Editorial

Increasing the efficiency of detecting active tuberculosis cases in intermediate and high-burden tuberculosis countries: A way forward

Tuberculosis (TB) is a major global health problem with an annual incidence rate of 9 million cases worldwide. It is the largest single infectious cause of death among young individuals and adults in the world, accounting for approximately 2 million deaths every year.[1] The fundamental objectives of TB control are to detect the disease as early as possible, and to make sure that those diagnosed complete their treatment and are cured. Contact tracing is the process that is usually adopted for identifying the relevant contacts of persons with TB, and ensuring they are aware of the infection to which they may have been exposed.[2] The World Health Organization (WHO), the International Union Against Tuberculosis and Lung Disease, and the International Standards for Tuberculosis Care recommend as a minimum: (a) screening households and close contacts of smear positive pulmonary TB cases to detect new TB cases; (b) providing isoniazid preventive therapy (IPT) for children under 5 years of age and for all people with HIV without symptoms suggestive of TB.[3-5]

In this era of economic decline, healthcare managers need to use the most cost-effective ways to stop the progression of the disease. One way of saving valuable resources is the prioritization of TB suspects. The criteria for prioritizing contacts as high, moderate, and low are listed in various guidelines.[6-8] Looking at the current medical records of index cases,[9,10] determining the infectious period[11-13] and interviewing the patients[13,14] are components of the identification and prioritization procedure. The Center for Disease Control and Prevention in the USA has suggested that the prioritization of contacts has a favorable impact on the efficiency of the contact investigation procedure.

Another way of preventing the wastage of valuable resources is to employ more sensitive and accurate techniques for the contact tracing procedure. Tuberculin skin testing (TST) and chest X-rays are most commonly employed contact investigation techniques worldwide.[6,8,15,16] It has long been known, however, that TST is far from ideal, due to its low sensitivity and specificity and to numerous operational drawbacks. Schwartzam and Menzie[17] have reported that TST is comparatively less cost-effective than radiological examination.

While WHO guidelines on screening for active TB cases are still awaited, it is strongly recommended that countries with a high and an intermediate burden of TB should trace TB suspects through an adequate prioritization process. Competency on the part of the contact investigation staff is key to the success of the process. The prioritization process can be further enhanced by engaging healthcare professionals working in the private sector. Involving community pharmacist often the first contact for a person with a cough, mild fever, and associated symptoms would be particularly promising with regard to the identification of the highly suspected TB patients. Similarly, holistic healthcare practitioners are the other options in that a larger number of people tend to consult them for their common ailments. Once the prioritization process is complete, it should be followed by employing adequate diagnostic techniques. Based on available evidence on cost-effectiveness and the sensitivity/specificity of available methods, it is suggested that the diagnosis process should start by investigating suspects for signs and symptoms, followed by radiological examination. The investigation process can be further extended to more suspicious contacts through QuantiFERON-TB Gold (QFT-G; Cellestis, Carnegie, Australia) and T-SPOT. TB (Oxford Immunotec, Oxford, UK). Sputum smear examination for acid fast bacilli is another option for those complaining cough with sputum.

A recent meta-analysis[18] has shown that the yield from TB contact tracing (active cases) in low- and middle-income countries is 6.5% (aged >15 years). This can be further improved through adequate prioritization of TB suspects and the use of more appropriate contact investigation procedures for detecting active TB cases.

References

1. World Health Organization. Economic impact of tuberculosis, World Health Organization, Geneva, Switzerland, 2000. Available from: http://www.stoptb.org/assets/documents/events/meetings/amsterdam_

Access this article online	
Website: www.jbclinpharm.org	Quick Response Code
DOI: 10.4103/0976-0105.105333	

Muhammad Atif, Syed Azhar Syed Sulaiman

Discipline of Clinical Pharmacy, School of Pharmaceutical Sciences, Universiti Sains Malaysia, 11800, Penang, Malaysia

Address for correspondence:
Mr. Muhammad Atif,
School of Pharmaceutical Sciences, Universiti Sains Malaysia,
11800, Penang, Malaysia.
E-mail: pharmacist_atif@yahoo.com

conference/ahlburg.pdf. [Last accessed on 2012 Oct 15].

