



## Editorial

# Glycaemic Status of Diabetic Patients Attending a District Diabetic Hospital in Bangladesh

A R M Saifuddin Ekram<sup>1</sup>, M Nazmul Huda<sup>2</sup>

The worldwide prevalence of diabetes mellitus has risen dramatically over the past two decades and specially the prevalence of type 2 diabetes mellitus is expected to rise more rapidly in the future because of increasing obesity and reduced activity levels.<sup>1</sup> The prevalence of diabetes for worldwide was estimated to be 2.8% in 2000 and 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 recent report, the highest relative increase will occur in India, Middle East and Sub-Saharan Africa. In 2000, Bangladesh had 3.2 million people with diabetes and was listed at 10<sup>th</sup> position, which will occupy the 7<sup>th</sup> position with 111 million in 2030.<sup>2</sup>

Diabetes health care is not available everywhere in Bangladesh. Apart from BIRDEM, it is limited to some diabetic centers in our country. Most of the diabetic patients in Bangladesh are suffering from NIDDM and glycaemic status of diabetic patients varies from patient to patient and all are not equally controlled.

Chronic complications of diabetes mellitus are classified broadly into micro vascular and macro vascular complications. There is over-whelming evidence that chronic hyperglycemia is the main factor in the genesis and progression of micro vascular disease - retinopathy, neuropathy and nephropathy; sometimes called trio-pathy of diabetes mellitus<sup>3</sup> as well as macro vascular disease like cardiovascular diseases.<sup>4</sup> The DCCT<sup>5</sup>

demonstrated that improvement of glycaemic control reduced non-proliferative and proliferative retinopathy (47% reduction), micro albuminuria (39% reduction), clinical nephropathy (54% reduction) and neuropathy (60% reduction). UKPDS<sup>6</sup> studied the effect of intensive glycaemic control and risk factor treatment on the development of diabetic complications and demonstrated that the incidence of clinical complications was significantly associated with glycemia and each 1% percentage reduction in HbA1C was associated with a 37% reduction in micro-vascular complications and 14% for myocardial infarction, 21% for deaths related to complications.

Primary prevention of diabetes mellitus requires the identification and treatment of high-risk pre-diabetic subjects to avoid the onset of disease. Secondary prevention requires early detection of diabetes, which demands effective treatment. Tertiary prevention of diabetes mellitus aims to delay and or prevent more advanced complications. The importance of glycaemic control in the prevention of micro vascular complications has been confirmed in both type 1 and type 2 diabetic patients.<sup>7</sup> However, achievement of optimal glycaemic control remains a major challenge to health care providers.

Recently a cross-sectional study was conducted to observe the glycaemic status of one hundred diabetic patients attending Rajshahi Diabetic

<sup>1</sup> Professor, Department of Medicine, Rajshahi Medical College, Rajshahi.

<sup>2</sup> Post Graduate Student, MD (Internal Medicine), Rajshahi Medical College, Rajshahi.

Association. HbA1C level was estimated to see glycaemic status and role of certain factors on glycaemic status were assessed by interviewing the subjects with a prescribed questionnaire. Mean ( $\pm$ sd) age of study subjects was  $50.55\pm 12.5$  year. Male to female ratio was 3:2. Mean duration of diabetes mellitus was  $6.5\pm 5.7$  year in the study subjects. Result shows that glycaemic status of the subjects was poorly controlled. Good, moderate and poor glycaemic control was observed in 36%, 19% and 45% subjects respectively. Mean ( $\pm$ sd) HbA1c concentration was  $7.84\pm 2.0$  with a range of 4.8-15.1%. Statistically significant difference of HbA1c was observed in between the groups of subjects. Level of education, high family income, regular physical activity, and adherence to dietary advice and medication, regular follow-up and attendance to diabetic education class showed significant correlation with good glycaemic control. Small numbers (25%) of subjects monitor home blood sugar. Good glycaemic control was found in majority of these subjects. No influence of sex, occupation, positive family history and duration of diabetes mellitus was noted on glycaemic control was noted. Majority subjects had normal body mass index (BMI) and role of BMI on glycaemic control did not give any conclusive result.<sup>8</sup>

This study reminds us that we have a long way to go to achieve target glycaemic control of our diabetic population. Number of factors influences the glycaemic status of the diabetic subjects is clearly evident. Regular physical activity, adherence to dietary advice and medication, regular follow-up and attendance to diabetic education class could help to achieve a good glycaemic control. More equipped centers with well trained health care professionals are needed to bear the mammoth burden of diabetes mellitus.

Our Upazilla Health Complexes, District Hospitals and Medical College Hospitals should take proactive roles in this regard. Health education and more awareness creation activities are necessary to make the diabetic population health conscious.

## References

1. Libby P. Diabetes mellitus. In: Kasper D, Fouci AS, Longo D, Brounwald E, Houser S, Jamerson JL.(eds). Harrison's Principles of Internal Medicine. Mc Grow Hill Companies Inc. 2005; 2150-53.
2. Wild and Associates. Global Prevalence of Diabetes. Diabetes care. 2004; 27:1047-53.
3. Hanssen KF, Dahl-Jorgensen K, Lauritzen T et al. Diabetic control and micro vascular complications: The near normoglycaemic experience. Diabetologia. 1984; 29: 677-84.
4. Selvin E, Marinopoulos S, et al. Meta Analysis: Glycosylated Hemoglobin and Cardiovascular Disease in Diabetes Mellitus. Ann Intern Med. 2004; 141 (6): 421-31.
5. The Diabetes Control and Complications Trial Research Group (1993). The Effect of Intensive Treatment of Diabetes on the Development and Progression of Long-Term Complications in Insulin-Dependent Diabetes Mellitus. N Engl J Med. 1993 ;329(14):977-86
6. UKPDS. Intensive blood-glucose control with sulphonylureas or insulin compared with conventional treatment and risk of complications in patients with Type 2 Diabetes. Lancet.1998; 352:837-53.
7. Chan WB, Chan JCN, Chow CC et al. Glycaemic Control in Type 2 Diabetes: The Impact of Body Weight,  $\beta$  Cell Function and Patient Education. Q J Med. 2000; 93: 183-90.
8. Huda NM. A Study on Glycaemic Status of Diabetic Patients Attending in a District Diabetic Hospital. (Dissertation). Bangladesh College of Physicians and Surgeons, Dhaka, Bangladesh. 2008.

All correspondence to:  
A R M Saifuddin Ekram  
Professor,  
Department of Medicine,  
Rajshahi Medical College,  
Rajshahi.