section-C: Association between the knowledge score of diabetic patient with their selected demographic variable.

Table no. 3 shows that there is no significant association between level of knowledge and age($\chi^2=0.55$), gender ($\chi^2=3.85$), income ($\chi^2=0.728$), availability of health resources ($\chi^2=0.807$), occupation ($\chi^2=0.175$), source of diabetic education ($\chi^2=0.214$), age when diabetic mellitus diagnosed ($\chi^2=0.145$), any other problem ($\chi^2=0.739$), types of diet ($\chi^2=0.113$), habits and addictions ($\chi^2=0.129$), types of diabetes ($\chi^2=0.474$), RBS monitoring ($\chi^2=0.474$). There is significant association of knowledge regarding prevention of diabetic foot ulcer with their education i.e. $\chi^2=0.013$.

Table no.3 Association of knowledge score with there selected demographic variable

| S.NO | Subject Profile | n | knowledge below median (<=14) | knowledge above median (>=14) | Chi value |
|------|---|-----|-------------------------------|-------------------------------|-----------|
| 1. | AGE 30-55 55-80 | 82 | 48 | 34 | 0.55 |
| | | 68 | 23 | 45 | |
| 2. | GENDER Male female | 72 | 39 | 33 | 3.85 |
| | | 78 | 48 | 30 | |
| 3. | EDUCATION Educated uneducated | 113 | 65 | 48 | 0.013 |
| | | 37 | 22 | 15 | |
| 4. | INCOME 1000-30000 31000-60000 | 122 | 74 | 48 | 0.728 |
| | | 28 | 15 | 13 | |
| 5. | AVAILABILITY OF HEALTH SERVICES WITHIN 5 Km Available Non-available | 93 | 44 | 49 | 0.807 |
| | | 57 | 27 | 20 | |
| 6. | OCCUPATION Employed unemployed | 125 | 72 | 53 | 0.175 |
| | | 25 | 22 | 03 | |
| 7. | SOURCE OF DIABETIC EDUCATION Medical person Mass media | 125 | 56 | 69 | 0.214 |
| | | 25 | 13 | 12 | |
| 8. | AGE WHEN DIABETIC MELLITUS IS DIAGNOSED 31-55 55-80 | 125 | 50 | 75 | 0.145 |
| | | 25 | 18 | 08 | |
| 9. | ANY OTHER PROBLEM Present Not present | 24 | 10 | 14 | 0.739 |
| | | 126 | 79 | 47 | |
| 10. | TYPE OF DIET Non-vegetarian Vegetarian | 74 | 40 | 34 | 0.113 |
| | | 76 | 31 | 45 | |

| | | | | | |
|-----|---|-----|----|----|-------|
| 11. | HABITS AND ADDICTION Smoking/Alcohol \Tobacco No addiction | 76 | 43 | 33 | 0.129 |
| | | 74 | 52 | 22 | |
| 12. | TYPES OF DIABETES TYPE 1 TYPE 2 | 87 | 40 | 47 | 0.474 |
| | | 63 | 31 | 32 | |
| 13. | RBS MONITORING Daily never | 109 | 58 | 47 | 0.474 |
| | | 41 | 29 | 12 | |

Discussion

Diabetic mellitus can cause acute complication hypoglycaemia, hyperglycaemia and chronic complication like neuropathy, nephropathy, retinopathy. The complication arises because of uncontrolled sugar level and lack of self care. Diabetic mellitus is a lifestyle disease which require preventive and promotive care. Diabetic foot ulcer is one of the major complication arises due to neuropathy specially at the foot where microcirculation effects and person could not put attention on his legs though the injury occurs which gradually occurs diabetic foot. Every year 4 million people worldwide get a foot ulcer and one in every six people with diabetes develops a foot complication in their lifetime. People with diabetes are up to 40% times more likely to undergo lower leg amputations. So the study concluded that there is good knowledge among participants regarding prevention of diabetic foot ulcer.

Recommendation

Based on findings of the study and conclusion drawn the following recommendations are suggested for the further studies are:-

- A similar study could be held on larger sample drawn generalization to larger population.
- A study can be done on knowledge and practice related to prevention of diabetic foot ulcers.
- A comparative study can be done on urban and rural population

Limitations

- Adults who are not willing to participate in the study.
- Adults who are not available during study.
- The study is limited to OPD patients only.

Conclusion

Diabetes mellitus is a very major and common problem among the adults these days as nearly half of the population 58% was found to be affected by type 1 diabetes mellitus so the chances of developing a diabetic foot ulcer are also more. This study will be useful to increase the knowledge and awareness of the adults regarding diabetes mellitus and prevention of diabetic foot ulcer.

Ethical cosideration

Ethical committee permission was obtained from the ethical committee of Swami Rama Himalayan University, Dehradun and administrative permission obtained from principal Himalayan College of nursing.

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