EVALUATION OF XPERT MTB/RIF FOR DIAGNOSIS OF TUBERCULAR LYMPHADENOPATHY

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Background

- Extrapulmonary TB (EPTB) accounts for 15-20% of all TB cases with prevalence rising to 50% among HIV-TB co-infected.[1]
- Lymph node tuberculosis (LNTB) is the most common form of EPTB (35%)
- Diagnosis remains challenging because of very low sensitivity of acid fast smear and culture resulting in empirical use of anti-tuberculosis therapy (ATT.
- New modalities like Xpert MTB/RIF may provide rapid and accurate diagnosis of LNTB with information on rifampicin resistance

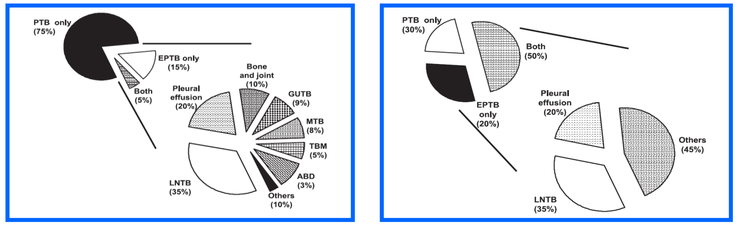

Figure 1: Distribution of tuberculosis cases by anatomical site in HIV-negative and positive patients [2]

Purpose

- Conventional diagnostic modalities have low sensitivity and slow turnover time
- Newer modalities required for diagnosis of EPTB to circumvent delay
- Prospective observational study was done to evaluate Xpert MTB/RIF for diagnosis of LNTB- the most common form of EPTB

Objectives

- To study the sensitivity , specificity , positive predictive value and negative predictive value of Xpert MTB/RIF in the diagnosis of tubercular lymphadenopathy and compare its diagnostic efficacy with a composite reference standard (CRS)

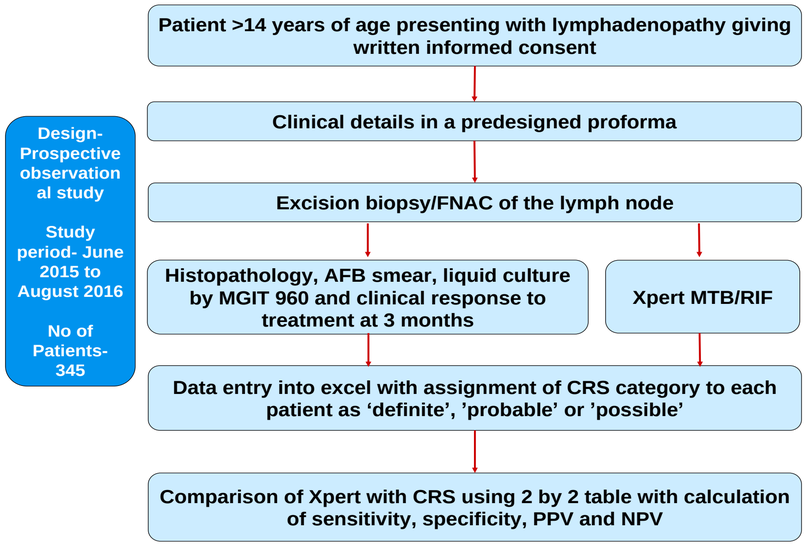

Figure 2: Study method

Results

- N=345, 185 (53.6%) were males, 18 patients were retrovirus positive
- Treatment experienced N=57 (16.5%); higher prevalence of constitutional symptoms (77.5% vs 63.5% in naïve cases) and longer duration of illness at presentation (13.2 months vs 2.3 months)
- 185 patients underwent FNAC and 160 patients underwent excision biopsy.
- Sensitivity in ATT naïve CRS definite cases=81% (69.15-89.07) with specificity of 98.01%(94.32-99.32)
- ATT experienced CRS definite cases, sensitivity=77.8%(54.78-91) with specificity of 100% (74.12-100)
- Positive by Xpert MTB/RIF=138, 12 resistant to rifampicin (2 naïve and 10 experienced cases); 100% concordance with phenotypic DST
- 85 (45.94%) inconclusive results with FNAC
- 3 (1.8%) with excision biopsy were inconclusive

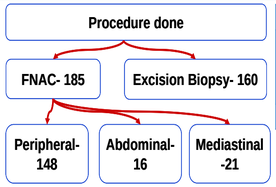

Figure 3: Procedure distribution

		CRS (definite)		
		+ve	-ve	Total (N)
Xpert MTB/RIF	+ve	47	3	50
	-ve	11	148	159
Total (N)		58	151	209

- Sensitivity-81.03%(69.15-89.07)
- Specificity-98.01%(94.32-99.32)
- PPV-94% (83.78-97.94)
- NPV- 93.08% (88.04-96.09)

		CRS (probable)		
		+ve	-ve	Total (N)
Xpert MTB/ RIF	+ve	51	3	54
	-ve	29	148	177
Total (N)		80	151	231

- Sensitivity- 63.75% (52.8-73.43)
- Specificity- 98.01% (94.32-99.32)
- PPV-94.44% (84.89-98.09)
- NPV- 83.62% (77.48-88.34)

Table 1 : Xpert MTB/RIF vs CRS in ATT naive patients

		CRS (definite)		
		+ve	-ve	Total (N)
Xpert MTB/RIF	+ve	14	0	14
	-ve	4	11	15
Total (N)		18	11	29

- Sensitivity- 77.8% (54.78-91)
- Specificity-100% (74.12-100)
- PPV- 100% (78.47-100)
- NPV- 73.33% (48.05- 89.1)

		CRS (probable)		
		+ve	-ve	Total (N)
Xpert MTB/RIF	+ve	20	0	20
	-ve	6	11	17
Total (N)		26	11	37

- Sensitivity- 76.92% (57.95-88.97)
- Specificity-100% (74.12-100)
- PPV- 100% (83.89-100)
- NPV- 64.71% (41.3- 82.69)

Table 2 : Xpert MTB/RIF vs CRS in ATT experienced patients

Discussion and Conclusions

- Xpert MTB/RIF is a accurate and rapid method for diagnosis of LNTB with good sensitivity and specificity in both treatment naïve and treatment experienced cases
- Can act as a good "rule in" test for LNTB
- Results are in concordance with a systematic review and meta-analysis by Denkinjer et al (3) and a previous study done from AIIMS, New Delhi (4)
- Xpert MTB/RIF recommended as an additional test to culture and histopathology for diagnosis of LNTB in INDEX-TB guidelines (5)
- Study highlights the challenges in obtaining adequate representative diagnostic specimens by FNAC and recommends excision biopsy as the first line procedure where feasible

References

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