Long Term Follow-up of Treated Tuberculosis Patients

ICMR-National Institute for Research in Tuberculosis, Chennai

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Policy Brief

Summary

India continues its efforts in the fight against tuberculosis (TB) through its National Tuberculosis Elimination Program (NTEP). Though there is improved treatment outcome and a steady decline in mortality rate in recent years, long-term survival of these patients post treatment still remains of concern.

It has been found that the mortality among those diagnosed and treated for TB is two times higher than those not affected by TB.[1] Among population subgroups mortality was higher in males and in younger age group of 15 to 24 years. This would affect the country's economy both at the individual and at the national level.

Emphasizing on the importance of post-TB care, we recommend NTEP to prioritize strategies that will alleviate post-TB treatment respiratory morbidity, mortality and TB recurrence along with ensuring early case detection, treatment initiation, and regularity of treatment.

Recommendations

- NTEP has to prioritize strategies to alleviate post-TB treatment respiratory morbidity and mortality besides ensuring early case detection, treatment initiation, and treatment adherence.
- Implementation of the long-term follow-up along with appropriate intervention for co-morbid conditions every 6 months till three years post-TB treatment is recommended to prevent premature mortality.
- TB programme managers should consider integrating regular counselling for smoking and alcohol cessation in routine TB care services to reduce TB mortality.
- Large scale implementation research on vaccination of treated cases should be conducted to ascertain reduction of TB recurrence and post-TB treatment mortality.

Background

India is the highest contributor to the global TB burden. The National Tuberculosis Elimination Program (NTEP) of Government of India, has taken on an ambitious goal of eliminating TB in the country by the year 2025, which is five years ahead of the Sustainable Development Goal (SDG) of the United Nations General Assembly. This program prioritizes early accurate diagnosis and prompt initiation of treatment. The flagship schemes such as Direct Benefit Transfer (DBT) and online notification by the NIKSHAY portal under this program have helped in systematic notification and follow-up of the TB patients. This has increased the treatment uptake and success rate. These efforts have resulted in improved treatment outcomes and a steady decline in the mortality rate between 2000 and 2019 which is on par with the global outcome.

However, treatment outcomes may not reflect the long-term survival in these individuals, given the functional impairment in the lungs secondary to the disease. TB survivors are at increased risk of all-cause mortality and reduced life expectancy irrespective of adequate TB treatment.

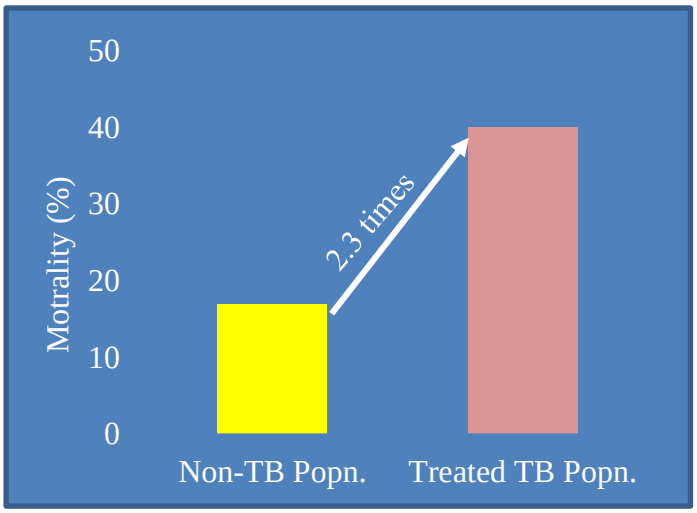
Key Messages

- Even though TB patients were treated successfully, the long-term follow-up of individuals treated for TB showed that there was an excess of premature deaths among individuals affected by TB.
- Risk of death was significantly higher in the treated TB population than the non-TB general population.
- The excess standardized mortality was 2.3 times higher among treated TB cases as compared to general (non-TB) population.
- Most deaths occurred in the first year after completing treatment.
- Potential years of life lost was 6.15 per 1000 in treated TB population and 1.52 per 1000 in non-TB population.
- Regular counselling or creating awareness about TB and its consequences among smokers, alcoholics, and other risk groups will also help to reduce TB-related mortality.

