DIABETES – TUBERCULOSIS COMORBIDITY IN ESWATINI: FINDINGS FROM A COHORT OF CLIENTS WHO RECEIVED TUBERCULOSIS CARE

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INTRODUCTION

- Non-communicable diseases (NCDs) is increasing globally.
- The highest increase is in Low- and Middle-Income Countries.
- Sub-Saharan Africa (SSA) is also burdened by Diabetes mellitus (DM) and Tuberculosis (TB).
- DM increases the risk of TB disease, unfavourable treatment outcomes and relapse.
- DM prevalence in Eswatini is 3.6% and prevalence in TB patients is unknown.
- We describe DM-TB prevalence in Eswatini, predictors of elevated baseline blood glucose and unfavourable TB treatment outcomes

METHODOLOGY

- Prospective cohort study design
- 11 TB clinics in Eswatini.
- Adults ≥18 years starting TB treatment
- Enrolment period: 01 June – 30 Sep 2022
- Random blood glucose measurements at baseline, months 2 and 5.
- Clinical data obtained from treatment cards from baseline till the end of TB treatment
- Blood glucose was elevated if random≥11.1mmol/l or fasting>5.5mmol/l.
- Descriptive analysis of client characteristics and the prevalence of elevated baseline blood glucose.
- Logistic regression estimated the adjusted odds ratio (AOR) of the predictors of elevated baseline blood glucose and unfavourable TB treatment outcomes.

RESULTS

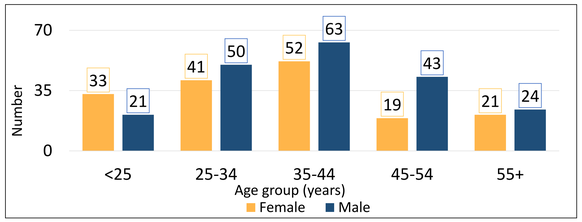

Fig.1: Age and sex distribution of study participants

- 369 participants enrolled in the study; 55% (n=202) were males and the mean age was 38.4 years (SD: 12.9).
- 279 (76%) had a reactive HIV status and 54 (15%) had a family history of DM
- 357 (97%) enrolled for drug sensitive TB; 323 (87.5%) for new TB;29 (7.9%) for previously treated TB and 16 (4.3%) for relapse TB.

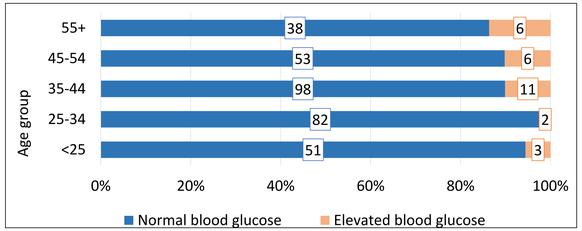

Fig.2: Participants blood glucose by age group

- 352 participants (95%) had baseline glucose
- The median baseline blood glucose was 5.5mmol/l (IQR:4.8, 6.7)
  - Females: 5.5mmol/l (IQR: 4.9, 6.4)
  - Males: 5.6mmol/l (IQR: 4.8, 6.8)
  - Compared to baseline:
    - Month 2: 5.3mmol/l (IQR: 4.8, 6.2) (p=0.0413)
    - Month 5: 5.2mmol/l (IQR: 4.8, 5.9) (p=0.0002)

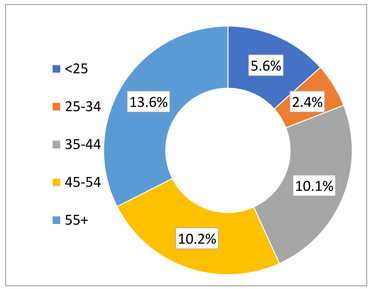

Fig.3: Baseline prevalence by age group.

Baseline prevalence of elevated blood glucose

- Overall prevalence 8.0%
- Females 6.8%, Males 8.9% (p=0.4750).
- High prevalence in older adults aged 55+ years at 13.6%
- HIV+ve 9.5%, HIV-ve 3.4% (p=0.0271)
- Month 2 prevalence 3.8%
- Month 5 prevalence 1.5%

Predictors of elevated baseline blood glucose

- A positive family history of DM (AOR 2.80; 95% CI: 1.08, 7.32; P=0.0350) and
- A reactive HIV status (AOR 4.62; 95% CI: 1.06, 20.11; p=0.0420

TB Treatment Outcomes

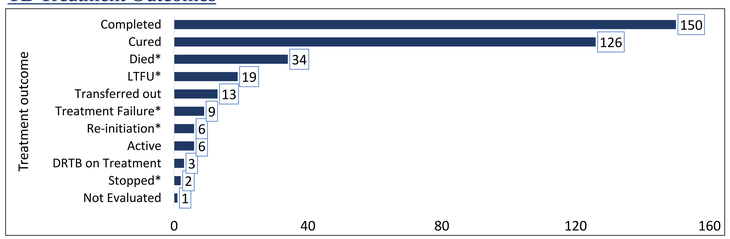

*Fig.4: TB treatment outcomes. *Unfavourable treatment outcomes. 25% of participants had an unfavourable outcome. LTFU – Loss to follow up.*

- Predictors of Unfavourable TB Treatment Outcomes
  - Hypertension (AOR 4.84; p=0.009)
  - Unemployment (AOR 2.01; 95% p=0.0270)
  - High school education (AOR 0.32; p=0.0010)
  - Elevated blood glucose was not a predictor

CONCLUSIONS

- The prevalence of elevated blood glucose is high in people receiving TB treatment.
- The odds of DM were higher for those with a HIV+ status and family history of DM .
- The most common unfavourable outcome was death and LTFU
- Hypertension and unemployment were associated with unfavourable TB outcomes. Education was protective.
- DM was not associated with unfavourable TB treatment outcome
- Increasing education options, limiting unemployment, screening and treatment for hypertension can reduce unfavourable TB treatment outcomes.

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