MDR-TB: MAGNITUDE IN UNSUSPECTED CASES IN NORTHERN TANZANIA

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INTRODUCTION

- Multidrug-resistant tuberculosis (MDR-TB) is a form of TB caused by *Mycobacterium tuberculosis* species that do not respond to, at least, Isoniazid and Rifampicin
- MDR-TB results from
 - inadequate TB care and
 - irrational use of drugs

(WHO,2013)

INTRODUCTION CONT..

- In recent years there has been an emergence of drug resistance TB globally
- Globally in 2012; it was estimated that
 - cases was 450,000(300,000–600,000)
 - deaths was 170,000(100,000-240,000)
- In Tanzania,
 - from 1991 to 1999 the level of MDR-TB was estimated to be around 1%.
 - A decade the prevalence has remained the same.
 (Chonde et.al, 2008 ; Kibiki et.al, 2007; Matee et.al, 2009; WHO, 2013).

INTRODUCTION

- MDR-TB is a global threat as
 - cure rate of MDR-TB strain is low and the drugs are toxic
 - Treatment takes a long time (18-24 months)
 - Diagnostic is expensive

(WHO, 2013)

AIM

 To determine the magnitude of MDR-TB in unsuspected cases in Northern Tanzania.

METHODOLOGY

- Study design- descriptive cross sectional laboratory based study
- Study samples: 262 TB clinical isolates archived at the KCRI BL lab from 2009 to 2013 from patients diagnosed with PTB and being treated with empirical first line Anti-TB drugs

METHODOLOGY CONT...







Figure 1: DST MGIT 960 OVERVIEW

Table 1: Drug resistance to first line drugs of susceptible group (n=262)

Resistance	Drug/s	Number (%) resistant
Generally	STR	19(7.3%)
	INH	35(13.4%)
	RIF	23 (8.8%)
	EMB	30 (11.5%)
Monoresistance	INH	11 (4.2%)
	ETM	9 (3.4%)
Poly resistance	STR/EMB	1 (0.4%)
	INH/EMB	5 (1.9%)
	RIF/EMB	2 (0.8%)
MDR	ALL MDR	20 (7.6%)
	RIF/INH	6 (2.3%)
	RIF/INH/EMB	6 (2.3%)
	RIF/INH/STR/EMB	8 (3.1%)
		0

DISCUSSION

- INH showed the highest level of resistance
 - Predictor of developing MDR-TB
 - Used through out the TB treatment course
 - correlating with reports from WHO and previous studies done in Tanzania

(WHO, 2009; Abate et.al 2012; Kibiki et.al, 2007; Matee et.al, 2009)

DISCUSSION CONT...

- EMB showed great resistances levels
 - used in MDR-TB treatment
 - Contrasting with previous studies where it ranged from (0-20%)

(Chonde et.al, 2008; Mottalib, 2011; Reechaipichitkul, 2011; Yeboah-Manu et.al, 2012; Nung'u, 2012).

DISCUSSION CONT..

- Seven folds increase in MDR-TB isolates
 - Major concern for TB control
 - Past two decades the rates were around 1%
- Reasons
 - Inappropriate drug use
 - Mutations
 - Natural resistance

(Chonde et.al, 2008; Kibiki et.al, 2007; Matee et.al, 2009)

CONCLUSION AND RECCOMENDATIONS

- Conclusion
 - INH resistance is the highest among anti-TB drugs and denotes the high potential for developing MDR-TB.
 - A proportional of patients on empirical first line anti-TB treatment are in fact MDR-TB patients.
- Recommendations:
 - Further studies to monitor the magnitude of MDR-TB
 - Need for rapid method that will detect anti TB drug resistance during diagnosis

REFERENCES

- Bayraktar B., Bulut E., Baris B. A., Toksoy B., Dalgic N., Celikkan C., (2011). Species Distribution of the Mycobacterium tuberculosis Complex in clinical isolates from 2007 to 2010 in Turkey: a Prospective study. Journal of Clinical Microbiology; 49(11): 3837–3841.
- Gibson A.L, Hewinson G, Goodchild T, Watt B, Story A, Inwald J & Drobniewski F.A (2004). Molecular epidemiology of disease due to Mycobacterium bovis in humans in the United Kingdom. Journal of Clinical Microbiology. 42(1):431-434.
- WHO (1996). Report of the tuberculosis epidemic. Geneva, Switzerland
- WHO (2012). Global tuberculosis report.

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THANK YOU



