DETERMINING THE BEST SCREENING STRATEGIES FOR GLUCOSE INTOLERANCE AND DIABETES MELLITUS IN PATIENTS WITH MYCOBACTERIUM TUBERCULOSIS INFECTION

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INTRODUCTION

• Diabetes is a long term metabolic disorder that characterized by high blood glucose, insulin resistance, and relative lack of insulin.

•Mycobacterium Tuberculosis is very common infection around worldwide specially in developing countries.

• The present study is a effort to correlate the correlation of diabetes and tuberculosis and best test to determine the prevalence of diabetes and glucose intolerance in tuberculosis patients .

Aims and Objectives

- To determine the best strategies for diagnosis of diabetes mellitus and glucose intolerance in patients with mycobacterium tuberculosis infection.

- To determine the best time for diagnosis of diabetes mellitus and glucose intolerance in patients with mycobacterium tuberculosis infection.

Methodology

Study design: Prospective Follow up study

Case selection: Patients (both male and female) attending Medicine and Pulmonary Medicine Department in MLN Medical College Prayagraj were the source of the data.

- **Inclusion criteria:** All consecutive adults with tuberculosis infection determined bacteriologically, histologically , clinically or radiologically were be recruited after informed consent .

- **Exclusion Criteria:** Patients with serious life threatening tuberculosis infection, pregnant women, those on steroid therapy and those unwilling for study related diagnostic procedures.

OBSERVATIONS

Comparison of mean age between males and females in case group

	CASES (n=70)	MEAN AGE	STANDARD DEVIATION	(p- VALUE)
MALE	37	44.75	14.83	**0.23**
FEMALE	33	49.97	15.10	

Comparison of BMI between males and females in case group

	CASES (n = 70)	MEAN	STANDARD DEVIATION	(p- VALUE)
MALE	37	21.62	2.85	0.578
FEMALE	33	22.06	3.50	

Comparison of residence between males and females in case group

	MALE (37)	FEMALE (33)	TOTAL (70)
RURAL	25(67.6%)	23(69.7%)	48(68.6%)
URBAN	12(32.4%)	10(30.3%)	22(31.4%)

Comparison of educational background between males and females in case group

	Male (n=37)	Female(n=33)	Total(n=70)
Illiterate	14 (37.8%)	11(33.3%)	25(35.7%)
Primary	14 (37.8%)	11(33.3%)	25(35.7%)
High school	4 (10.8%)	4(12.1%)	8 (11.4%)
Graduate	5 (13.5%)	7(21.2%)	12(17.1%)

## Comparison of Smoking habits between males and females in case group

	Male (n=37)	Female(n=33)	Total (n=70)
Yes	17	4	21
No	20	29	49

Comparison of alcohol consumption between males and females in case group

	Male (n=37)	Female(n=33)	Total (n=70)
Yes	17	2	19
No	20	31	51

- 70 patients with Tuberculosis were observed out of these
  10(14.28%) were known case of diabetes
  6(8.57%) were newly diagnosed diabetes
  12(17.14%) were prediabetes by A1C
  Out of 12 only 7(10%) were prediabetes by FPG and PPG.

- Total 40% Patients having glucose intolerance.

