

Earlier vs. Early Screening of Covert Diabetes in the Innocent 30's

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Abstract : Increased prevalence and susceptibility to diabetes in the Indian phenotype, has warranted early screening for diabetes, for detection and prevention of complication among the Asian Indians. Currently the screening guidelines used are ADA 2015 guidelines and Indian Diabetes Risk Score system to identify asymptomatic type 2 diabetics for the prevalence of diabetes. ADA guidelines recommends screening as early as 45 years of age and Indian Diabetic Risk score system considers 35 years of age along with presence other parameters as a risk for diabetes. Our study shows, a much earlier (30 years of age onwards) screening for diabetes, , irrespective of any normal or abnormal clinical and biochemical parameters is necessary for the Indian phenotype group, for earlier detection of this Covert Diabetes in these innocent 30's.

Keywords: Earlier screening, 30 years, Covert Diabetes, Indian Phenotype, Screening Guidelines

I. Introduction

Increased prevalence of Diabetes in India, making India the Diabetic capital [1] has already led to wake up calls among the health fraternity to fortify efforts to control the prevalence as well as progression of Diabetes to its complications. To aid this effort, early screening tools for diagnosis and identification of high risk population tools are widely used for early detection and treatment. The American Diabetes Association 2015 recommendations [2] and the Indian Diabetic Risk Scoring [3] method are widely accepted and is in common practice in India. Indians as compared to the rest of the world along with their south Asian counterparts exhibit a salient phenotype which makes them, both an earlier as well as a delicate prey for the disease[4]. By far, the so called early screening tools and methods recommend early screening from 45 years onwards, Diabetes risk score is given from 35 years onwards and to those whose BMI or Waist circumference fall in the overweight category or above.

Though these tools are efficient enough for early screening, the Indian phenotype warrants a much earlier screening due to the covert nature of Diabetes in them. This study is undertaken to emphasis on the need for a much earlier and inquisitive screening approach for all adults from 30 years of age irrespective of, BMI and lipid profile being normal.

II. Aim

1. To study the Diabetes pattern in the Indian phenotype along with age, sex, HbA1c, Lipid profile, BMI.
2. To use TMT as a mean to detect presence of silent diabetic complications in the them in the form of inducible ischemia/coronary artery disease.

III. Materials And Methods

All patients (n=50) after informed consent, fulfilling both inclusion and exclusion criteria have been recruited for the study. A detailed clinical examination including history taking was performed and recorded, Bedside tests for autonomic dysfunction along with the following investigations were carried out : CBC, FBS, PPBS, HbA1c, resting ECG, serum Lipid profile, urea, Creatinine, urine for microalbuminuria and fundus examination and Tread Mill Test.

1.Inclusion criteria:

- 1.1 Diagnosed cases of Diabetes as per ADA guidelines of 2013 asymptomatic for ischemic heart disease age

2.Exclusion criteria:

- 2.1 Typical angina
- 2.2 Resting Electrocardiographic signs of myocardial ischemia
- 2.3 Severe and poor prognosis systemic disease
- 2.4 Age >70 years
- 2.5 Claudication observed at <400m
- 2.6 Left bundle branch block on resting ECG

3.TMT Was Aborted When One Of The Following End Points Were Reached:

- 3.1 Target heart rate 85% of predicted heart rate (220 beats/ min minus age in years)
- 3.2 Severe fatigue
- 3.3 Systolic blood pressure reduction
- 3.4 Hypertensive response (systolic pressure increase >250 mmHg and / or diastolic >115mmHg)

IV. Observations And Inferences

Table 1: Prevalence Of Diabetes In Different Age Groups

Age Group	30-34 Years	35-40 Years	41-50 Years	51-60 Years	61-70 Years
Total /50	5	9	13	11	12
%	10%	18%	26%	22%	24%
	28%				

10% of the patients diagnosed for diabetes belonged to 30 - 34 years age group , while 28% constituted 30 - 40 years age group.

TABLE 2: Hba1c IN 30-40 YEARS AGE GROUP

Age	32	33	33	33	34	35	35	36	36	36	37	38	38	38
Hba1c	9.3	8.8	9.4	8.7	9	7.7	9.8	8.7	9	8.8	8.4	9.3	9	8

All the 30 to 40 years age group , patients who were diagnosed to have diabetes, had deranged Hba1c levels.

Table 3 : Fasting Lipid Profile In 30-40 Years Age Group Diabetics

Age	32	33	33	33	34	35	35	36	36	36	37	38	38	38
LDL	138	133	96	146	80	87	91	108	83	145	84	129	154	148
HDL	33	39	33	37	35	37	36	37	32	35	37	36	39	37

All the diabetic patients who belonged to 30- 40 years age group had 57% of them had optimal/near optimal LDL levels and all of them had lower HDL levels.

TABLE 4 : Inducible ISCHEMIA IN 30-40 YEARS AGE GROUP DIABETICS

Age	32	33	33	33	34	35	35	36	36	36	37	38	38	38
TMT	-ve	-ve	-ve	-ve	-ve	+ve	-ve							

There was one case positive for inducible ischemia within the 30 - 40 years age group diabetics.

Table 5 : Bmi In 30-40 Years Age Group Diabetics

Age	32	33	33	33	34	35	35	36	36	36	37	38	38	38
BMI	28	22.9	24	25	22	28.3	32.6	25	19.9	35.9	28	30	20.8	23

42.8% of diabetic patients belonging to 30 to 40 years age group had normal BMI

V. Results And Analysis

1. Out of 50 diagnosed diabetes patients,5 belonged to the age group of 30 – 34 years and 14 belonged to 30 – 40 years of age respectively, which accounts for 10% of patients that would be missed by ADA screening methods and 28% of patients who would be given nil score for the age of the patient in the Indian Diabetes Risk Score calculation system.
2. All the patients including the 30 – 40 years age group 57% of them had near optimal LDL levels in spite of having elevated HbA1c levels , all of them had low HDL levels probably secondary to type 2 diabetes.[5]
3. 7.14% of the patients belong to 30 – 40 years of age were positive for inducible, which can be attributed as a cardiovascular complication of diabetes.
4. 42.8% of patients belonging to 30 – 40 years of age had normal BMI and in spite of having deranged Hba1c, hence these patients would escape screening for diabetes according to the ADA 2015 guidelines.

VI. Conclusion

Our study was initially aimed at studying the clinical, biochemical and TMT parameters of diabetic patients in the Indian phenotype belonging to 30 to70 year’s age group. Notably, a considerable number of patients were diagnosed to have diabetes in the 30 to 40 years age group itself out of which one patient was positive for inducible ischemia by the Tread Mill Test. The prevalence of diabetes in this age group inspite of normal BMI, normal HDL levels and more than half of them having optimal/near optimal LDL levels was also significantly interesting. Though the American Diabetes Association recommends screening for diabetes for those with overweight BMI and those above 45 years of age and the Indian diabetes scoring system considers

below 35 years age as no risk for diabetes, we recommend screening for diabetes for Indians from the age of 30 years onwards itself in spite of normal clinical and biochemical parameters, based on our study and observations.

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