Original Article

Assessment of Risk Factors in Type 2 Diabetes Mellitus in a Teritary Care Hospital, India

Behdad Ghazvineh *, Saikumar Javvaji

Doctors of pharmacy, Department of pharmacy practice, Karnataka College of pharmacy, Bengaluru, India.

Abstract

Objective: assessing the risk factors in type 2 diabetes mellitus in Bangalore Baptist Hospital, Bellary Road, Hebbal, Bangalore. Methodology: We were selected the 84 patients based on inclusive and exclusive criteria and the information was collected from patient profile form that includes presenting complaints, past history, lifestyle information, medication chart, lab master, physicians notes, nurses notes as required to our study. We were also collected the information from other form which is very suitable to our study contains various risk factors like age, sex, BMI, height, weight, physical activity, salary monthly, occupation, rural or urbanization, smoking or alcohol etc. Result: The prevalence of type 2DM among aged of 61-70 is more as its showing the aging progression is the risk factors. (Aging, genetics) are non-modifiable risk factors the distribution of diabetes among the male are slightly more. they are using the cigarette and alcohol they can be the risk factor as the increases prevalence of type 2 diabetes mellitus in male population. Body Mass Index Its Showing distribution of Diabetes patients as the prevalence of diabetes among obese patients 15-20 group is 9, 21-26 group is 28,26-31 group is 30,32-37group is 10, more than 37 is 7. Out of 84 patients 54 patients are living in city and 30 patients are living in village this compilation shows urbanization increases the prevalence of diabetes. About 63% in our studies their complaining of hypertension and uses hypertensive medication. Conclusion: The majority of cases is 61-70 year in the male and female groups. And it is prevalent in all group category The most of patients are having BMI more than 25 physical inactivity and moderately activity is considered for development of type 2 diabetes mellitus this is seen more in city population compared to rural as dwelling in village is not protecting against type 2 diabetes mellitus. There is a positive correlation between hypertension and type 2DM most of the diabetes patients are having type 2 DM and direct correlation between type 2 DM and genetics these factors can be considered as risk factors.

Keywords: Risk Factors, Diabetes Mellitus, type 2 DM, BMI, Hypertension

Introduction

Diabetes mellitus is the chronic disease that decidedly converted to big trouble for international community. This disease impose high expenditure on economy of both developed and developing country .In the us 2007 economic recompense is been estimated about 174 billion dollar where the medical expenditure is 116 billion dollar 58 billion dollar for reduced national productivity27 billion dollar is direct cost of diabetes and 58 billion dollar for chronic complication of and 31billion dollar for general medical cost and this not include the other charge such as transportation and telephone and non-medical cost is pain suffering and reduction of life expectancy and etc. Diabetes Mellitus (DM) is a syndrome characterized by a state of chronic hyperglycemia causing disturbance of carbohydrate, fat and protein metabolism, associated with absolute or relative deficiency in insulin secretion or insulin action. Diabetes occurs worldwide and incidence of both Type-I and Type-II are rising. It is estimated that in the year 2000, 171 million people had diabetes worldwide and it is expected to double by the year 2030 AD. Compared to Britain, prevalence of diabetes is higher in Indian subcontinent. It is estimated that 20% of global burden resides in South East Asia Region (SEAR) area, which will be tripled to 228 million by the year 2025 from the current 84 million. The major determinants for projected increase in the number of Diabetes in SEAR countries are population growth, age structure, and urbanization. Diabetes and its complications pose a major threat to public health resources and World Health

Address for correspondence: Behdad Ghazvineh, Doctors of pharmacy, Department of pharmacy practice, Karnataka College of pharmacy, Bengaluru, India.
E-mail: behdadkermanash1995@gmail.com

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Organization (WHO) has projected the maximum increase in Diabetes would occur in India. Prevalence of Diabetes is increasing day-by-day in our country. In addition, prevalence of Impaired Glucose Tolerance (IGT) is also high indicating the potential for a further increase in the number of diabetic patients. The ratio between Diabetes and IGT is considered to be an index of epidemic state in the population. The prevalence of Diabetes and IGT are high in urban Indian population. It is also rising in rural areas which indicate the presence of Genetic basis for Diabetes in ethnic group. With this background, the present study was conducted with objectives to assess the general health condition and anthropological parameters of the working women, to identify the prevalence of Type-II Diabetes among them, to assess risk factors for associated with development of Diabetes and to educate them about Life Style Modifications to live a better life with Diabetes. [1, 2]

Type 2 diabetes mellitus (T2DM) accounts for around 90% of all cases of diabetes. In T2DM, the response to insulin is diminished, and this is defined as insulin resistance. During this state, insulin is ineffective and is initially countered by an increase in insulin production to maintain glucose homeostasis, but over time, insulin production decreases resulting in T2DM. T2DM is most commonly seen in persons older than 45 years, but it is increasingly seen in children, adolescents, and younger adults due to rising levels of obesity, physical inactivity, and energy-dense diets.

