INTRODUCTION:
Diabetes mellitus is the most common endocrine disease of this century. Changing lifestyle and urbanization has caused an increase in the incidence in developing countries, including India. As per the International Diabetes Federation, India has around 73 million diabetics in 2017, only second to China. Diabetes can lead to both micro and macro-vascular complications. Measurement of glycated hemoglobin (HbA1c) provides an objective, retrospective index of glycemic control and can to some extent also predict development of complications. For every 1% rise in glycated hemoglobin, there is an 18% rise in risk of cardiovascular disease. As per the International Diabetes Federation, India has around 73 million diabetics in 2017, only second to China. Diabetes can lead to both micro and macro-vascular complications. Measurement of glycated hemoglobin (HbA1c) provides an objective, retrospective index of glycemic control and can to some extent also predict development of complications. For every 1% rise in glycated hemoglobin, there is an 18% rise in risk of cardiovascular disease.

AIMS AND OBJECTIVES:
1. To find the prevalence of complications of type 2 diabetes mellitus.
2. To correlate the complications with the HbA1c levels.

MATERIALS AND METHODS:
This is single centre, observational study carried out in all diabetic patients admitted in Medicine Unit-5 of Assam Medical College and Hospital, Dibrugarh from March 2016 to February 2018. Data were collected in a proforma which included particulars of the patient, duration of diabetes and the clinical features at presentation. Ethical clearance was taken from the institutional committee.

Inclusion criteria:
1. Type 2 diabetes mellitus patients aged 30 years and above admitted in Medicine Unit-5 of Assam Medical College and Hospital, Dibrugarh.
2. Informed and written consent

Exclusion criteria:
1. Type 1 diabetes
2. Pregnant women

RESULTS:
Out of 289 patients studied, 181 (62.6%) were males and 108 (37.4%) were females (Fig 1).

Conclusion: HbA1c correlated well with the complications inspite of its inherent limitations.

ABSTRACT

Introduction: Diabetes mellitus is a chronic progressive metabolic condition. HbA1c has assumed a pivotal position not only to diagnose but also to predict the complications of diabetes mellitus.

Objectives: To study the complications of type 2 diabetes mellitus and to correlate with HbA1c levels.

Methods: This is single centre, observational study carried out in all diabetic patients above 30 years age in Medicine Department of Assam Medical College and Hospital, Dibrugarh from March 2016 to February 2018. Prevalence of six complications were studied- nephropathy, neuropathy, retinopathy, CVA, CAD and sepsis.

Results: 289 patients were taken up for study. 69.5% had evidence of retinopathy, 64.3% had nephropathy and 35.6% had neuropathy. Sepsis was present in 22.1% cases. 34.9% had CVA and 31.5% had CAD. Those with higher HbA1c had more prevalence of complications.

Conclusion: HbA1c correlated well with the complications inspite of its inherent limitations.
The sex distribution of the study group

Of these, 201 (69.5%) had evidence of retinopathy, 186 (64.3%) had nephropathy and 103 had neuropathy (35.6%). Sepsis was present in 64 (22.1%) cases. 101 (34.9%) had symptoms and/or signs of CVA and 91 (31.5%) had co-existing CAD (Fig. 2).

The mean HbA1C in the study group was 8.3%. Those with good control of glycemia (HbA <7%) had less prevalence of complications than those with poor control (Fig. 3).

DISCUSSION:
This study showed that the prevalence of retinopathy was highest among the six complications studied. Those having uncontrolled glycemic status were more prone to develop complications including CVA, CAD and sepsis. Similar results have been shown in other studies of this nature. Some studies have also shown that HbA1c may correlate with dyslipidemia which can be indirectly related to CAD. Thus, our study supports the fact that HbA1c correlates well with the complications of diabetes mellitus, both micro-vascular and macro-vascular. However, our study may have been confounded by several factors. First, 43% patients had co-existent hypertension which may have influenced the development of complications. Second, hemoglobinopathies are common in this part of the country which may have affected HbA1c values. Third, HbA1c may also have been affected by the presence of CKD in 27% of the study population. Lastly, health awareness and access to healthcare is not up to the mark in this remote corner of the country and the values represented here may reflect only the tip of the iceberg of the larger problem existing in the community.

CONCLUSION:
HbA1c is a useful tool for diagnosis of diabetes as well as a weak biomarker for predicting complications. However, it has its inherent limitations in respect of the co-existing diseases and the assay used. There is a need to discover a better marker for prognostication of diabetic patients in relation to the complications they might develop. Till that time, we can use this valuable tool as a rough guide to predict the natural course of diabetes mellitus.

REFERENCES:
2. Shewani et al. Significance of HbA1c Test in Diagnosis and Prognosis of Diabetic Patients. Biomarker Insights 2016; 11:95–104
4. Özermen et al. The Relationship Between Glycosylated Haemoglobin and Diabetic Retinopathy in Patients with Type 2 Diabetes. Turk Jem 2007; 11: 10-5
11. Martin-TimonI., Sevillano-CollantesC., Segura-GalindoA., del Cañizo-GómezF.J. Type 2 diabetes and cardiovascular disease: have all risk factors the same strength? World J Diabetes. 2014; 5: 444–70