

Signs and symptoms of complications of diabetes mellitus among type 2 diabetes mellitus adults

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Abstract

Background: Diabetes mellitus (DM) is one of the most challenging health problems in the 21st century and the third major cause of death globally. From year 2000 to 2012, 1.5 million deaths have been occurred due to diabetes mellitus and its complications. (WHO, 2014). Objectives of the study were to assess the signs and symptoms of complications of diabetes among type 2 diabetes mellitus adults.

Methods: A descriptive survey was conducted among 127 diabetic adults who were resided at selected villages of Udupi district. The sample were selected based on purposive sampling technique and Tools used were demographic proforma and tool for assessment of signs and symptoms of diabetic nephropathy and neuropathy and data was obtained by interview and performed certain Bio-physiological tests.

Results: Out of 127 sample most (47.2%) of the sample had the sugar in the urine, around 17.3 % of them had albumin in the urine, around 33.9% felt sometimes the symptom of postural hypotension, about 15.7% often had symptom of tingling or burning sensation in the lower extremities, around 19.7% felt sometimes the symptom of severe nocturnal leg pains, only 1.6 % of them had the symptom of diarrhea during night time. Around 4.7% had the sign of coldness of extremities, around 4.7% had loss of sensation to touch and vibration only 2.4% of them had the sign of loss of sensation to cold.

Conclusion: Through the assessment of signs and symptoms of these complications and creating awareness among diabetic adults regarding prevention and management of complications useful to maintain their health status well.

Keywords: Signs and symptoms, complications, diabetic nephropathy, diabetic neuropathy and type 2 diabetes mellitus

1. Introduction

Changes in the life style leads to development of non-communicable diseases like Obesity, diabetes, cancer, cardiovascular diseases etc. Among the non-communicable diseases, diabetes mellitus (DM) is one of the most challenging health problems in the 21st century and the third major cause of death globally. From year 2000 to 2012, 1.5 million deaths have been occurred due to diabetes mellitus and its complications. (World Health Organization [WHO], 2014)

The increasing number of individuals with type 2 diabetes indicates a global epidemic. The current epidemic of type 2 diabetes and its complications are on dramatic rise in both in developed and the developing countries. The number of adults with diabetes worldwide is predicted to almost double over the next 25 years, from approximately 171 million in 2000 to 366 million by 2030. (Cheing, Chaun, Wee, Abdul & Anthony, 2014).

It is observed that human and economic costs of diabetes and its complications are abnormally high. In every 10 seconds, diabetes causes one death and one amputation every 30 seconds. (Cheing *et al*, 2014)

DM is a serious condition with potentially devastating complications that affects all age groups worldwide. This typically includes macro vascular complications (cardiovascular morbidity such as coronary artery disease, cerebrovascular disease and peripheral vascular disease) and micro vascular damages (diabetic nephropathy, diabetic neuropathy)

2. Objectives

To assess the signs and symptoms of complications of diabetes among type 2 diabetes mellitus adults.

3. Methods

A descriptive survey study was conducted among 127 diabetic adults adopted in the study. The sample consist of 127 diabetic adults who were resided at selected villages under Hirebettu PHC s (Primary Health Centre) namely Hirebettu, Athrady, 80-Badagabettu, Herga-A, Herga-B and RMCW's (Rural Maternal Child Welfare Centers) under Kasturba Medical College namely Alevoru, Malpe, Kadekar, Udyavara, Katapadi, Kapu of Udupi district. The sample were selected based on purposive sampling technique and areas were selected based on convenient sampling technique. The following criteria were set for the sample selection - the type 2 diabetic adults of both male and female who resided at selected villages, who are suffering from diabetes since two years and who are willing to participate in the study.

Tools used were demographic proforma and assessment of signs and symptoms of diabetic nephropathy and neuropathy. Data was obtained by interview technique after obtaining consent from the participants and test performed like RBS was monitored by using Glucometer, urine analysis for the sugar and albumin was monitored by urine-dipstick method and blood pressure by using sphygmomanometer.

