Screening contacts of patients with extrapulmonary TB for latent TB infection

ABSTRACT

2016 TB National Institute for Health and Care Excellence (NICE) guidelines imply that contacts of extrapulmonary TB do not require screening for latent TB infection. At our high TB prevalence site, we identified 189 active cases of TB for whom there were 698 close contacts. 29.1% of the contacts of pulmonary TB and 10.7% of the contacts of extrapulmonary TB had active or latent TB infection. This supports screening contacts of extrapulmonary TB at our site and presents a way to access high-risk individuals. We propose to continue to screen the contacts of our patients with extrapulmonary TB and recommend other TB units audit their local results.

SCREENING CONTACTS OF PATIENTS WITH EXTRAPULMONARY TB FOR LATENT TB INFECTION HAS A HIGH YIELD IN NORTHWEST LONDON

The 2016 TB National Institute for Health and Care Excellence (NICE) guidelines[1] recommend that adults aged 18–65 who are close contacts of patients with pulmonary TB (PTB) or laryngeal TB have screening for latent TB infection (LTBI) and hence imply that contacts of extrapulmonary TB (EPTB) need not be screened. This is consistent with US guidelines, which similarly recommend screening only contacts of PTB and laryngeal TB.[2] At our TB centre in northwest London, consistent with 2011 NICE recommendations,[3] we routinely screen close contacts of all our patients with TB regardless of their site of disease.

We are concerned that the suggested change to our screening policy could mean that an opportunity to diagnose and treat LTBI will be missed. The Greater London area accounted for 39.4% of all UK cases and had a prevalence of 26.2 per 100 000 in 2015.[4] London Northwest Healthcare NHS Trust has one of the largest TB units in the UK, and we serve areas where the TB incidence is up to 99.5 per 100 000.[5] Our area has a high ethnic diversity with a high proportion of non-UK-born residents and recent immigrants.

We audited the yield of our screening policy. We identified all patients who we treated for TB during 2015. The patients with TB and their contacts were identified from our database. We screen, in the conventional way, using Mantoux test, symptom review and chest X-ray.

In 2015, we treated 189 cases of TB and identified 698 close contacts (3.7 contacts per TB index case). In 2015, we screened fewer contacts older than 35 than we do currently because we were not offering LTBI chemoprophylaxis to those aged >35 years due to the risk of hepatotoxicity;[3] thus, the number of contacts screened per case will likely rise in future. The results are summarised in table 1. In total, 98/189 (51.9%) of our patients had EPTB. Of all the contacts we screened, 1.3% had active and 19.9% had LTBI. Among contacts of EPTB index cases, 0.3% had active TB and 10.4% had LTBI. In comparison, among contacts of PTB index cases, 2% had active and 27.1% had LTBI.

There are few recent data on the screening outcomes of EPTB.[6] We consider our detection rate of LTBI is a combination of recent and distant exposures to *Mycobacterium tuberculosis*, the latter being high because most of our cases and their contacts are non-UK born. Screening close contacts of EPTB cases represents a direct way to access individuals at high risk of TB/LTBI even if infection has not necessarily been contracted from the index case. Provided the patient with LTBI adheres to treatment, treatment reduces the risk of subsequent TB by ~90%.[7]

In comparison with other screening programmes in the UK, the overall active or LTBI detection rate of 21.2% and the active or LTBI case identification rate of 10.7% among EPTB contacts is favourable. The detection of one active case among 299 screened contacts of patients with active EPTB also compares favourably to other screening strategies for active TB.[8] By comparison, screening for abdominal aortic aneurysms over the age of 65 identified <1% of men eligible for yearly surveillance,[9] cervical cancer screening identifies ~7% of those with abnormal smears[10] and bowel cancer screening identified ~2%.[11]

We therefore propose to continue to screen the contacts of both our patients with PTB and EPTB. We recommend other TB units audit their results to decide what is appropriate for their patients.

