Identification of Predisposing Factors and Medical Conditions Associated with the Type 2 Diabetes Mellitus in Bengali Males

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Abstract

Background : Recent World Health Organization (WHO) report on diabetes prevalence has alarmed that diabetes has posed a serious threat to the entire population of the world. The prevalence of diabetes for all age groups world wide was estimated to be 2.8% in 2000 and projected to 4.4% in 2030. The number of diabetic population was estimated to rise from 171 million in 2000 to 366 million in 2030. According to the recent report, the highest relative increase will occur in the Middle East, Sub-Sahara, Africa and India.[1]

Objective : To identify the predisposing factors and medical conditions associated with type 2 diabetes mellitus in Bengali males.

Methodology : It was a descriptive cross-sectional study carried out in the Health Education department of BIRDEM. Fifty males were selected by systematic sampling associated medical conditions were recorded from history on diagnosis and present status during data collection. Data was collected by face to face interview using questionnaire. Data analysed by SPSS version 15.

Result : Thirty patients (60%) were 45 years or above at diagnosis. Thirty nine patients (78%) gave the positive family history. Twenty (40%) was father and 19 (38%) mother was affected. The other general predisposing factors included overeating (58%), smoking (50%) and predilection for sweet food (48%), habitual physical inactivity (22%) and body mass index (BMI) consistent with obesity was 6% cases. No patients were alcoholic. History of medication was not very remarkable. Only 4 (8%) gave the history of taking glucocorticoid. At diagnosis from history associated medical conditions were, high cholesterol level in 10% and hypertension in 8% cases while taking data they were found with Coronary artery disease 10%, fatty liver 2%, high cholesterol 16%, hypertension 10%. Where as cerebrovascular disease, chronic pancreatitis, recurrent urinary and genital tract infection or previously identified impaired glucose intolerance was not reported in any patients.

Conclusion : Overeating, smokings, predilection for sweet food are the predisposing factors of type 2 diabetes mellitus in present study. Hypercholesterolaemia, hypertension, coronary artery disease, recurrent skin infections were associated medical conditions.

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Introduction

Type-2 diabetes mellitus is the most common form of diabetes. In this type of diabetes body does not use insulin properly i.e insulin resistance. In the early stage pancreas makes extra insulin to maintain normal glaucose level. But, over time it fails to keep normal blood glucose level.[2]

Type 2 diabetes mellitus is a common multi-factorial genetic syndrome, which is determined by several different genes and environmental factors. It now affects 150 million people world wide but its incidence is increasing rapidly because of secondary factors, such as obesity, hypertension and lack of physical activity.[4]

Although type 2 diabetes mellitus typically affects individuals older than 40 years, it has been diagnosed in children as young as 2 years of age who have a family history of diabetes. About 90% of patients who develop type 2 diabetes mellitus are obese.[3]

Materials & Methods

This descriptive cross-sectional study carried out in the Health Education department of BIRDEM Hospital Dhaka, from July 2008 to June 2009. Fifty (50) males were selected by systematic sampling fulfilling the selection criteria. Patients were diabetic for different duration so associated medical conditions during diagnosis of Diabetes mellitus were taken from history and also recorded present status during data collection. Data was collected by face to face interview using questionnaire. Data analyses was done by using software SPSS version-15

Results

Thirty out of the 50 patients (60%) were 45 years or above at the time of diagnosis. Thirty nine patients (78%) gave the positive family history. Twenty (40%) was father and 19 (38%) mother was affected. (Table-I)

Table I : Distribution of respondent according to age & family history at the time of diagnosis (no.=50)

Age & family history	no. of respondent	%
Age 45 and above	30	60
Family history (relationship) :	39	78
Father	20	40
Mother	19	38

Predisposing factors prevalent in the patients included overeating (58% cases), smoking (50% cases), and prdilection for sweet food (48% cases). Two other important predioposing factors did not show that much of prevalence. They were: habitual physical inactivity (22% cases) and body mass index (BMI) consistent with obesity (30-40kg/m^2). Obesity was found in only 6% cases. No patients were found to take alcohol. (Table II)

Table II : Distribution of respondent according to general predisposing factor (no. = 50)