4. Results

Obtained data was analyzed based on objectives of the study by using SPSS 16.0 version. Out of 127 sample majority (43.5%) of them were in the age group of 56- 65 years, most (68.5%), of sample belonged to female gender, around 85.8% belonged to Hindu religion, most (86.6%) of them were Non-vegetarians, around 36.2% of sample were on treatment more than had 5- 10 years of duration of illness (DM), around 48.8% had hypertension along with diabetes mellitus and most (55.1%) of them were taking medicine other than for diabetes mellitus

Out of 127 sample, 47.2% of the sample had the sugar in the urine, only 17.3 % of them had albumin in the urine, around 8.7% of them had the edema of lower limbs, around 1.6% had +2 level of edema. Only 19.7% of the sample had the sign of pruritis, around 40.2% of the sample had the RBS values >200 mg/dl. (Table 1)

Most (49.6%) of them never felt the symptom of feeling giddiness or loss of balance when suddenly getting up from the bed (postural hypotension) around 14.2% of the sample sometimes felt the symptom of feeling fullness of stomach after having small amount of food, only 1.6 % of them had the symptom of diarrhea during night time (Nocturnal diarrhea), around 89% of them never had the symptom of difficulty in swallowing, around 63% of the sample never had the problem constipation around 92.9 % of them never felt the symptom of difficulty in micturition, about 90.6 % never felt the symptom of Precipitation during eating (gustatory sweating) and around (11.8%) of them had the sign of delayed or absence of pupillary reflexes to light. (Table 2)

Majority (49.6%) of the sample never had symptom of tingling or burning sensation in the lower extremities, about 19.7% of the sample felt sometimes the symptom of severe nocturnal leg pains, only 4.7% of them had the sign of coldness of extremities, around 99.2 % of them didn't had the sign of loss of ankle reflexes, most (95.2%) did not have the sign of loss of sensation to touch, around 95.2% didn't had the sign of loss of sensation to vibration, most (96.9%)of the sample didn't had the sign of loss of sensation to pain, only 2.4% of them had the sign of loss of sensation to cold, around 98.4% of them didn't had the sign of clawing of toes. (Table 3)

Table 1: Frequency and Percentage distribution of signs and symptoms of diabetic nephropathy n = 127

Signs and symptoms of diabetic nephropathy f %		
Diabetic Nephropathy		
1. Sugar in the urine		
Present	60	47.2
Absent.	67	52.8
2. If Present...level of sugar in urine		
Trace	5	3.9
+1	7	5.5
+2	15	11.8
+3	18	14.2
+4	15	11.8
3. Albumin in the urine		
Present	22	17.3
Absent.	105	82.7
4. If present.....level of albumin in urine		
Trace	11	8.7
+1	8	6.3

+2	3	2.4
+3	0	0
+4	0	0
5. Edema of lower limbs		
Present	11	8.7
Absent.	116	97.3
6. If present..type of edema		
+1	6	4.7
+2	3	2.4
+3	2	1.6
+4	0	0
7. Pruritis		
Present	25	19.7
Absent.	102	80.3
8. RBS value...mg/dl		
<140 mg/dl	39	39.1
141-200 mg/dl	37	29.1
>200 mg/dl	51	40.2

Table 2: Frequency and Percentage distribution of signs and symptom of diabetic neuropathy (Autonomic Neuropathy) n=127

Signs and symptoms of autonomic neuropathy f %		
1. Feeling giddiness or loss of balance when suddenly getting up from the bed (postural Hypotension)		
Never	63	49.6
Rarely	12	9.4
Sometimes	43	33.9
Often	9	7.1
Very often	0	0
Feeling fullness of stomach after having small amount of food		
Never	82	64.6
Rarely	18	14.2
Sometimes	17	13.4
Often	8	6.3
Very often	2	1.6
Diarrhea during night time (Nocturnal diarrhea)		
Never	125	98.4
Rarely	0	0
Sometimes	2	1.6
Often	0	0
Very often	0	0
Difficulty in swallowing.		
Never	113	89.0
Rarely	7	5.5
Sometimes	5	3.9
Often	2	1.6
Very often	0	0