Evaluation of survival after TB treatment not only allows estimation of the burden of post-TB mortality in the community but also identifies the vulnerable population and helps plan interventions to reduce post-TB sequelae including death. Risk factors and vulnerable populations may vary from country to country given the differences in the habits, diet, and ethnicity of the population. Evidence on survival of TB patients is available only for either during the course of treatment or immediately post-treatment. Long-term survival of patients after-TB treatment is rarely described.[2,3] Two studies carried out by ICMR institutes—one a matched cohort study from South India[1] and another a longitudinal study from Central India provide information on the same.[4] This evidence may help plan interventions to reduce post-TB sequelae and effective implementation of the same.

In summary, the findings show that the mortality among those diagnosed and treated for TB was two times higher than those not affected. The overall Standardized Mortality Ratio (SMR) was 2.3 (95% CI: 1.7 - 3.1). Mortality was higher among males than females in both groups. The population attributable risk was 5.2% in males. Absolute loss of years attributable to TB (5.8 years) was found to be higher among the 15 to 24 year age group. The mortality rate per 1000 was assessed and found that in the age group of 15-24, 25-40, 41-50, and 51-64 years it was 13.4, 38.8, 87.2, and 136.3 versus 5.4, 7.5, 19.5, and 49.1 respectively in TB treated and control group.

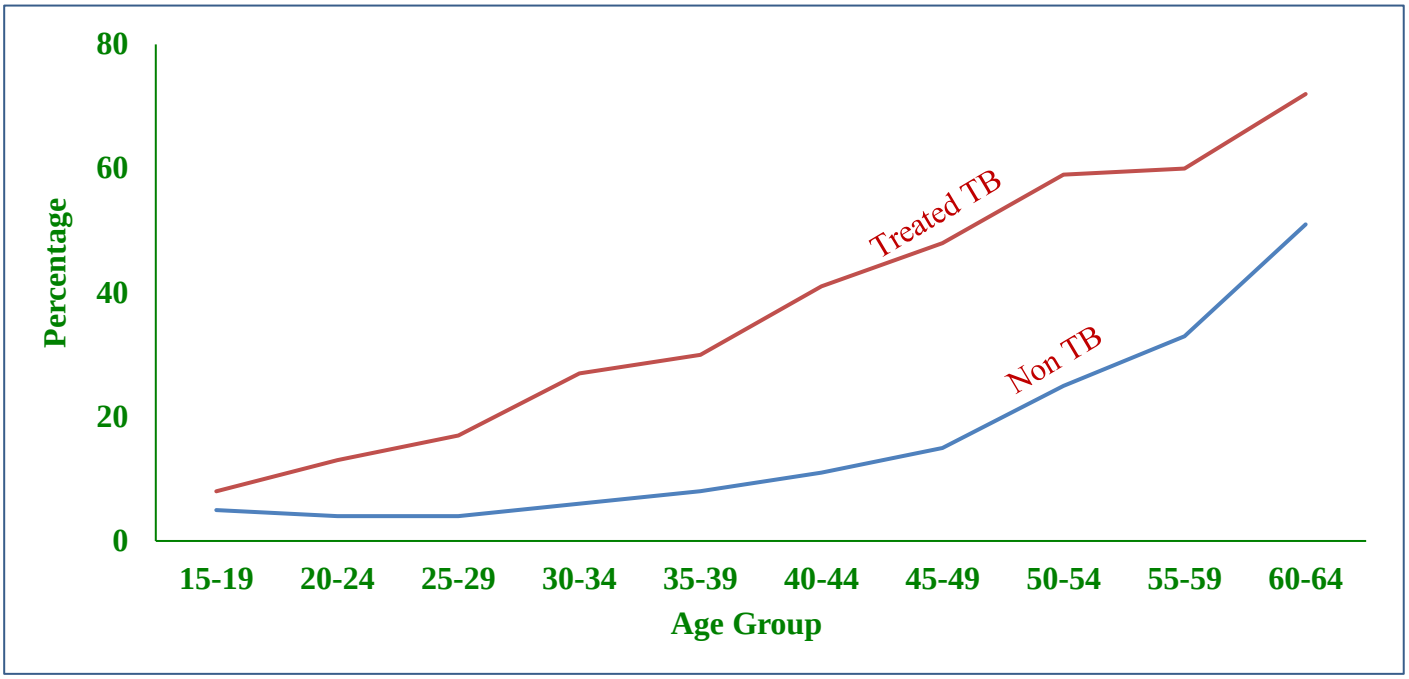
Excess mortality was 2.3 times higher in treated TB population as compared to non-TB population



