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Biomarker Glycated Hemoglobin (HbA1c) in Diabetes Mellitus Type II

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ABSTRACT

Early diagnosis of diabetes is clinically important in reducing health complications worldwide. In this respect HbA1c has become an accurate biomarker for the diagnosis of Diabetes Mellitus (DM) and its complication[1]. In the present study HbA1c measured in subject of age <20,21-30,31-40 yrs and the level found to show high risk for DM in youngsters. Hence counselling at least once a month is warranted. To be most effective to reduce or prevent the prevalence in youngsters the importance of controlling HbA1c and keeping it at low level can be achieved by including in the curriculum right from school ageing. It will reduce the financial burden on state and central government authorities.

Key Words: HbA1c, Diabetes Mellitus 2

INTRODUCTION

Diabetes mellitus is recognised as a chorionic metabolic disease that can be differentiated by uncontrolled glucose level and increased risk of micro and macro vascular complications. About 4.5million adults were suffering from DM2 in 2008 as per International Federation of Diabetes. According to global standards Diabetes incidence among men and women in 9.8 and 9.2% respectively.

The complications of DM 2 directly correlated with increase and higher concentration of HbA1c. HbA1c enhance DM and its measurement is significant to differentiate normal and diabetic patients [2].

METHODOLOGY

All subjects were below the age of 40 years. Both males and females were included. It was for a period of one year. The samples were collected using disposables syringes in K_3 EDTA tubes and HbA1c measured using Bio-Rad D-10 Hemoglobin A1c testing system and D-10 dual programme cartridge pack supplied by AK Enterprises, Thiruvananthapuram. Internal BioRad QC was run every day. All samples analysed within 24 hrs of collection.

RESULT

The subjects were divided into 3 groups, Age < 20 yrs, 21-30 yrs, and 31-40 yrs. In 21-30 yrs and 31-40 yrs they were divided into males and females.

Reji et al (2016) reported that there is a high prevalence of DM2 in Trivandrum and stress the need for early detection through screening. The prevalence of DM2 in 1999 was 16.3% and apparent increase in prevalence was 13.7%. It points to the need to prevent the transformation of pre diabetes to DM2. This can be achieved by combination of individual community and population based approach and needs urgent cost effective community based approaches for screening and prevention. The awareness of DM2 is high but control rate uniformly low. This emphasise the importance of public health education and India is the capital of DM in the world. It is time to

wake up the health fraternity to fortifying effects to control the prevalence of DM2.

In males below 20 yrs HbA1C 6.1, 21-30 yrs 7.4 and 8.4 in 31-40 yrs. In females corresponding values were 4.7, 7.4 and 11.4 in 5 of the cases 31-40 the five cases came to 13.8.

The prevalence could be reduced by awareness and life style modifications along with exercise. Most of them are unaware of the fact that they are prone to DM2 which is preventable.

Table:

Age Yrs	HbA1c Mean±SD			
	n	Male	n	Female
Upto 20	50	6.1 ± 2.1	50	4.7 ± 2.8
21-30	50	7.4 ± 5.5	50	7.4 ± 3.2
31-40	50	8.4 ± 6.2	50	11.4 ± 8.2

DISCUSSION

Type 2 Diabetes mellitus can be completely reversed or prevented by life style modification and body exercise daily. The present study points the need for public community and population based approach for screening and prevention of transformation of pre diabetes to overt diabetes 2. The high risk of developing DM2 due to high HbA1c observed in individuals of age 20 to 40 years demands to create awareness to lower HbA1c so as to prevent or reduce the prevalence of DM2. This can be achieved by counselling at least once a month regarding the importance of HbA1c in preventing the transformation of pre diabetes to DM2.

This can be achieved by public health counselling by health fraternity. To be very effective the importance of controlling the HbA1c to prevent the onset to DM2 can be included in the school and college syllabus and guest lecturers arranged once a month so that the awareness can be brought which would help to reduce the DM2.

This is all the more important in subjects below the age of 20yers. The need for controlling HbA1c and its importance in developing DM2 can be included in school syllabus so that right from the schooling age the children will realise the need to control HbA1c. This is urgent since India is the second large country for DM2.

CONCLUSIONS

The level of HbA1c, the biomarker for DM2 is quite high in youngsters of age 20-40yrs. This points a high risk for developing DM2 and for the transformation of pre diabetes to overt diabetic. The awareness strategy should start right from school children so as to reduce HbA1c levels.

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