

The impact of age when screening for latent tuberculosis infection - is it a problem?

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Background:

Older population in developed countries represents a large reservoir of tuberculosis (TB) infection. Knowledge if age can contribute to false negative results in the immunological tests available for screening latent TB infections (LTBI) is critical to improve their usefulness in Public Health strategies for TB control. The aim of this study was to ascertain whether age was a risk factor for false negative (FN) results in the tuberculin skin test (TST) and in an interferon gamma release assay (IGRA).

Methods:

Retrospective cohort study carried out using data from the Portuguese National Tuberculosis Surveillance system (2008-2015). Were included all active pulmonary TB cases with an IGRA (n = 597) and/or TST (n = 6185) result. TST outcomes were interpreted using a 5mm (TST-5mm) and 10mm (TST-10mm) cutoff. Logistic regression analysis crude and sex-adjusted was used to evaluate the association of age to the risk of FN results.

Results:

Patients with a TST result presented a mean age of 42.7 years and patients with an IGRA result presented a median age of 45.5 years. TST-5mm, TST-10mm and IGRA had 36.5%, 43.9% and 24.5% FN results, respectively. Older patients presented a statistically significant association with the risk of FN TST results, regardless of using a 5mm [71-80years: OR 2.209; >80years: OR 2.491; $p < 0.001$] or 10mm [71-80years: OR 1.986; >80years: OR 2.308; $p < 0.001$] cut-off. Age was not a predictive factor for FN IGRA results. However, older patients presented a significant association with indeterminate IGRA results [71-80years: OR 3.808; >80years: OR 5.214; $p < 0.001$].

Conclusions:

When using TST as part of the Public Health strategies for screening elderly patients, healthcare professionals should bear in mind that there is an increased risk of obtaining a FN result.

On the other hand, age did not show an association with the occurrence of FN IGRA results, which suggests that this test could perform better when screening for LTBI in older patients.

Key messages:

- TST in elderly people is associated with false negative results thus, when using this test for screening for LTBI, a negative result should be interpreted with caution.
- IGRA was not associated with false negative results in elderly people, however indeterminate results can occur more frequently, thus performing better in this population group.