

**Prevalence of Multi Drug Resistance
Tuberculosis in Abbassia Chest Hospital
from July 2006 to December 2009**

*Thesis Submitted For Partial Fulfillment of the Master Degree
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List of Abbreviations

ADA	Adenosine Deaminase.
AFB	Acid-Fast Bacilli.
Am	Amikacin.
BCG	Bacille Calmette-Guerin.
CFT	Complement Fixation Tests.
Cfx	Ciprofloxacin.
Cfz	Clofazimine.
Clr	Clarithromycin.
Cm	Capreomycin.
CMI	Cell Mediated Immunity
Cs	Cycloserine.
DNA	Deoxyribonucleic Acid.
DOTS	Direct Observed Treatment with Short Course Chemotherapy.
DST	Drug Susceptibility Testing.
DTH	Delayed Type Hypersensitivity
E	Ethambutol.
ELISA	Enzyme-Linked Immuno-Sorbent Assay.
EMB	Ethambutol.
Eto	Ethionamide.
Gfx	Gatifloxacin
H	Isoniazide
HIV	Human Immunodeficiency Virus.
IBS	irritable bowel syndrome.
IFA	Immuno-Fluorescent Assay.
INF γ	Interferon Gamma.
INH	Isoniazide.
Km	Kanamycin.
LCR	Ligase Chain Reaction.
Lfx	Levofloxacin.
LiPA	Line Probe assay.
LJ	Lowenstein-Jensen.
Lzd	Linezolid.
M	Mycobacterium.
MDR-TB	Multi-Drug-Resistant Tuberculosis.

Mfx	Moxifloxacin.
MGIT	Mycobacterial Growth Indicator Tube.
MIC	Minimal Inhibitory Concentration.
MOTT	Mycobacteria Other Than Tubercle bacilli.
NRAMP	Natural Resistance-Associated Macrophage Protein.
NTP	Natural Tuberculous Program
MS	Malate Synthase.
Ofx	Ofloxacin.
P	Pyrazinamide.
PAS	P-AminoSalicylic acid.
PCR	Polymerase Chain Reaction .
PN	Peripheral Neuritis
POA	Pyrazinoic acid.
PPD	Purified Protein Derivative.
Pto	Protionamide.
PZA	Pyrazinamide.
R	Rifampicin.
RMP	Rifampicin.
RNA	Ribonucleic Acid.
S	Streptomycin.
SCC	Short Course Chemotherapy.
SD	Standard Deviation.
SM	Streptomycin.
TB	Tuberculosis.
TEMA	Tetrazolium Microplate Assay.
Th	Thioacetazone.
TNFγ	Tumour Necrosis Factor alpha.
Trd	Terizidone.
Vi	Viomycin.
WHO	World Health Organization
XDR	Extensive Drug Resistance

Introduction

Tuberculosis (TB) is a medical, social and economic disaster of immense magnitude that is occurring over the world (*WHO, 2005*).

Strains of *Mycobacterium tuberculosis* that are resistant to both isoniazid and rifampicin with or without resistance to other drugs have been termed multi-drug resistant strains. Isoniazid and rifampicin are keystone drugs in the management of TB. While resistance to either isoniazid or rifampicin may be managed with other first-line drugs (*Ormerod, 2005*).

Multi-drug resistant TB (MDR-TB) demands treatment with second-line drugs that have limited sterilizing capacity and are less effective and more toxic. (*Sharma and Mohan, 2004*).

Emergence of (MDR-TB) is complicating tuberculosis control efforts. (*Loddenkemper et al, 2002*).

The incidence of drug resistance has increased since the first drug treatment for TB was introduced in 1943. The emergence of MDR-TB followed the widespread use of Rifampicin since the 1970s. The WHO Stop TB Department estimates the number of incident cases (including new & re-treatment cases) occurring worldwide in 2003 alone to be 458 000. (*Zingol et al, 2006*)

According to WHO, TB profile for Egypt in 2004, the prevalence rate of new cases of multi-drug resistant tuberculosis was 2.2%, while that of previously treated tuberculous cases, which was discovered to be multidrug-resistant tb, was 38%. (*WHO, 2004*).

The spectrum of this form of TB now ranges from "basic" MDR-TB, with resistance only to rifampicin and isoniazid, to

XDR-TB where there is additional extensive drug resistance to at least three of the six main classes of second-line antituberculous drugs. (*Centers for Disease Control and Prevention, 2006*)

Early detection of drug-resistance TB allows starting of an appropriate treatment, which has an impact in the better control of the disease. (*Palmino, 2006*).

The treatment of MDR-TB is a challenge which should be undertaken by experienced clinicians at centers equipped with reliable laboratory service for mycobacterial culture and in vitro sensitivity testing (*Frieden and Munsiff, 2005*).

The recommended duration of treatment is guided by smear & culture conversion. The minimal recommendation is that; treatment should last for at least 18 months after culture conversion. Extension to 24 months may be indicated in patients defined as “chronic cases” with extensive pulmonary damage. (*WHO, 2006*).

One of the major concerns about second-line antituberculous drugs is their potential to cause adverse effects. The experience of MDR-TB treatment pilot projects has contributed to greater knowledge about these adverse reactions in various populations. (*Nathanson et al, 2004*)