General Predisposing factors	no. of respondent	%
Alcohol consumption	0	0
Body mass index (BMI) 30-40 kg/m2	3	6
Habitual physical inactivity	11	22
Overeating	29	58
Predilection for sweet food	24	48
Smoking	25	50

History of medication in the patients was not very remarkable. Only one (1) out of 50 patients (2%) gave the history of taking diuretic. Only four (4) of the 50 patients (8%) the history of taking glucocorticoid. (Table III)

Table III: Distribution of respondent on history of medication (no.=50)

History of medication	no. of respondent	%
Anticonvulsant	0	0
Antipsychotic	0	0
Chemotherapeutic	0	0
Diuretic	1	2
Glucocorticoid	4	8
Vasodilator	0	0

Cholesterol level had the highest frequency (10% cases) at the time of diagnosis. Hypertension was the next most frequent clinical condition, present in 4 patients (8% cases). Recurrent skin infection 6%. Coronary artery disease, cerebrovascular disease, fatty liver, chronic pancreatitis, recurrent urinary and genital tract infection was not reported in any patients at diagnosis. There was no previously identified impaired glucose intolerance either. The present status was found 10% of the patients had coronary artery disease. The frequencies of high cholesterol and fatty liver higher than they were at diagnosis. (Table IV)

Table IV: Frequencies of medical conditions that were likely to be associated with type 2 Diabetes mellitus

Medical Condition	Total no. of respondent at diagnosis (n = 50)		Total no. of respondent at present (n = 50)	
	no. of respondent	%	no. of respondent	%
Cerebrovascular disease	0	0	0	0
Chronic pancreatitis	0	0	0	0
Coronary artery disease	0	0	5	10
Fatty liver	0	0	1	2
High cholesterol level	5	10	8	16
Hypertension	4	8	5	10
Previously identified impaired glucose tolerance	0	0	0	0
Recurrent skin infection	3	6	2	4
Recurrent urinary or genital tract infection	0	0	0	0

Discussion

Type 2 diabetes is principally a disease of the middle aged and elderly. In the UK, it affects 10% of the population over 65, and over 70% of all cases of diabetes occur after the age of 50 years.[5] The present study showed that 60% of cases were from 45 years or above. In case of type 2 diabetes mellitus 35% of the patients were reported to have an age of onset between 41-50 years.[6]

In this study, 39 (78%) gave a positive family history. Out of them father 20 (40%) and mother 19 (38%) were affected. Ostovan reported that 61% of type 2 diabetes patients had a positive family history, of which 40% was in father and 21% was in mother. Ostovan also reported that, his findings provide evidence suggesting more significance of family history among type 2 than type 1 diabetic patients.[7]

Type 2 diabetes is associated with overeating, especially when combined with obesity and underactivity. Obesity probably acts as a diabetogenic factor. The risk of developing type 2 diabetes increases tenfold in people with a body mass index>30kg/m.[2,9] This study showed that 6% cases were obese (BMI 30-39.9 kg/m^2). In our study 22% cases had habitual physical inactivity, 58% cases had overeating, 48% had predilection for sweet food, 50% cases had history of smoking and no one gave the history of alcohol consumption. Sedentary habit, smoking and alcohol consumption were identified as significant risk factor for type 2 diabetes mellitus.

The present study showed that 8% cases had history of taking glucocorticoid (irregular for 2 years) and 2% cases had history of taking antidiuretic for 2 months. The risk of diabetes is higher with chronic use of several medications.[10]

Our study revealed that 10% of cases had the history of coronary artery disease at present. Type 2 diabetes is a major risk factor for coronary artery disease and coronary artery disease is the major cause of morbidity and mortality in people with type 2 diabetes.[11]

Approximately 20 to 60% of patients with type 2 diabetes will develop hypertension, depending on age, ethnicity, and obesity. Type 2 diabetes and hypertension are associated with an insulin-resistant site (Metabolic Syndrome) characterized by hyperinsulinemia, dyslipidaemia and obesity.[12] This study showed that 8% had history of hypertension at diagnosis and 10% patients had history of hypertension at present.

Conclusion : Type 2 diabetes is a multi-factorial disorders and our study has put some light on predisposing factors (Age, family history, Overeating, smokings, physical inactivity, predilection for sweet food) and associated medical conditions (Hyper cholesterolaemia, hypertension, coronary artery disease, recurrent skin infections) in Bengali males.

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