Methods This study considered 77 children with active TB who were diagnosed between January 2011 and March 2021. Data was collected on these patients using electronic records and then entered on to a pro forma. The percentage yields for sputum, bronchoalveolar lavage (BAL), gastric aspirate (GA), stool culture and lymph nodes (pus/tissue) were then identified and compared in both pulmonary and extra-pulmonary TB (figure 1). Extra-pulmonary TB in this case comprised of CNS, lymph node and gastrointestinal TB.

Results BAL exhibited an overall culture yield of 100% (2/2) compared to 50% (3/6) for lymph node swab samples, 46% (12/26) for sputum samples, 27% (4/15) for GA and 20% (2/10) for stool culture (figure 2). These yields varied according to whether it was pulmonary or extra-pulmonary TB; BAL (100% for both), neck swab (67% vs. 40%), sputum (46% vs. 50%), GA (27% vs. 100%) and stool culture (20% vs. 0%). The number of tested patients who were confirmed as TB on culture was 40% (19/47) for sputum, bronchoalveolar lavage (BAL), gastric aspirate (GA), stool culture and lymph nodes (pus/tissue) were then identified and compared in both pulmonary and extra-pulmonary TB (figure 1). Extra-pulmonary TB in this case comprised of CNS, lymph node and gastrointestinal TB.

Conclusion The yield percentages for cultures were generally quite low, except for BAL, albeit with a small sample size. However, these culture yields were higher than most recent literature would suggest for paediatric TB and were on a par with adult TB yields. Gastric aspirate and stool culture have been found in this audit to be unreliable indicators of TB diagnosis in children. The first line sputum culture has given a higher-than-expected yield in this audit however this yield percentage is still quite low compared to diagnostic tests for other conditions. Therefore, many patients in the paediatric TB cohort are being missed using the microbiological diagnosis alone. Some differences were noted in the yields for pulmonary and extra-pulmonary TB, most notably the GA yield being much increased in extra-pulmonary cases. Finally, the number of patients being tested using 3 respiratory samples should be increased from its current levels to maximise the diagnostic yield from these cultures as only around 65% (47/72) of appropriate patients were tested using these samples.

REFERENCES

Aims GeneXpert is a molecular TB test which detects the presence of TB DNA in samples such as sputum and can publish results in less than 2 hours. It can also be used to detect resistance to the drug Rifampicin, important in the management of TB. In this study, a retrospective audit of the paediatric TB cases from a tertiary paediatric unit was carried out, looking at the sensitivity of GeneXpert in diagnosing TB in this population using sputum and lymph node samples.

Methods This study considered 77 patients with active paediatric TB who were diagnosed between January 2011 and March 2021. Data was collected on these patients using electronic records and then entered on to a pro forma. The sensitivity of GeneXpert in diagnosing both pulmonary and extra-pulmonary TB in these patients was recorded and analysed. Extra-pulmonary TB in this case includes CNS and lymph node TB.

Results GeneXpert exhibited an overall sensitivity of 55% (11/20) when all sample types are amalgamated (figure 1). Sputum samples exhibited a sensitivity of 54% (7/13) for pulmonary TB and 100% (1/1) for extra-pulmonary TB. The lymph nodes samples gave a 100% sensitivity for pulmonary (2/2) as well as extra-pulmonary (3/3) TB. It was also noted that only 26% (20/77) of TB patients in this audit were tested using GeneXpert.

Conclusion Based on the above results, GeneXpert has a greater sensitivity for extra-pulmonary samples, with lymph node being the most reliable sample type. The results for GeneXpert in this audit are lower than have been recorded in past studies, with much higher sensitivity rates being recorded previously. However, it must be noted that the utilisation of GeneXpert in our hospital was relatively low and more patients should be tested using this method in the future to fully elucidate the efficacy of this test. Furthermore, the sensitivity of this test compares favourably to that of sputum cultures, stool cultures and gastric aspirate samples from this audit, indicating its potential effectiveness at diagnosing TB.
compared to the current standard methods as well as a much quicker turnaround to gaining test results and drug sensitivities than these methods.

REFERENCES

ASSESSING THE EFFICACY OF THE MANTOUX TEST AND INTERFERON GAMMA RELEASE ASSAY IN PAEDIATRIC TB DIAGNOSIS

Aims Mantoux and Interferon Gamma Release Assay (IGRA) are the two principal tests used in the assessment of children with TB, particularly in high-risk individuals such as those who have moved to the UK from areas where TB is more prevalent. Mantoux utilises the injection of PPD tuberculin into the skin of the forearm and observing a skin reaction at the injection site over the next 48 – 72 hours. IGRA is a blood test that measures a person’s response to Mycobacterium tuberculosis. There are two main types of IGRA, the Quantiferon Gold test and T-spot test. In this study, a retrospective audit of paediatric TB cases was performed to compare these two tests in their ability to inform the diagnosis of pulmonary and extra-pulmonary TB in a paediatric population.

Methods This study considered 77 patients with active paediatric TB who were diagnosed at a tertiary paediatric unit between January 2011 and March 2021. Data was collected on these patients using electronic records and then entered on a pro forma. These results were then analysed and the sensitivity of the Mantoux and IGRA tests were calculated and compared in pulmonary and extra-pulmonary TB. Extra-pulmonary TB in this case considers lymph node, CNS and gastrointestinal TB.

Results The Mantoux test had an overall sensitivity of 90% (27/30). In pulmonary TB this sensitivity falls slightly to 88% (23/26) whilst for extra-pulmonary TB it showed a 100% (4/4) sensitivity (Figure 1). The Quantiferon TB Gold test was the primary IGRA test used in this study, and it exhibited an overall sensitivity of 88% (65/74). Quantiferon was positive in 92% (59/64) of pulmonary TB patients and 63% (10/16) of extra-pulmonary TB patients. Just 2 patients were not tested for IGRA (Figure 2). The levels of Quantiferon sensitivity were found to be higher in ages five and above (91%, 49/54) than in patients below the age of five (80%, 16/20).

Conclusion The sensitivity rates for Mantoux and IGRA are similar to the results from previous studies. However, the fact that IGRA has a higher sensitivity than Mantoux, particularly for pulmonary TB, contrasts with most previous research and aligns with the current guidelines in our trust. This audit also demonstrates the utility of combining Mantoux and IGRA