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Study of Treatment Outcome in Diabetes Mellitus Patients Receiving Directly Observed Treatment Short course (DOTS) for Pulmonary Tuberculosis in Kanyakumari Government Medical College and Hospital: A Retrospective Study

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Abstract
Background: *Tuberculosis if untreated, the disease may be fatal within five years in 50%-65% of cases. More than 5.7 million new cases of TB were reported to WHO in 2013.About 95% of cases from developing countries. Multiple studies of tuberculosis treatment show that patients with diabetes mellitus may experience poor outcomes.*
Materials and Methodology: *The demographic profile of pulmonary tuberculosis patient with diabetes was determined by retrospective study on all cases of pulmonary tuberculosis with diabetes admitted in Kanyakumari Govt medical college and hospital from January 2015 to June 2016 for a period of 18 months.*
Results: *In this study outof the 101 cases, males were predominant, contributing to 86.8% of the total study population. Females contributed about 15.2%. Out of that, cure rates were achieved in 84.8% and the failure rates contributed to 5%. Among the cured patients around 70% are treated with Insulin for diabetes mellitus.*
Conclusion: *DM patients have increased incidence of TB and poor outcome like failure and relapse. Butgood glycemic control with insulin give better outcome.*
Keywords: *HbA_1C (glycosylated haemoglobin), DM (Diabetes Mellitus), TB (Tuberculosis), DOTS (Directly Observed Treatment Shortcourse), MDR TB (multidrug resistance Tuberculosis).*

Introduction

Diabetes Mellitus (DM) refers to a group of common metabolic disorders that share the phenotype of hyperglycaemia. .Individuals with DM have a greater frequency and severity of infection. The reason for this include incompletely defined abnormalities in cell mediated immunity and phagocyte function associated with hyperglycaemia. Tuberculosis is one of the more frequent pulmonary infection. The association between tuberculosis and DM has been increasing nowadays. The ADA (American Diabetes Association) suggests per meal glucose of <7.8 mmol/L (140 mg/dl) and at other times blood glucose < 10 mmol/L(180 mg/dl) as a glycaemic goal.

Methods and Study Design

Cases admitted in Kanyakumari Govt medical college from January 2015 to June 2016 were

studied in this record-based retrospective study. The new and retreatment TB patients above 15 years of age and attending directly observed treatment short course (DOTS) clinics were undertaken in this study.

Inclusion Criteria

Pulmonary TB patients on category I and II ATT above 15 years of age.

Exclusion Criteria

- Patients below 15 years of age,
- Suspected or known multidrug resistance (MDR) TB patients
- Patients diagnosed with any diseases other than TB and DM were also excluded.

The information in the case sheets were entered in the pre-coded proforma which included age, sex, HIV status, site of disease and sputum positivity.

Results

A total of 101 cases of pulmonary tuberculosis with diabetes were analysed during the period of 18 months from January 2015 to June 2016. Out of the 101 cases, males were the predominant, contributing to 86.8% of the total study population. Females contributed about 13.2%. Out of that, cure rates were achieved in 84.8% and the failure rates contributed to 5%. The percentage of defaulters was 7%; similarly 5% of the study population died during the study. The sex wise distribution is given in figure 1 and age of distribution in figure 2.

The treatment outcome in different categories with OHA, Insulin and irregular treatment is given in figure 3. The mean RBS and HbA_1C Values in different category is given in table 2.

Diabetic treatment modalities in study group is given in figure 4.

