Screening of tuberculosis patients for diabetes mellitus is feasible with the existing health system in India

Dear Editor,

Various studies in India show that the screening of tuberculosis (TB) cases can result in the identification of higher number of diabetes mellitus (DM) cases.[1-5] Higher yield of DM was observed among patients aged more than 35–40 years, patients with smear-positive TB, cigarette smokers, and patients with recurrent TB. Furthermore, the proportion of newly diagnosed DM as a result of blood test screening was higher among TB patients managed at peripheral health institutions (PHI) compared to tertiary care institutions. This is a positive and fulfilling outcome which indicates that active screening efforts can be carried out with the existing PHIs. Thus, screening of TB patients for DM is feasible at the cost of existing health system without any additional resources in Indian PHIs. Research studies for screening TB patients for DM in India reveals that TB patients fully support screening without any resistance. However, the reverse screening does not yield relatively good results.[6]

While India ranks fourth in TB burden, the incidence of DM in the country is also rising.[7] The bidirectional association between TB and DM is established by many epidemiological studies elsewhere in the world and in India as well. Screening would have higher yield in a country like India where TB prevalence is estimated at 283/100,000 with high DM prevalence estimated to be 8.6% of all adults.[7] Furthermore, the implementation of National Programme for Prevention and Control of Cancer, Diabetes and Stroke (NPCDCS) has eased this process by making all the resources available required for this purpose; however, the same is a pilot project and has been implemented only in 100 selected districts in the country. The implementation of NPCDCS makes the glucometer strips available that help the process of screening of TB patients for DM.

Important advantage of screening TB patient for DM is that it can identify the prediabetics (impaired fasting glucose, fasting blood glucose [FBG] =110–125) which are potential diabetics and can develop DM at the later part of their life; hence, these cohort could be tapped properly and should be kept on close monitoring. These patients can be targeted for counseling and preventive services. Similarly, the integration of DM and TB management services must be considered in India which could mark the beginning of strong collaboration between communicable and noncommunicable disease control program.[4]

The studies suggest that TB patients may have an elevated FBG owing to infection induced hyperglycemia; hence, periodic blood glucose monitoring is necessary among TB patients to establish this fact.[4] Few of the studies also recommended the use of glycosylated hemoglobin as a confirmatory test of DM; however, use of this test at the program level is difficult as the test is very expensive. In addition, few research studies have also suggested for carrying out oral glucose tolerance test for better confirmation which is also having implementation problems and financial constraints.[8]

The timing of screening of TB for DM is not clearly defined. Some of the authorities recommend screening at the onset of TB treatment to ensure DM treatment and correction of hyperglycemia which could have positive impact on the outcome of TB treatment.[9] While some other recommend screening after 2–3 months of TB treatment as like other infections TB may cause hyperglycemia resulting in false results. As a result of this screening of TB patients for DM should be carried out at the onset of diagnosis and after 2–3 months of treatment when the status of TB is relatively stable.[10]

Financial constraints may be a hindrance in implementing mass screening of TB cases for DM as the same requires blood glucose testing kit; glucometer and the testing strips, albeit it does not require other resources such as human resources or the infrastructure. In such situations, specific considerations could be made for selective screening, and it should be directed among patients who are 35-year-old or more and preferably 40 years old, smear-positive TB patients, and smokers.[4]

In addition, there could be other challenges in relation to implementing screening activities at PHIs in India, which needs to be considered before implementing the same. Currently, at PHI level, there is no proper coordination between the Revised National Tuberculosis Control Programme and NPCDCS. Hence, for better implementation of the program coordination is of utmost importance. Facilities for venous blood examination are not possible at PHIs except capillary blood glucose examination which requires assistance from higher level health institutions. Inadequate training may hamper proper handling of glucometer which needs further training. Proper supply chain management is required for glucometers and test strips for smooth running of the program.

Screening of TB patients for DM is feasible at the level of existing health system without any additional resources as demonstrated by the studies conducted in different parts of India. India being

the fourth largest country having 25% of the TB burden of the world with the rising incidence of DM, screening of TB patients for DM appears rational. Specific considerations can be made in case of financial constraints, and selective screening can be carried out to detect DM among TB cases. Furthermore, as per the International Diabetic Federation report as half of the DM cases go undiagnosed such screening activities could be of great help in controlling DM.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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Quick Response Code:

Website: www.jfmpc.com

DOI: 10.4103/2249-4863.201159

How to cite this article: Samal J. Screening of tuberculosis patients for diabetes mellitus is feasible with the existing health system in India. J Family Med Prim Care 2016;5:886-7.