Abstracts

1. Prevalence Survey of Bacillary Pulmonary Tuberculosis in Western Uttar Pradesh, India

Katoch K, Chauhan DS , Yadav VK, Katoch V, Upadhay P, Sharada MA and Chadha VK: India. J Infect Pulm Dis, 2015: 1(2): doi http:// dx.doi.org/10.16966/2470-3176.108

Settings and Objectives:

A house to house, cross sectional, symptom elucitation, survey was conducted in two randomly selected districts of Western Uttar Pradesh, (Banda and Kanpur Nagar). This was as per the common national format to assess the prevalence of pulmonary tuberculosis in the community aged ≥ 15 years, developed by the Central Tuberculosis Division (CTD), Ministry of Health and Family Welfare, Government of India. The study was undertaken after taking informed written consent of all subjects.

Methods and Study Population:

More than 98% of 96,476 population of selected proportional to size (PPS) clusters of these districts were screened by trained workers on symptomatology elucidation. Diagnosis of pulmonary tuberculosis was done by AFB sputum positivity on light microscopy and/or culture positivity for MTB on LJ medium.

Results:

About 7.6% of the screened population was chest symptomatic. Three hundred and forty five patients were AFB positive/MTB culture positive in the screened population. The crude prevalence rate was 357.6/100000 and corrected prevalence for the whole registered population 385.2/100000 (range (328-441 with 95% CI). Pulmonary tuberculosis was observed more in males as compared to females, more in urban areas as compared to rural areas and increased progressively with age, highest rates were observed for 65 years and above age groups. About 76% of cases were AFB positive by light microscopy; 58% were culture positive on LJ medium; 23.5% were smear negative but culture positive.

Conclusions:

Using a common national protocol this study for the first time provides baseline prevalence rate of bacillary pulmonary tuberculosis in the area. This prevalence is higher than the reported national average. Diagnosis by both smear microscopy and culture has been observed to be a better strategy for detection of tuberculosis.

Key words: *AFB; Sputum positivity; Light microscopy; Culture positivity; MTB; DOTS*

2. The Tuberculosis Cascade of Care in India's Public Sector: A Systematic Review and Meta-analysis.

Subbaraman R, Nathavitharana RR, Satyanarayana S, Pai M, Thomas BE, Chadha VK, Rade K, Swaminathan S, Mayer KH; PLoS Med. 2016 Oct 25;13(10):e1002149. doi:10.1371/journal.pmed.1002149.

Background:

India has 23% of the global burden of active tuberculosis (TB) patients and 27% of the world's "missing" patients, which includes those who may not have received effective TB care and could potentially spread TB to others. The "cascade of care" is a useful model for visualizing deficiencies in case detection and retention in care, in order to prioritize interventions.

Methods and findings:

The care cascade constructed in this paper focuses on the Revised National TB Control Programme (RNTCP), which treats about half of India's TB patients. We define the TB cascade as including the following patient populations: total prevalent active TB patients in India, TB patients who reach and undergo evaluation at RNTCP diagnostic facilities, patients successfully diagnosed with TB, patients who start treatment, patients retained to treatment completion, and patients who achieve 1-y recurrence-free survival. We estimate each step of the cascade for 2013 using data from two World Health Organization (WHO) reports (2014-2015), one WHO dataset (2015), and three RNTCP reports (2014-2016). In addition, we conduct three targeted systematic reviews of the scientific literature to identify 39 unique articles published from 2000-2015 that provide additional data on five indicators that help estimate different steps of the TB cascade. We construct separate care cascades for the overall population of patients with active TB and for patients with specific forms of TB-including new smear-positive, new smear-negative, retreatment smear-positive, and multidrug-resistant (MDR) TB. The WHO estimated that there were 2,700,000 (95%CI: 1,800,000-3,800,000) prevalent TB patients in India in 2013. Of these patients, we estimate that 1,938,027 (72%) TB patients were evaluated at RNTCP facilities; 1,629,906 (60%) were successfully diagnosed; 1,417,838 (53%) got registered for treatment; 1,221,764 (45%) completed treatment; and 1,049,237 (95%CI: 1,008,775-1,083,243), or 39%, of 2,700,000 TB patients achieved the optimal outcome of 1-y recurrence-free survival. The separate cascades for different forms of TB highlight different patterns of patient attrition. Pretreatment loss to follow-up of diagnosed patients and post-treatment TB recurrence were major points of attrition in the new smear-positive TB cascade. In the new smear-negative and MDR TB cascades, a substantial proportion of patients who were evaluated at RNTCP diagnostic facilities were not successfully diagnosed. Retreatment smear-positive and MDR TB patients had poorer treatment outcomes than the general TB population. Limitations of our analysis include the lack of available data on the cascade of care in the private sector and substantial uncertainty regarding the 1-y period prevalence of TB in India.

Conclusions:

Increasing case detection is critical to improving outcomes in India's TB cascade of care, especially for smear-negative and MDR TB patients. For new smear-positive patients, pre-treatment loss to follow-up and post-treatment TB recurrence are

considerable points of attrition that may contribute to ongoing TB transmission. Future multisite studies providing more accurate information on key steps in the public sector TB cascade and extension of this analysis to private sector patients may help to better target interventions and resources for TB control in India.

Key words: *Directly observed therapy; Multidrug-resistant; Tuberculosis; Revised National TB Control Programme; Public Sector; Systematic Review and Meta-analysis*

3. Relationship between Nutritional Support and Tuberculosis Treatment Outcomes in West Bengal, India

Samuel, B. and Volkmann, T. and Cornelius, S. and Mukhopadhay, S. and MejoJose, and Mitra, K. and Kumar, A. M. V. and Oeltmann, J. E. and Parija, S. and Prabhakaran, A. O. and Moonan, P. K. and Chadha, V. K. (2016) India J Tuberc Res, 4 (4). pp. 213-219.

Introduction

Poverty and poor nutrition are associated with the risk of developing tuberculosis (TB). Socioeconomic factors may interfere with anti-tuberculosis treatment compliance and its outcome. We examined whether providing nutritional support (monthly supply of rice and lentil beans) to TB patients who live below the poverty line was associated with TB treatment outcome.

Methods

This was a retrospective cohort study of sputum smear-positive pulmonary TB patients living below the poverty line (income of <$1.25 per day) registered for anti-tuberculosis treatment in two rural districts of West Bengal, India during 2012 to 2013. We compared treatment outcomes among patients who received nutritional support with those who did not. A log-binomial regression model was used to assess the relation between nutritional support and unsuccessful treatment outcome (loss-to-follow-up, treatment failure and death).

Results

Of 173 TB patients provided nutritional support, 15 (9%) had unsuccessful treatment outcomes, while 84 (21%) of the 400 not provided nutrition support had unsuccessful treatment outcomes ($p < 0.001$). After adjusting for age, sex and previous treatment, those who received nutritional support had a 50% reduced risk of unsuccessful treatment outcome than those who did not receive nutritional support (Relative Risk: 0.51; 95% Confidence Intervals: 0.30 - 0.86).

Conclusion

Under programmatic conditions, monthly rations of rice and lentils were associated with lower risk of unsuccessful treatment outcome among impoverished TB patients. Given the relatively small financial commitment needed per patient ($10 per patient per month), the national TB programme should consider scaling up nutritional support among TB patients living below the poverty line.

Keywords: *Nutritional Support, Poverty, Pulmonary Tuberculosis, India*