

Management of TB/HIV Co-infected Patients Including MDR-TB in Eastern Europe: Results from the TB:HIV Study

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INTRODUCTION

Eastern Europe (EE) holds one of the world highest rates of multi-drug resistant (MDR) TB, which is continuously growing. Simultaneously, the TB/HIV epidemic is rapidly increasing. Data on treatment management of TB/HIV co-infected patients in EE including MDR-TB remain scarce.

OBJECTIVES

- To perform a detailed analysis on how TB/HIV co-infected patients are being treated for their TB disease in EE, with a special focus on MDR-TB.
- To assess use of and timing of ART.

METHODS

From the TB:HIV study, we included 485 patients from 20 clinics in 9 countries in EE. Patients were diagnosed with definite TB (culture/PCR positive for *Mycobacterium tuberculosis* (*Mtb*)), or probable TB (smear positive for acid fast bacilli or a biopsy compatible with TB by histology). Baseline was defined as time of TB treatment initiation. Patients having either MDR-TB, no DST result, or susceptible TB were described according to five different treatment categories at baseline (month 0) and at month 3, 7, 13, and 21, respectively. DST results were based on specimens obtained within one month of baseline.

RESULTS

- Patient characteristics are shown in **table 1**.
 - The majority of all patients (69%) were initiated on a RHZ-based regimen and only 25 (5%) were on a regimen covering for potential MDR-TB (category two or three, **table 2**).
- TB Treatment for MDR-TB patients (N=105):**
- Eight (8%) initiated an optimal regimen for treating MDR-TB (table 2, category 3) at baseline, i.e. at a time when DST results and the MDR-TB diagnosis were not known and thus not yet available to the clinicians (time 0, left columns, **figure 1**).
 - At month three (i.e. at a time where DST results should be known to the clinicians), 35 (44% still under follow-up (FU)) patients received category 3 treatment.
 - After three months of treatment, previous TB, pulmonary disease, and being older were all significantly associated with receiving optimal care (category 3 treatment) (data not shown).
 - 47% of patients died, and 8% were lost to follow-up at month 21.

Number of active drugs for MDR-TB patients:

- At baseline, almost all (90%) of the MDR-TB patients were treated with two or fewer active drugs (**figure 2a**). Three months later (when DST results should be available to clinicians), around one-third of patients were still being treated with two or fewer active drugs, while the proportion on five or more active drugs had increased from 6% at baseline to 34% of patients still under FU.
- In **figure 2b**, where only known DST results were included (and not assuming susceptibility where a DST result was missing), the proportion of patients on two or less active drugs was 95% at baseline and 63% of patients under FU at month three.

TB treatment for patients with no DST results (N=183):

- Half of the patients with no baseline DST result available in this high-prevalent MDR-TB region were initiated on a RHZ-based regimen, this proportion rapidly reduced at month three to 26% of patients still under FU (middle columns, **figure 1**).
- Below 10% of patients under FU were treated with an MDR-TB treatment regimen at the various time-points (category 3).
- 38% of patients had died, and 20% of patients were lost to follow-up at month 21.

TB treatment for patients with susceptible TB (N=130):

- The majority (80%) of patients with susceptible TB initiated treatment with a RHZ-based regimen, and after three months, 61% of patients under FU remained on RHZ-based therapy.
- At month 7, when standard treatment for susceptible TB has usually ended, 63% of patients under FU remained on TB treatment (right columns, **figure 1**).
- 15% had died, and 20% of patients were lost to follow-up at month 21.

Antiretroviral treatment (ART):

- 359 patients (74%) started ART during entire FU. By two months, the Kaplan-Meier probability of starting ART was 60% (IQR 53-67%) (**figure 3**).

CONCLUSION

- Management of TB/HIV co-infected patients in EE can be improved, and scale-up of laboratory capacity including extended DST answers is urgently needed in this high-prevalent MDR-TB area. Second-line TB drugs and ART should be easily accessible for clinicians, and health care should be integrated for these vulnerable patients, many of whom also need social support.

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