Evaluating various risk factors, individuals aged more than 50 years were 4.6 times, males 1.28 times, smokers 2.6 times, illiterate 1.25 times, and unemployed had 1.41 times higher chances of death as compared to control group. In order to avoid deaths among treated TB patients, there has to be some efforts to implement new interventions.

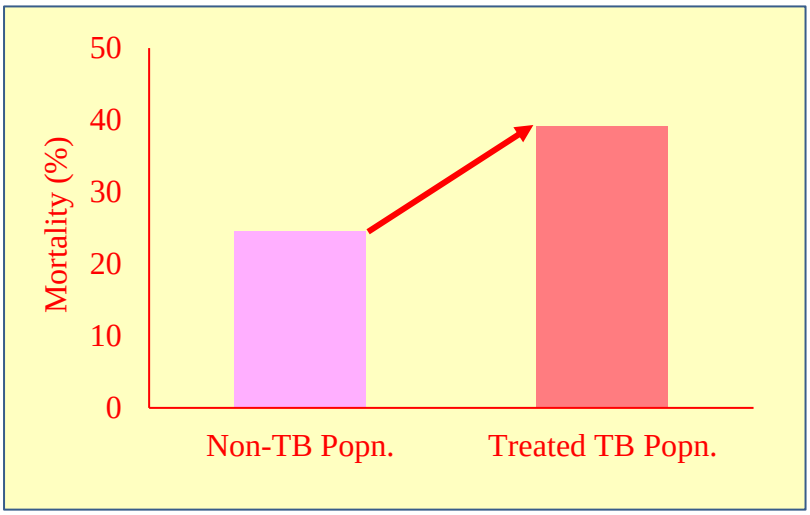
A higher number of deaths (42%) were observed in those who had the pulmonary form of TB as compared to (18%) extrapulmonary TB. Those who had the non-DOTS form of treatment reported high death rate (66%). Similarly, those who were lost to follow-up (65.6%) or failed treatment (62.5%) had higher cumulative death rates as compared to those who were cured (32.7%) or completed treatment (32.3%). All treated patients having any symptoms of the disease during post treatment follow-up have to undergo sputum culture and sensitivity testing for early diagnosis of drug resistant TB which may reduce mortality due to resistant TB. Mortality also was found to be higher among alcoholics (8.5), tobacco users (8.6), and persons with comorbidities (8.5)[1].

Age specific mortality among TB treated and control group



Age specific mortalriy among TB treated and control group found that in all age groups the mortality rate was higher among treated TB persosn as compared to control groups.

Potential Years of Life Lost (PYLL)



Conclusion

Even after successful completion of treatment, quality of life of treated TB patients are compromised. This is due to higher rates of post-TB sequale in terms of respiratory morbidity and mortality. When TB affects the younger population, post-TB morbidity not only affects the individual but also the country's productivity. Hence, the NTEP has to prioritize appropriate strategies to reduce mortality post-TB treatment.

This policy brief is based upon the study on "Long-term Survival of Treated Tuberculosis Patients in Comparison to a General Population In South India: A Matched Cohort Study"

References

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