Management of Latent Tuberculosis Infection in Patients with Silicosis

Latent Tuberculosis Infection Working Group

Tuberculosis Control Coordinating Committee of

the Hong Kong Department of Health and

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Background & Rationale

Patients with silicosis are one of the high risk populations for TB, with relative risk of TB disease reported to be 30 (1). In a local study analyzing the TB risk factors among a local silicotic cohort, the incidence of TB was 3019 patients per 100,000 population which was approximately nine times that of the local population matched for age and sex (2). Another local study shows that active TB and culture- or histology confirmed TB developed in 17 (5.5%) and 14 (4.5%) of 308 subjects recruited from 2004 to 2008, with annual rates of 2,247 and 1,851 per 100,000 person-years, respectively (3). According to "Guidelines on the management of latent tuberculosis infection (LTBI)" published by World Health Organization in 2018 (the WHO Guideline), silicosis is listed under "other HIV-negative at-risk groups" for which LTBI should be systematically tested and treated (Strong recommendation, low–very low-quality evidence. Updated recommendation) (4). The need for test and treatment of LTBI in patients with silicosis is also in line with some other overseas guidelines and recommendations as well as the pre-existing local recommendation (the local guideline) (5).

As for the choice of tests for LTBI, either a tuberculin skin test (TST) or interferon-gamma release assay (IGRA) can be used to test for LTBI according to the WHO Guideline (strong recommendation, very low-quality evidence. new recommendation). According to the pre-existing local guideline, the recommended TST cutoffs for a positive test among silicosis is 10mm, while IGRA may also be used as an alternative or to confirm a borderline TST result, e.g., when there is concern over interference by previous BCG vaccination. Nevertheless, according to a local observational study done in a cohort of patients with silicosis in Hong Kong, T-Spot.TB outperforms TST in predicting the subsequent development of tuberculosis disease (3). Among this cohort, the agreement between T-Spot TB and TST was at a maximum using a cutoff point of 10mm, which is in line which that recommended by the pre-existing local guideline. This local study favors the use of IGRA as the choice of test for LTBI while TST as alternative.

As for the choice of treatments of LTBI in patients with silicosis, there is no good evidence to suggest that such treatment is different from that of other high-risk groups. The recommendations of treatment options of LTBI in general by the pre-existing local guideline is overall in line with that of the WHO guideline, in which six months of isoniazid (6H) is recommended while 9 months of isoniazid may also be considered, especially among HIV-infected subjects and other immunocompromised persons. On the other hand, Rifampicin alone for 4 months (4R), Isoniazid plus rifampicin for 3

months (3HR), weekly rifapentine plus isoniazid for 12 doses (3HP) are alternatives. This local recommendation had taken reference to a local clinical trial done in Hong Kong in the 1980's on patients with silicosis which confirmed that 3R, 3HR, 6H were all effective LTBI treatment in bringing down the rate of active TB by around half, and that there was no significant difference in effectiveness and adverse events among the three regimens (6).

Guideline Statements

1. Test and treatment of LTBI in patients with silicosis is recommended
2. IGRA is recommended as the test of choice for LTBI in patients with silicosis, while TST is an acceptable alternative with a cutoff point of 10mm.
3. There is no group specific difference for treatment of LTBI in patients with silicosis compared with that of other high-risk groups.

Limitation

The recommendation favoring IGRA (test of choice) over TST (alternative) as tests of LTBI in patients with silicosis has taken reference to a local study with inherent limitations including that of an observational study. Nevertheless, it has good applicability to the local population as the study was based on a local cohort of patients with silicosis in Hong Kong.

References

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