

Nutritional Assessment and Counselling in Patients with TB: Challenges for the Health Care System

Running Title: Challenges in nutritional assessment of TB patients

Palanivel Chinnakali¹, Subitha Lakshminarayanan², Sonali Sarkar³

^{1,2} Associate Professor, Department of Preventive and Social Medicine, Jawaharlal Institute of Postgraduate Medical Education & Research (JIPMER), Puducherry, India

³ Additional Professor and Head, Department of Preventive and Social Medicine, Jawaharlal Institute of Postgraduate Medical Education & Research (JIPMER), Puducherry, India

Email: palaniccm@gmail.com

Abstract:

Globally, tuberculosis (TB) remains a major public health problem. Undernutrition and TB have a bidirectional relationship. India contributes about 25% of global incident TB cases annually. Recently, India released guidelines for nutritional care and support for patients with TB. The guidelines recommend nutritional assessment, counseling and support for all patients with TB. We discuss the challenges for health care system in implementing the guidelines and the way forward.

Key words: tuberculosis, nutritional assessment, undernutrition, direct benefit transfer

Introduction

Tuberculosis (TB) is the leading cause of death due to a single infectious agent and remains a major public health problem globally. In 2017, worldwide there were an estimated 10 million new cases of TB and over 1.3 million deaths attributed to TB. [1] In India, there was an estimated 2.8 million new TB cases in the year 2017; contributing roughly 25% to the global incident cases. Also, India is in the list of countries with triple burden of high TB, TB/HIV and MDR-TB.

Tuberculosis and undernutrition

TB and undernutrition share a two-way link; undernutrition increases the risk of developing TB, and TB in turn can lead to malnutrition. Undernutrition is a risk factor for progression from TB infection to active TB disease. Also, undernutrition at the time of diagnosis of active TB is a predictor of increased risk of TB relapse and death due to TB.[2-6]

The 'End TB strategy' of the World Health Organization (WHO), aims to end the TB epidemic by 2035. India has pledged its support by ambitiously

reducing the timeline to 2025. Nutritional support to TB patients is consistent with the 'Pillar 1' of the End TB strategy, as it is an important component of patient-centered care. In March 2018, Government of India launched the 'Nikshay Poshan Yojana', a direct benefit transfer (DBT) scheme to tackle undernutrition and out of pocket expenditure among patients with TB, wherein each TB patient will receive 500 INR every month throughout the course of treatment.[7]

In 2013, the WHO released operational guidelines for nutritional care and support of patients with TB. These guidelines recommended nutritional assessment, counselling and support as integral parts of management of patients with TB, and suggested country-specific adaptation of the guidelines.[8] In line with WHO's recommendations, India released its guidance document in 2017.[9] Nutritional assessment includes eliciting a nutrition-oriented history, nutrition-oriented examination including anthropometric measurements of body weight and height. These guidelines strongly recommend that nutritional status should be classified using body mass index (BMI) for adults and children aged 6-18 years. Also, as anemia contributes to morbidity and poor functional status in patients with TB, hemoglobin estimation should be performed at baseline.

Nutritional assessment and nutritional counselling should be offered to all patients with active TB. Nutritional counselling should focus on: (a) consumption of a balanced diet with three meals and three snacks, to achieve desired energy and protein intake; and (b) clarifying misconceptions and practices to be avoided, such as consumption of tonics or expensive food supplements. The calorie and protein requirements need to be calculated based on a desirable BMI of 21 kg/m². An android based mobile application (N-TB app), endorsed by the national TB program, was launched to

facilitate health care providers to calculate BMI of the patients. The app also shows the amount of weight gain required during treatment and the recommended daily caloric and protein intake, to achieve a desirable weight.