Table 2.1 Signs and symptom of diabetic neuropathy (Autonomic Neuropathy) continues n=127

Signs and symptoms of autonomic neuropathy f %		
Constipation.		
Never	80	63.0
Rarely	39	30.7
Sometimes	5	3.9
Often	3	2.4
Very often	0	0
Difficulty in micturition		
Never	110	92.9
Rarely	2	1.6
Sometimes	6	4.7
Often	1	0.8
Very often	8	6.3
Perspiration during eating (gustatory sweating)		

Never	115	90.6
Rarely	0	0
Sometimes	3	2.4
Often	1	0.8
Very often	8	6.3
Delayed or absence of pupillary reflexes to light.		
Present	15	11.8
Absent	112	88.2

Table 3: Frequency and Percentage distribution of signs and symptoms Diabetic Neuropathy (Somatic Neuropathy) n=127

Signs and symptoms of somatic neuropathy f %		
1. Tingling /Burning sensation in the extremities		
Never	53	41.7
Rarely	12	9.4
Sometimes	36	28.3
Often	20	15.7
Very often	6	4.7
Severe nocturnal leg pains		
Never	54	42.6
Rarely	20	15.7
Sometimes	25	19.7
Often	18	14.2
Very often	10	7.9
Coldness of extremities		
Present	6	4.7
Absent	121	95.3
2. Loss of ankle reflexes		
Present	1	0.8
Absent	126	99.2
Loss of Sensation to touch (monofilament)		
Present	6	4.7
Absent	121	95.2
Loss of Sensation to vibration		
Present	6	4.7
Absent	121	95.2
Loss of Sensation to pain		
Present	4	3.1
Absent	123	96.9
Loss of Sensation to cold/hot		
Present	3	2.4
Absent	124	97.6
Clawing of toes		
Present	2	1.6
Absent	125	98.4

Discussion

The present study showed that majority of the sample belongs to female gender (68.5%), most (86.6%) of them were Non-vegetarians, around 36.2% of sample had the 5- 10 years of duration of illness (DM), majority (97.6 %) of the sample were married and around 48.8% of sample had the history of Hypertension and most (55.1%) of them were taking medicine other than for diabetes mellitus.

The present study supported by a cross- sectional study conducted by Kenny *et al.* (2014) results showed that about (57.1%) were above 60 years old, with mean disease duration of 7.3 years, the commonest coexisting chronic illness was hypertension (57.6%). Around (30.2%) have systolic below 130 mm of Hg and about (61.8%) have diastolic pressure below 80 mm of Hg. About 38.8% of them had diabetic nephropathy and around 2.4% had diabetic neuropathy. The present study showed that around 47.2% of the sample had the sugar in the urine and about 14.2% were had +3 level

of sugar, only 17.3 % of them had albumin in the urine and around 8.7% of them had the trace level of albumin in the urine which was found by performing urine dip stick test, The present study supported by a study conducted by Janmohamed *et al.* (2013) The results showed that, majority (83.7%) the sample had CKD, about 80.0% sample had moderately to severely increased albuminuria around 45.8% had micro albuminuria alone. No one aware about presence of CKD to them. They concluded that chronic kidney diseases were more prevalent in diabetic adults. To slow the progression of CKD early screening is needed to prevent complications.

5. Conclusion

The present study concluded that type 2 diabetic adults had the signs and symptoms of diabetic nephropathy and diabetic neuropathy. Through the assessment of risk factors and signs and symptoms of these complications and creating awareness among diabetic adults regarding prevention and management of complications and follow-up by the peripheral health workers will be useful for the diabetic adults to maintain their health status well.

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