Profile of type 2 diabetes mellitus without overt complications of diabetes mellitus at a tertiary care center

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ABSTRACT

Introduction and Objectives: Internal audit of an aspect of a disease at repeated intervals helps in predicting the new emerging trends. This study was planned to assess the profile of patients with diabetes mellitus (DM) without overt complications.

Materials and Methods: Patients with HbA1c between 6% and 9% on oral hypoglycemic agents and who did not have clinically overt complications of diabetes were recruited from outpatient clinic of Department of Endocrinology and Metabolism at All India Institute of Medical Sciences (AIIMS) from April 2009 to October 2011. Results: A total of 91 patients (53 males and 38 females) were recruited over 3 years of period. Their mean age was 49.65 ± 11.22 years (range in years) and mean duration of diabetes was 48.09 ± 41.44 (range: 1-180) months. Biochemical evaluation revealed mean fasting blood sugar (FBS): 126.69 ± 25.80 mg/dl and mean HbA1c: 7.12 ± 0.81%. Family history of DM was present in 60.43% of patients, 6.59% were active smokers and 46.15% were obese (waist circumference ≥90 cm in males and ≥80 cm in females). All but 6.59% (n = 6) of patients were dyslipidemic and only 25 of these were on antidiyslipidemic treatment. Isolated low HDL was most common abnormality (25.27%, n = 23), followed by combination of low HDL and raised LDL (17.58%, n = 16). Evaluation of complications showed retinopathy in just one patient, nephropathy in 17.68%, and neuropathy in 10.97%. MINI neuropsychiatric scale for depression was positive in four patients and four patients were on antidepressants.

Conclusion: Type 2 diabetes mellitus (T2DM) patients have very high prevalence of dyslipidemia even in patients with good glycemic control. This study allowed us to realize lacunae in our clinical practice regarding need for better care of lipid parameters.

Key words: Diabetes mellitus, dyslipidemia

INTRODUCTION

Internal audit of an aspect of a disease at repeated intervals helps in predicting the new emerging trends. In this study, we assessed the profile of patients with diabetes mellitus (DM) without overt complications.

MATERIALS AND METHODS

Patients were recruited from outpatient Clinic of Department of Endocrinology and Metabolism at All India Institute of Medical Sciences (AIIMS) from April 2009 to October 2011. Inclusion criteria for this study were patient of type 2 diabetes mellitus (T2DM) with age >20 years who had an HbA1c between 6% and 9% on a stable dose of oral hypoglycemic agents and lifestyle modification, i.e., exercise and diet control. Exclusion criteria to this study were insulin use, uncontrolled hypertension, poor glycemic control, i.e., HbA1c >9, pregnancy, type 1 diabetes, congestive cardiac failure, and overt nephropathy.

All participants were included after obtaining written informed consent. Ethical clearance from institutional ethics committee was obtained before commencing the study. A detailed history and examination were followed by routine biochemistry and screening for diabetic complications along with assessment of MINI neuropsychiatric scale for all participants. A 24-h urinary protein assessment was repeated at 3 months interval in patients with proteinuria at initial assessment.

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RESULTS

A total of 91 patients (53 males and 38 females) were recruited over 2.5 years of period. Their mean age was 49.65 ± 11.22 years (age in years) and mean duration of diabetes was 48.09 ± 41.44 (range: 1-180) months. Biochemical evaluation revealed mean FBS: 126.69 ± 25.80 mg/dl and mean HbA1c: 7.12 ± 0.81% [Table 1]. Family history of DM was present in 60.43% of patients, 6.59% were active smokers and 46.15% were obese (waist circumference ≥ 90 cm in males and ≥80 cm in females) [Table 2].

All but 6.59% (n = 6) of patients were dyslipidemic and only 25 of these were on antidyshlipidemic treatment. Isolated low HDL was most common abnormality (25.27%, n = 23), followed by combination of low HDL and raised LDL (17.58%, n = 16) [Tables 3 and 4]. Evaluation of complications showed retinopathy in just one patient, nephropathy in 17.68% (microalbuminuria in 9/51) [Table 5], and neuropathy in 10.97% (n = 9/82).

MINI neuropsychiatric scale for depression was positive in four patients and four other patients were on antidepressants with MINI scale negative. Thus, there were a total of eight patients either with MINI positive or on antidepressants making depression/anxiety present in 8/91 (8%) patients.

DISCUSSION

Both men and women with diabetes had total cholesterol and LDL cholesterol levels dissimilar to those in non-diabetic counterparts, but they had an increased prevalence of hypertriglyceridemia and low HDL cholesterol levels[10]. A similar pattern of altered plasma lipid profiles was observed in the UK Prospective Diabetes Study (UKPDS).[2,3] In UKPDS, total cholesterol levels of those with DM and control population did not differ. However, LDL cholesterol levels were higher in women with T2DM than women who were non-diabetic. The plasma triglyceride levels of patients with T2DM were substantially increased, whereas HDL cholesterol levels were markedly reduced in both men and women with DM compared with the non-diabetic controls.[2,3] In our study also, commonest findings were low HDL.

In a previous study from our institute (unpublished data), MINI scale was positive for depression in 27% of patients who had overt complications of diabetes and positive in 11% healthy controls. In this study, MINI scale for anxiety/depression was positive in 8.8% of patients. Ethnic/social background in both studies being similar, it can be postulated that diabetic complications contribute majorly toward depression.

| Parameter | Total (n=91) | Male (n=53) | Female (n=38) |
|-----------|-------------|------------|--------------|
| DM duration (months) | 48.09±41.44 | 52.48±47.51 | 42.27±31.37 |
| Age (years) | 49.65±11.22 | 49.61±12.11 | 49.70±10.09 |
| HbA1c (%) | 7.12±0.81 | 6.97±0.82 | 7.30±0.76 |
| FBS (mg/dl) | 126.69±25.80 | 123.76±22.21 | 130.57±29.78 |
| PP BS (mg/dl) | 168.67±38.87 | 165.10±39.06 | 173.41±38.67 |
| Total cholesterol (mg/dl) | 171.33±39.94 | 169.46±39.12 | 173.76±41.39 |
| LDL | 102.65±32.16 | 99.30±31.56 | 107.00±32.83 |
| TG | 140.54±75.39 | 147.94±88.83 | 130.89±52.84 |
| HDL | 42.66±14.84 | 40.59±18.57 | 44.05±7.75 |

DM: Diabetes mellitus
CONCLUSION

T2DM patients have very high prevalence of obesity and dyslipidemia even in patients with good glycemic control. This study allowed us to realize lacunae in our clinical practice regarding need for better care of lipid parameters. The incidence of depression in patients with diabetes without complications was comparable to healthy non-diabetic controls. The high incidence of depression in diabetes reported in previous studies could be due to presence of diabetes related complications rather than having genetic correlation.

REFERENCES

1. Kannel WB. Lipids, diabetes, and coronary heart disease: Insights from the Framingham study. Am Heart J 1985;110:1100-7.
2. U.K. Prospective diabetes study 27. Plasma lipids and lipoproteins at diagnosis of NIDDM by age and sex. Diabetes Care 1997;20:1683-7.
3. Mooradian AD. Dyslipidemia in type 2 diabetes mellitus. Nat Clin Pract Endocrinol Metab 2009;5:150-9.

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