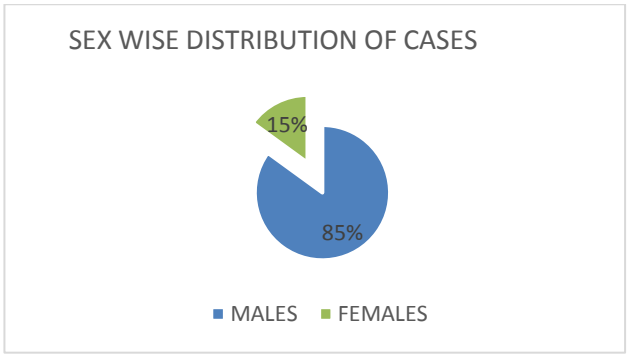

Figure 1 Sex distribution

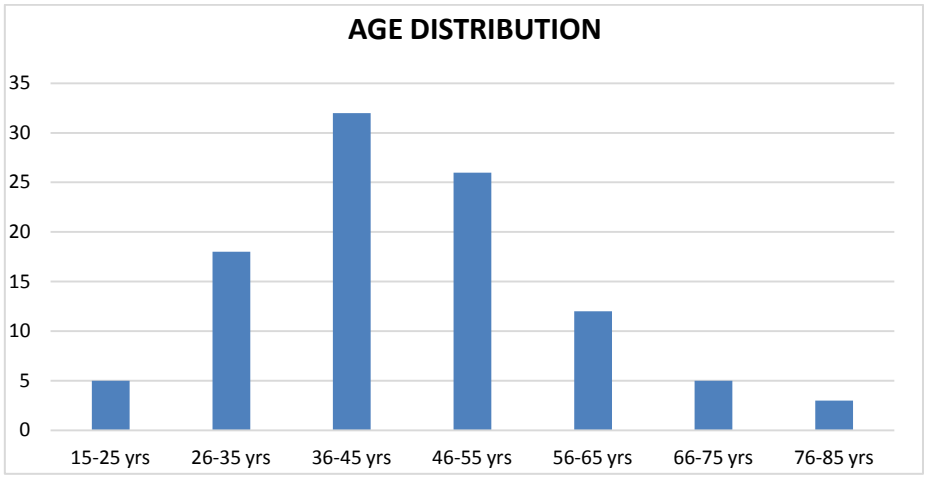

Figure 2 Age Distribution

Table :1 Characteristics of enrolled patients:

Male	86
Female	15
Mean age	40+/-4
Family h/o TB	5
Pulmonary TB	101
Alcoholics	58
Smoking & Alcoholic	76
Tobacco Chewing	12

Treatment Outcome of Pulmonary Tuberculosis in Diabetes Mellitus with OHA, Insulin and Irregular Treatment