2. Australasian Society for HIV Medicine. Australasian Contact Tracing Manual, Australasian Society for HIV Medicine, Darlinghust, NSW, 2010. Available from: http://www.ctm.ashm.org.au/Default.asp?publicationID=6&SectionID=733 2010. [Last accessed on 2012 Oct 15].
3. Fair E, Morrison J, Pai M, Zerhouni Y, Hopewell P. Review and policy recommendations for investigation of contacts of persons with infectious tuberculosis in high incidence areas. Draft for Stop TB Department, World Health Organization, Geneva, Switzerland; 2009.
4. World Health Organization. Implementing the stop TB strategy. A Handbook for National Tuberculosis Control Programmes, World Health Organization, Geneva, Switzerland, 2008. Available from: http://whqlibdoc.who.int/publications/2008/9789241546676_eng.pdf. [Last accessed on 2012 Oct 15].
5. World Health Organization. Guidance for national tuberculosis programmes on the management of tuberculosis in children, World Health Organization, Geneva, Switzerland, 2006. Available from: http://whqlibdoc.who.int/hq/2006/WHO_HTM_TB_2006.371_eng.pdf. [Last accessed on 2012 Oct 15].
6. Centers for Disease Control and Prevention. Guidelines for the investigation of contacts of persons with infectious tuberculosis; recommendations from the National Tuberculosis Controllers Association and CDC, and Guidelines for using the QuantiFERON®-TB Gold test for detecting *Mycobacterium tuberculosis* infection. United States. MMWR 2005;54:1-55.
7. Richard S, Kerri V. Guidelines for tuberculosis contact tracing in Pacific Island countries and territories, Pacific Public Health Surveillance Network, 2010. Available from: http://www.spc.int/phs/ENGLISH/Publications/InformACTION/IA33/Guidelines_for_TB%20contact_tracing.pdf. [Last accessed on 2012 Oct 15].
8. National Institute for Health and Clinical Excellence. Tuberculosis; clinical diagnosis and management of tuberculosis, and measures for its prevention and control, National Institute for Health and Clinical Excellence, 2006. Available from: http://www.nice.org.uk/. [Last accessed on 2012 Oct 15].
9. Wilce M, Shrestha-Kuwahara R, Taylor Z, Qualls N, Marks S. Tuberculosis contact investigation policies, practices, and challenges in 11 US communities. J Public Health Manag Pract 2002;8:69-78.
10. Centers for Disease Control and Prevention (CDC). HIPPA privacy rule and public health: Guidance from CDC and the US Department of Health and Human Services. MMWR 2003;52:1-20.
11. Reichler MR, Reves R, Bur S, Thompson V, Mangura BT, Ford J, *et al*. Evaluation of investigations conducted to detect and prevent transmission of tuberculosis. JAMA 2002;287:991-5.
12. California Department of Health Services. California Tuberculosis Controllers Association. Joint Guidelines Prevention and Control of Tuberculosis in California Long-Term Health Care Facilities, California Department of Health Services, 2005. Available from: www.cdph.ca.gov/pubsforms/Guidelines/TBpreventionLCTF.pdf. [Last accessed on 2012 Oct 15].
13. Centers for Disease Control and Prevention. Guidelines for preventing the transmission of *Mycobacterium tuberculosis* in health-care facilities MMWR 1994;43:1-132.
14. Centers for Disease Control and Prevention. Self-study modules on tuberculosis: Contact investigations for tuberculosis, Center of Disease Control and Prevention, 2010. Available from: http://www.cdc.gov/tb/education/ssmodules/module6/ss6contents.htm. [Last accessed on 2012 Oct 15].
15. World Health Organization. Treatment of Tuberculosis Guidelines, World Health Organization, 2010. Available from: http://whqlibdoc.who.int/publications/2010/9789241547833_eng.pdf. [Last accessed on 2012 Oct 15].
16. Underwood BR, White VL, Baker T, Law M, Moore-Gillon JC. Contact tracing and population screening for tuberculosis–who should be assessed? J Public Health Med 2003;25:59-61.
17. Schwartzman K, Menzies D. Tuberculosis screening of immigrants to low-prevalence countries. A cost-effectiveness analysis. Am J Respir Crit Care Med 2000;161:780-9.
18. Morrison J, Pai M, Hopewell PC. Tuberculosis and latent tuberculosis infection in close contacts of people with pulmonary tuberculosis in low-income and middle-income countries: A systematic review and meta-analysis. Lancet Infect Dis 2008;8:359-68.