Table 1 Results of screening contacts of all active patients with TB seen during 2015 at Northwick Park Hospital, London

	Pulmonary TB	Extrapulmonary TB	All patients
Number of active cases	91	98	189
Mean age of active cases (SD)	41.8 (SD 22.0)	39.3 (SD 15.9)	40.5 (SD 19.1)
Total number of screened contacts	399	299	698
Mean number of screened contacts per index case (SD)	4.4 (SD 6.3)	3.1 (SD 2.3)	3.7 (SD 4.7)
Number of contacts diagnosed with latent TB, N (%)	108 (27.1)	31 (10.4)	139 (19.9)
Number of contacts diagnosed with active TB, N (%)	8 (2)	1 (0.3)	9 (1.3)
Number of contacts treated for latent TB, N (%)	83/108 (76.9)	23/31 (74.2)	106/139 (76.3)
Number of contacts who declined latent TB treatment, N (%)	25/108 (23.1)	8/31 (25.8)	33/139 (23.7)
Number of contacts who failed to attend screening, N (%)	41/399 (10.3)	45/299 (15.1)	86/698 (12.3)
Number of contacts whose outcome is not available, N (%)	23/399 (5.8)	7/299 (2.3)	30/698 (4.3)

Anna Humphreys,[1] Aula Abbara,[2,3] Sion Williams,[3] Laurence John,[3] Tumena Corrah,[3] Alastair McGregor,[3] Robert N Davidson[3]

[1]School of Medicine, Imperial College, London, UK
[2]NHLI, Imperial College, London, UK
[3]Department of Infectious Diseases, Northwick Park Hospital, London, UK

Correspondence to Dr Aula Abbara, TB Services, Lister Unit, Northwick Park Hospital, Watford Road, London HA1 3UJ, UK; aula.abbara@gmail.com; a.abbara15@imperial.ac.uk

Acknowledgements The authors thank the research and development department of London Northwest Healthcare NHS Trust and the TB nurses.

Contributors RND conceived the idea, co-wrote and edited the manuscript. AH and SW collected the data. AA co-wrote and edited the data and table. LJ, TC and AM edited the manuscript and made suggestions for the data collection.

Competing interests None declared.

Provenance and peer review Not commissioned; externally peer reviewed.

Thorax 2018;**73**:277–278.

Received 28 October 2016
Revised 21 March 2017
Accepted 21 April 2017
Published Online First 11 May 2017

Thorax 2018;**73**:277–278.
doi:10.1136/thoraxjnl-2016-209639

REFERENCES

1 National Institute for Health and Clinical Excellence (NICE). 2016. Tuberculosis. https://www.nice.org.uk/guidance/ng33/resources/tuberculosis-1837390683589
2 National Tuberculosis Controllers Association; Centers for Disease Control and Prevention (CDC). Guidelines for the investigation of contacts of persons with infectious tuberculosis. Recommendations from the National Tuberculosis Controllers Association and CDC. *MMWR Recomm Rep* 2005;54(RR-15): 1–47.
3 National Institute for Health and Clinical Excellence (NICE). 2011. *Tuberculosis: Clinical Diagnosis and Management of Tuberculosis, and Measures for Its Prevention and Control*. https://www.ncbi.nlm.nih.gov/pubmed/22720337
4 Public Health England. 2016. *Tuberculosis in England: Annual review.* https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/555343/TB_Annual_Report_2016_GTW2309.pdf
5 Public Health England. 2012. *Tuberculosis in London: Annual review (2012 data)*. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/385825/TB_in_London_2012.pdf
6 Irish C, Jolly E, Baker T. Contact tracing smear positive and non-pulmonary tuberculosis in a high incidence area. *Thorax* 1997;52:A34.
7 Targeted tuberculin testing and treatment of latent tuberculosis infection. *Am J Respir Crit Care Med* 2000;161 (Suppl 4):S221–47.
8 Aldridge RW, Yates TA, Zenner D, *et al*. Pre-entry screening programmes for tuberculosis in migrants to low-incidence countries: a systematic review and meta-analysis. *Lancet Infect Dis* 2014;14: 1240–9.
9 Public Health England. 2015. *Abdominal aortic aneurysm screening: 2014 to 2015 data*. https://www.gov.uk/government/publications/abdominal-aortic-aneurysm-screening-2014-to-2015-data
10 Screening and Immunisations Team, Health and Social Care Information Centre. 2015. *Cervical Screening Programme, England Statistics for 2014–15.* http://content.digital.nhs.uk/catalogue/PUB18932/nhs-cervical-stat-eng-2014-15-rep.pdf
11 Logan RF, Patnick J, Nickerson C, *et al*. Outcomes of the Bowel Cancer Screening Programme (BCSP) in England after the first 1 million tests. *Gut* 2012;61 (Suppl 10):1439–46.