Genetic, environmental, and metabolic risk factors are interrelated and contribute to the development of type 2 diabetes mellitus. A strong family history of diabetes mellitus, age, obesity, and physical inactivity identify those individuals at highest risk. Minority populations are also at higher risk, not only because of family history and genetics, but also because of adaptation to American environmental influences of poor dietary and exercise habits. Women with a history of gestational diabetes as well as their children are at greater risk for progressing to type 2 diabetes mellitus. Insulin resistance increases a person's risk for developing impaired glucose tolerance and type 2 diabetes. Individuals who have insulin resistance share many of the same risk factors as those with type 2 diabetes. These include hyperinsulinemia, atherogenic dyslipidemia, glucose intolerance, hypertension, prothrombin state, hyperuricemia, and polycystic ovary syndrome. Current interventions for the prevention and retardation of type 2 diabetes mellitus are those targeted towards modifying environmental risk factors such as reducing obesity and promoting physical activity. Awareness of risk factors for developing type 2 diabetes will promote screening, early detection, and treatment in high-risk populations with the goal of decreasing both microvascular and macro vascular complications. [3]

Materials and Methods

we have completed this study based on the risk factors that were associated with the prevalence of the diabetes and the factors such as age, genetics and family history are not modifiable but some risk factors as the life style, physical activity, obesity, are modifiable so in this study analysed the triggering factors and assessed the prevalence of type 2 diabetes mellitus. We were selected the 84 patients based on inclusive and exclusive criteria and the information was collected from patient profile form that includes presenting complaints, past history, lifestyle information, medication chart, lab master, physicians notes, nurses notes as required to our study. We were also collected the information from other form which is very suitable to our study contains various risk factors like age, sex, BMI, height, weight, physical activity, salary monthly, occupation, rural or urbanization, smoking or alcohol etc.

The data was computed by using excel Microsoft and expressed as the percentage and counts. We design suitable data collection for gathering patient information age, sex, weight, date of admission, reasons for admission, diagnosis, family history, physical activity, BMI, height, weight and etc. patient's information was collected according to inclusion criteria.

Result and Discusion

This study used to identify the risk factor and correlation with type 2 diabetes mellitus. The prevalence of type 2DM among aged of 61-70 is more as its showing the aging progression is the risk factors. (Aging, genetics) are non-modifiable risk factors the distribution of diabetes among the male are slightly more.

Table 1: Patterns of Hypeertension and Family History of Diabetes

Features	YES% (N=84)	NO% (n=84)	TOTAL% (n=84)
Family History of Diabetes	49(58%)	35(42%)	84(100%)
Hybertensio N Detected	53(63%)	31(37%)	84(100%)

Table 1 are showing majority of patient (58%) were having positive history of diabetes where either the parents or sibling were suffering from diabetes and (63%) persons are diagnosed with hypertension.

The male with age groups of 61-70 are more compared to the other aged category are more The male are more susceptible to type 2 diabetes mellitus as their behavior. they are using the cigarette and alcohol they can be the risk factor as the increases prevalence of type 2 diabetes mellitus in male population in Baliunas, D. O, et al. 24 it showing alcohol consumption as risk factors for type 2 diabetes mellitus as by reduction of insulin sensitivity decrease HDL cholesterol and alcohol consumption in male is more compared to female in this project as the gender distribution and age distribution the prevalence of diabetes is more in male specially in 61-70 age group The patients with family history of diabetes are more prone to type 2diabetes. This showing as the role of genetics in prevalence of type 2diabetes mellitus among the study population. [4, 5]

Table 2: Distribuation According to Fasting Blood Glucose Level

FBS(MG/DL)	NUMBER	PERCENTAGE
LESS THAN 160	7	8.33%
160 TO 200	15	17.85%
200 TO 240	23	27.38%
MORE THAN 240	39	46.42%
TOTAL	84	100%

Table 2: All the patient is examined for FBS after overnight fasting totally84 persons, 7 patients less than 160, 160-200 (15), 200-240 (23), more than 240 is (39).

Table 3: Distribuation of Study Population According to Hemoglobin A1C Test

Hba1c	Number	Percentage
LESS THAN 6.5(%)	6	7.14%
6.5(%) TO 8.5(%)	30	35.71%
8.5(%)TO 10(%)	18	21.42%
MORE THAN 10(%)	30	35.71%
TOTAL	84	100%

Table 3: HBA1C is showing determination of sugar in a period of time less than (6.5%) is (6) , 6.5-8.5(30), 8.5-10 (18) more than 10 (30) Determination of physical activity as out of 84 patients 37 are active and 25 moderate and 22 patients are non-active .

About 63% in our studies their complaining of hypertension and uses hypertensive medication as well and in the American diabetes assessment the hypertension is regard as the risk factors the monitoring and evaluation of hypertension is important in reduction of morbidity and mortality as well the correlation of hypertension and diabetes its lead more complication.