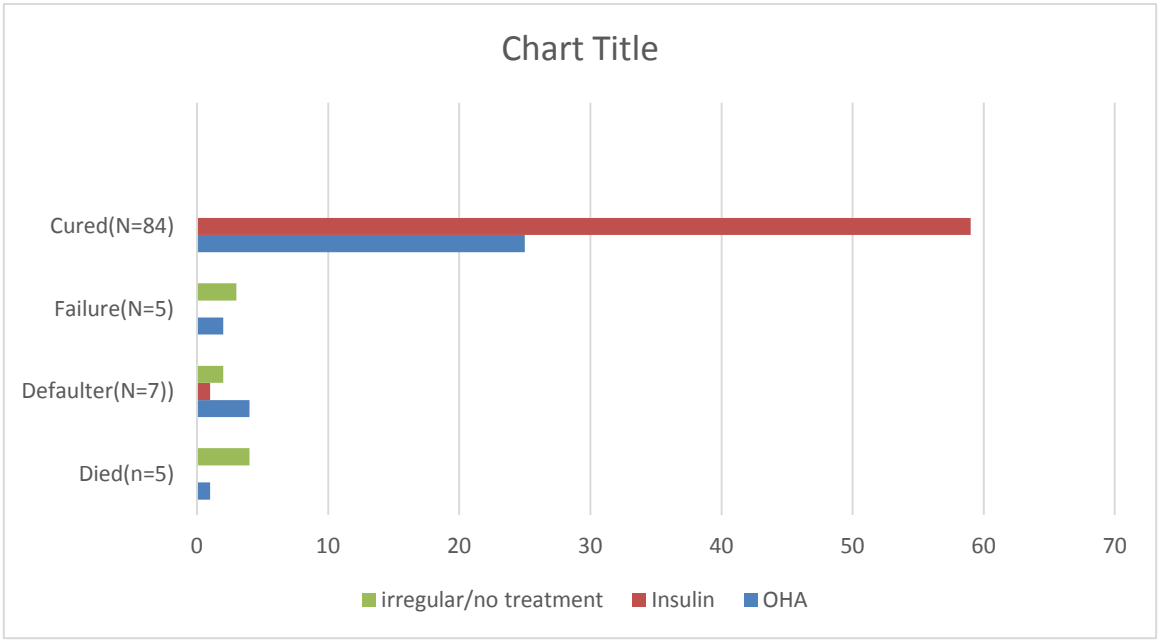

Figure:3

Table :2 Comparision of Mean RBS and HbA_1C in the study group:

Category	Mean RBS(mg/dl)	HbA_1C(%)
Cured N=84	145	6.7
Failure N=5	231	9.7
Defaulter N=7	200	8.6
Died N=5	194	8.4

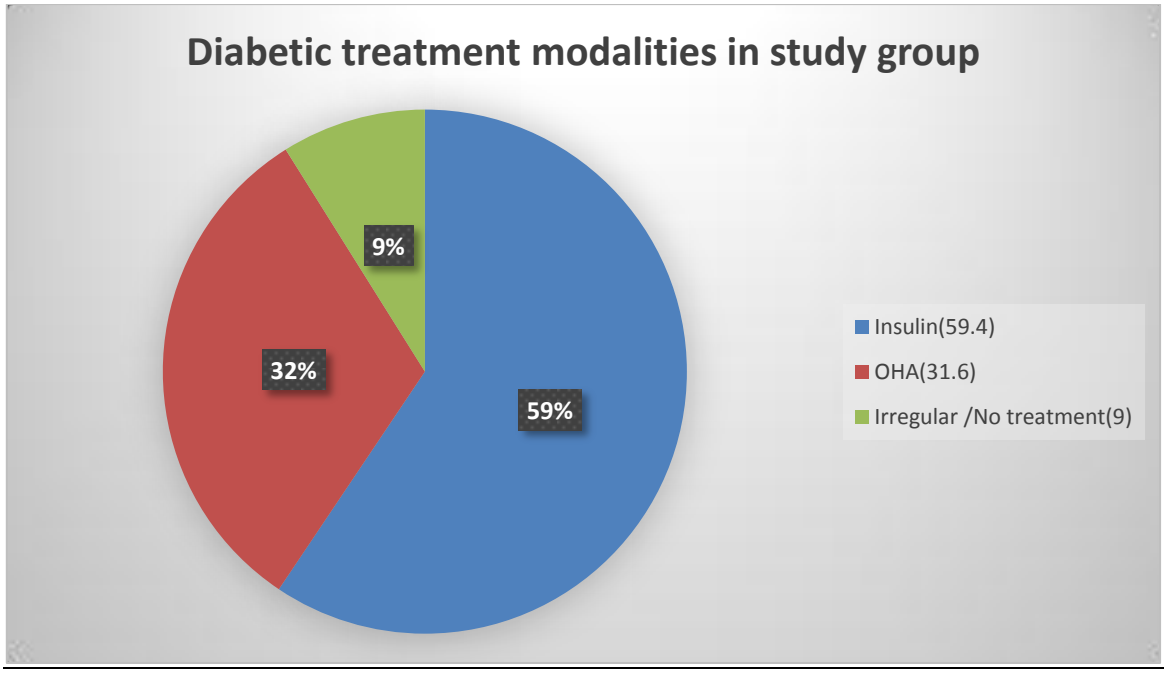

Figure: 4

Conclusion

Kanyakumari government medical college, being one of the tertiary care centres has a cure rate of 84.8% which is by better Glycemic control and treatment compliance. Duration of DM and HbA_1C levels are the main factors responsible for treatment outcome. However, the study was limited by power, only 101 patients with DM were included among the analysis of treatment failure. A clear understanding of the effects of glucose control on TB treatment outcomes is an important factor.

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