

Does multiple gastric aspirate collection increase sensitivity of M. tuberculosis detection in children with pulmonary tuberculosis?

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Abstract

Objectives . This study aims to investigate the sensitivity of microscopy, culture and polymerase chain reaction on three gastric aspirates (GAs) in the microbiological confirmation of active pulmonary tuberculosis (TB) and to identify possible changes in sensitivity derived from the collection of a different number of aspirates. **Methods**. Children with clinical and radiological diagnoses of active pulmonary TB who underwent three GAs between March 2007 and June 2019 were retrospectively evaluated. Clinical, radiological, and microbiological data were collected. The sensitivity of microbiological tests on GAs was calculated. Moreover, differences in sensitivity according to age and radiological pattern were investigated. **Results**. Overall, 156 children with active pulmonary TB were enrolled with a median age of 51.5 (IQR: 25.2–113.2) months. Microbiological investigations on the first GA showed a sensitivity of 34% (95%CI 26.7, 42), the cumulative sensitivity of first and second GAs was 40.4% (95%CI 32.7, 48.5) and of the three GAs was 47.4% (95%CI 39.8, 55.2). The collection of three GAs leads to an overall increase in sensitivity of the first GA by 13.4% (95%CI 2.8, 24.1%; $p=0.014$). Moreover, the increase in sensitivity was significantly higher in children < 4 years of age and in those with uncomplicated TB ($p=0.008$). **Conclusions**. Performing a higher number of GAs increases the sensitivity of microbiological confirmation of active pulmonary TB, particularly in children > 4 years and with an uncomplicated radiological pattern.

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