India are the fast growing country in the urbanization and reduction of physical activity are is going more and causing increasing in the obesity and physical inactivity the obesity is assessing by the BMI and those patients are having more than 25 are more susceptible to type 2 diabetes mellitus as in BMI table are showing 57% of the study population are obese and their BMI are more than 25(normal range) and BMI, physical activity, urbanization are acting as chain in prevalence of type 2 diabetes mellitus Prevalence of type 2 diabetes in non-physical activity and moderate physical activity is more compared to physical activity in this project Its showing physical activity regular exercise and aerobic exercise will lead to reduction of the morbidity and mortality of diabetes mellitus type 2 and will improve insulin sensitivity. The prevalence of diabetes among in illiterate people are 27% and73% are educate people education is not risk factor but patient education is more efficient way to reduction of morbidity and mortality of patient with type 2 diabetes mellitus.

Table 4: Distribuation According to Bmi (Body Mass Index)

Bmi	Number	Percentage
15-20	9	10%
21-26	28	33%
26-31	30	36%
32-37	10	12%
MORE THAN 37	7	9%

Table 4: Body Mass Index Its Showing distribution of Diabetes patients as the prevalence of diabetes among obese patients 15-20 group is 9, 21-26 group is 28,26-31 group is 30,32-37group is 10, more than 37 is 7. Out of 84 patient 54 patients are living in city and 30 patients are living in village this compilation shows urbanization increases the prevalence of diabetes.

Table 5: Demographic Characteristic of Diabetes Mellitus Patient Related or Non Related to Complications

	Diabetes related complications (n=84)						Diabetes not related complications(n=84)					
Number of patients and the percentage	male	(%)	female	(%)	total	(%)	male	(%)	female	%	total	(%)
	Number of patients and the percentage											
	32	38%	31	36%	63	75%	11	13%	10	11.90%	21	25%
Age year	**Age year**											
20-30	0	0	0	0	0	0	0	0	0	0	0	0
31-40	1	1.19	2	2.38	3	3.5	1	1.19	1	1.19	2	2.38
41-50	3	3.5	5	5.95	8	9.5	3	3.5	1	1.19	4	4.76
51-60	3	3.5	9	10.7	12	14.2	2	2.38	1	1.19	3	3.5
61-70	15	17.8	13	15.4	28	33	4	4.76	6	7.1	10	11.9
71-80	10	11.9	2	2.38	12	14.2	1	1.19	1	1.19	2	2.38

Table 5 shows distribution of diabetes patient we study 84 cases about 43 patients are male and 41 patients as the female the 20-30 (0) and 31-40 (5.95%) 41-50(14.2%), 51-60 (17.85%), 61-70 (45.2%), 71-80 (16.6%) and the majority of

patients are belonging to age 61-70 years and minority of patients are belong to20-30 age is (0).

The pharmacist as should aware and educate the patient with modifiable risk factors (daily exercise and avoid unhealthy food etc. to the patient 75% are admitted because of type 2 diabetes mellitus the correlation of diabetes and hypertension (63%) is caused more complication as the diabetic's neuropathy and chronic kidney diseases (CKD), etc.

Conclusion

The majority of cases is 61-70 year in the male and female groups. And it is prevalent in all group category The most of patients are having BMI more than 25 physical inactivity and moderately activity is considered for development of type 2 diabetes mellitus this is seen more in city population compared to rural as dwelling in village is not protecting against type 2 diabetes mellitus. the education level and married status (widow, married) are not risk factors in type 2 diabetes mellitus but knowledge about type 2 DM it helps patient with type 2 DM (patient education). There is a positive correlation between hypertension and type 2DM most of the diabetes patients are having type 2 DM and direct correlation between type 2 DM and genetics these factors can be considered as risk factors. Social behavior (smoking, alcohol) as many research shown can be risk factors for type 2 diabetes mellitus as by insulin resistance.

References

1. Kumar, K. N., Katkuri, S., Ramyacharitha, I. A study to assess prevalence of diabetes mellitus and its associated risk factors among adult residents of rural Khammam. International Journal of Community Medicine and Public Health, 2018; 5(4): 1360-1365.
2. Malini, D. S., Sahu, A., Mohapatro, S., Tripathy, R. M. Assessment of risk factors for development of Type-II diabetes mellitus among working women in Berhampur, Orissa. Indian journal of community medicine: official publication of Indian Association of Preventive & Social Medicine, 2009; 34(3): 232.
3. Goyal, R., Jialal, I. Diabetes Mellitus Type 2., Lady Harding Medical College, New Delhi, India California North state University, 2019.
4. Baliunas, D. O., Taylor, B. J., Irving, H., Roerecke, M., Patra, J., Mohapatra, S., Rehm, J. Alcohol as a risk factor for type 2 diabetes: a systematic review and meta-analysis. Diabetes care, 2009; 32(11): 2123-2132.
5. Vardhan, A., Adhikari Prabha, M. R., Kotian Shashidhar, M., Shankar, N., Gupta, S., Tripathy, A. Value of Indian diabetes risk score among medical students and its correlation with fasting plasma glucose, blood pressure and lipid profile. Journal of clinical and diagnostic research: JCDR, 2012; 6(9): 1528.