Challenges in implementation of nutritional guidelines for patients with TB

In India, the launch of 'Nikshay Poshan Yojana', is a welcome step towards tackling undernutrition in patients with TB, as nutritional aspect of the patients has been given due importance here. However, the health system may have few challenges. Accredited Social Health activists (ASHA), Auxiliary Nurse Mid Wife, TB health visitor and the medical officers of primary health centers (PHCs) and community health centers (CHCs), who are required to perform nutritional assessment and counselling, need to be trained in principles of nutrition. A recently published study conducted in 37 PHCs in a district of Karnataka state (India), highlighted that medical officers were not calculating BMI for nutritional assessment and nutritional classification was mostly based on the physical appearance of the patient.[10] The study revealed that medical officers had not received any training on nutritional counselling during their career. Hence, it is of utmost importance to train the health care providers and to monitor the implementation of the program with the help of proposed indicators in the nutritional guidance document. Nutritional assessment and counselling need to be given more emphasis in the undergraduate training programs for medical and para medical courses and this should be made as a core competency. Training of health care providers in nutrition will not only help tackling undernutrition in TB patients, but also required for managing the larger epidemic of non-communicable diseases in India.

Another challenge could be due to the impact of 99DOTS on personal interactions with patients. Though 99DOTS could save time and travel costs for the patients, it will reduce the number of patient-provider interactions. Also, behavior change related to nutritional intake may require more interactions and support from the provider. Regular monitoring of weight gain may also get affected due to the reduction in number of patient-provider interactions. Trained grass root level providers like ASHA and ANM can be helpful in overcoming this challenge by home visits at pre-determined time points during the course of treatment.

The third challenge is to tackle food insecurity among poor income households. Undernutrition is largely related to food insecurity in poor income households. There needs to be strong social support system to overcome this food insecurity. Though the DBT through Nikshay Poshan Yojana scheme may partially overcome food insecurity, other measures like linking the TB households for extra ration in public distribution systems and, making food available through funds from Village Health, Sanitation and Nutrition Committee (VHSNC), or non-governmental organizations need to be explored. Health care providers need to be sensitized about the food insecurity and informed about the schemes outside the health care sector for TB patients, so that they can linking TB patients to such schemes.

To conclude, strengthening the primary health care system in nutritional assessment and counselling will help in achieving the End TB strategy milestones. A multisectoral approach with an overall economic and social development will further help to address the issue of undernutrition at the population level.

References

1. World Health Organization. Global tuberculosis report, 2018. Geneva, World Health Organization, 2018
2. Padmapriyadarsini C, Shobana M, Lakshmi M, Beena T, Swaminathan S. Undernutrition & tuberculosis in India: Situation analysis & the way forward. *Indian J Med Res.* 2016 ;144(1):11-20
3. Khan A, Sterling T R, Reves R, Vernon A, Horsburgh C R. Lack of weight gain and relapse risk in a large tuberculosis treatment trial. *Am J Respir Crit Care Med* 2006; 174: 344–348
4. Swaminathan S, Padmapriyadarsini C. Undernutrition and tuberculosis: Strongly linked, but ignored. *Natl Med J India.* 2014 ;27(3):125-7
5. Santha T, Garg R, Frieden TR, Chandrasekaran V, Subramani R, Gopi PG, et al. Risk factors associated with default, failure and death among tuberculosis patients treated in a DOTS programme in Tiruvallur District, South India, 2000. *Int J Tuberc Lung Dis.* 2002;6(9):780-8.
6. Jubulis J, Kinikar A, Ithape M, Khandave M, Dixit S, Hotalkar S, et al. Modifiable risk factors associated with tuberculosis disease in children in Pune, India. *Int J Tuberc Lung Dis.* 2014;18(2):198-204
7. Government of India. Guidance tool for Direct Benefit Transfer. New Delhi, India: National Health Mission, Department of Health and Family Welfare, 2017.
8. World Health Organization. Nutritional care and support for patients with tuberculosis. Geneva, World Health Organization, 2013
9. Central TB Division, Ministry of Health and Family Welfare, Government of India. Guidance document on nutritional care and support for patients with tuberculosis

in India. New Delhi, Revised
National Tuberculosis Control
Programme, 2017

10. Bhargava M, Bhargava A, Akshaya KM, Shastri SG, Bairy R, Parmar M, Sharath BN. Nutritional assessment and counselling of tuberculosis patients at primary care in India: do we measure up? *Int J Tuberc Lung Dis.* 2019; 23(2):147-150

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