Study group

Legend:
- Diabetes mellitus
- Newly diagnosed DM
- Prediabetic
- Non-Diabetic

Values shown: 10, 6, 12, 42
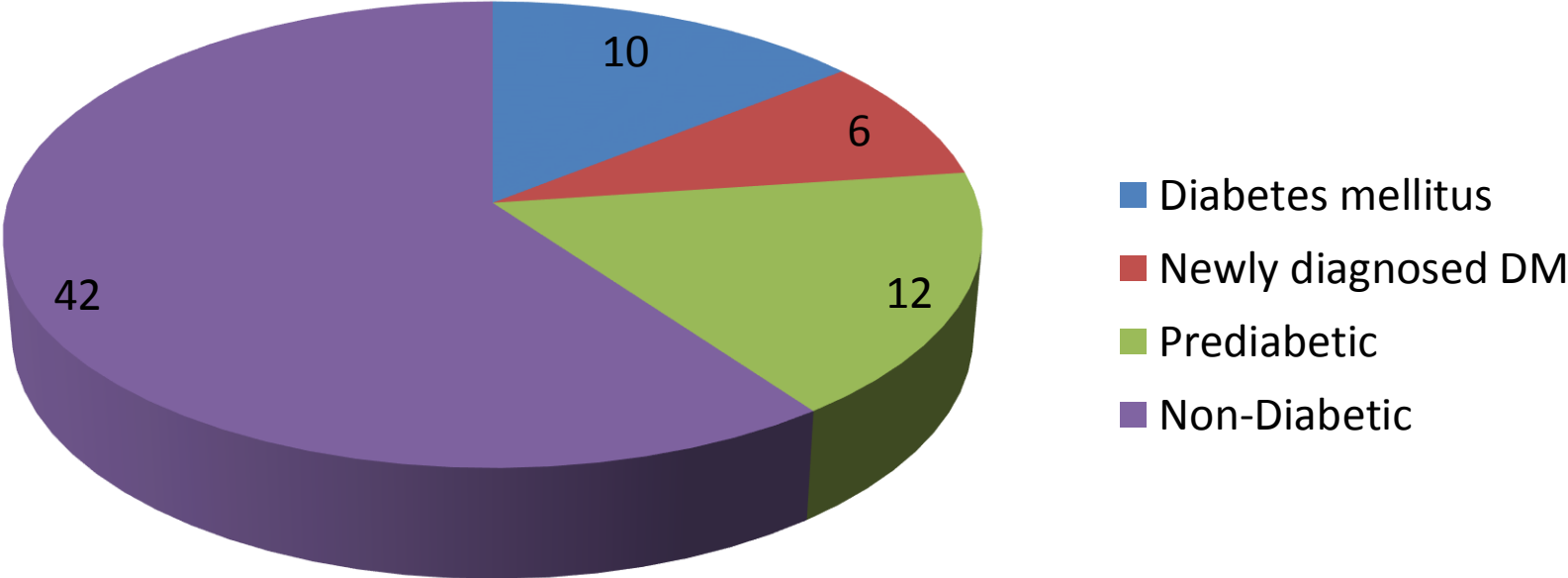
Prevalence of glucose intolerance among TB patients at the start of treatment

	Non Diabetic	Diabetic	Pre diabetic	Total
Total	42	16	12	70
Age **<30** **30-39** **>40**	- 12 7 23	- - 2 14	- 12	12 9 49
Gender **Male** **Female**	22 20	9 7	6 6	37 33
Smoker **Yes** **No**	11 31	7 9	3 9	21 49

Comparison of creatinine between Diabetes, Non Diabetes and Pre diabetes group

CASE	n	Mean	Std. Deviation	p Value
Diabetes	16	2.107	0.46	0.32
Pre Diabetes	12	1.51	0.51	
Non Diabetes	42	1.21	0.35	

- 41 patients were followed after 3 Months

- 6 Months follow up has been done in 22 patients out of 41.

- 4 Patients, who initially were non diabetic, were found to be pre-diabetic on follow up after 3 months.

- 2 Patients out of above 4, who were diagnosed as pre diabetic at 3 month of follow up, become non-diabetic at 6 month.

DISCUSSION

- In our study around 40% patients with tuberculosis were glucose intolerance. This was in accordance with the previous studies conducted by Viswnathan et al and Balrishanan et al .

- Around 10% patients developed glucose intolerance after having tuberculosis. Similar results were obtained in studies by Mansuri et al and A Malek et al .

- Around 8% patients developed transient hyperglycemia which was similar to results obtained by McEbula et al.
- A1C overestimate the glucose intolerance by around 7% . Similar results were obtained in studied by Assefa Getachew et al .

CONCLUSION

- Risk of diabetes mellitus is more in tubercular patients as compared to healthy individual.

- FPG and PPG is better screening test than A1C.

- A1C over estimate the prevalence of pre diabetes

THANK YOU