Reviewer's report

Title: T-cell-based diagnosis of tuberculosis infection in children in Lithuania: a country of high incidence despite high bacille Calmette-Guerin vaccination coverage

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Reviewer: Tae Sun Shim

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This manuscript evaluated one of the commercialized IGRAs, T-SPOT.TB, in the diagnosis of TB infection in children in Lithuania where TB prevalence and BCG vaccination rate are high. The results showed that TST and T-SPOT.TB were all positive in confirmed TB patients whereas in patients with high-risk or low-risk for TB, the discrepancy between two tests was huge, mainly due to positive TST/negative T-SPOT.TB results. This discrepancy may be due to false positive TST (possibly due to BCG vaccination), however, the authors did not show any supporting evidence for that.

Even though the studies dealing with IGRA in children are very rare, a similar paper was already published in the journal of 'Diagnostic Microbiology and Infectious Disease' (Chun et al. 2008;62: 389-94) even though they used QFT-GiT test instead of T-SPOT.TB.

Methods:

The definition of positive result in T-SPOT.TB assay is that ‘the number of spots (test wells – negative control well) should be more than 6’. Hence, ‘#6 times’ should be changed according to the manufacturer’s recommendation.

In the high risk for TB group, were the index cases smear-positive pulmonary TB? If yes, please describe as ‘infectious pulmonary tuberculosis’ not as ‘active TB’.

Results:

In the text, the authors mentioned that ‘The numbers of positive T-SOPT.TB subjects based on four different TST cutoff values are presented in Table 3”. However, Table 3 does not contain those results. Please modify.

Didn't you have any ‘indeterminate’ results in T-SPOT.TB assay?

In order to say that T-SPOT.TB assay is superior to TST in this study, the authors should measure the correlation of two tests (TST and T-SPOT.TB) with the risk of infection by estimating the odds ratio and relating the test results to the likelihood of TB infection as described in other paper (Kang et al., JAMA 2005;293:2756-2761). Or, in high-risk for TB group, the authors should show stronger correlation between T-SPOT.TB results and grade of TB exposure than
between TST and grade of TB exposure.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests.