قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا إِلَّا مَا عَلَّمْتَنَا إِنَّكَ أَنْتَ الْعَلِيمُ الْحَكِيمُ

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Gender Differences in Pulmonary TB in Abbassia Chest Hospital

Thesis

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List of Contents

List of Abbreviations I

List of Figures..... II

List of Table III

Introduction 1

Aim of the work..... 3

Review of Litereture 4

Chapter I: Pulmonary TB : case definitions and classifications 4

Chapter II: Epidemiology of pulmonary TB..... 10

Chapter III:Microbiology of TB..... 21

Chapter IV: Diagnosis of pulmonary TB 25

Chapter V: Treatment of TB 46

Chapter VI: TB and Gender 54

Patients and Methods 56

Results 67

Discussion 81

Summary 85

Conclusion..... 93

Recommendation 94

References 96

Arabic Summary 106

List of Abbreviations

AFB	Acid Fast Bacilli
AIDS	Acquired Immune deficiency syndrome
ART	Anti-retroviral Therapy
BAL	Broncho-alveolar Lavage
BCG	Bacillus Calmette - Guerin
BMI	Body Mass Index
CLD	Chronic Liver Disease
DM	Diabetes Mellitus
DST	Drug Susceptibility Test
EPTB	Extra - Pulmonary Tuberculosis
EQA	External Quality Assurance
HCV	Hepatitis C virus
HIV	Human Immunodeficiency Virus
INH	Isoniazid
LTBI	Latent Tuberculosis Infection
MDR-TB	Multiple Drug resistant Tuberculosis
MGIT	Mycobacterial Growth Indicator Tube
MTB	Mycobacterium Tuberculosis
PCR	Polymerase Chain Reaction
PPD	Purified Protein Derivative
PPV	Positive Predictive Value
PTB	Pulmonary Tuberculosis
RIF	Rifampicin
RRTB	Rifampicin Resistence TB
STAG-TB	Strategic and Technical TB Advisory Group
TB	Tuberculosis
TST	Tuberculin Skin Test
WHO	World Health Organization
WRD	WHO-approved Rapid Diagnostic
XDR-TB	Extensively drug resistant Tuberculosis
ZN	Ziehl Neelsen

List of Figures of review

Figure (1): Incidence and Mortality Rate of TB ---------- 14

Figure (2): Notified cases by age group and sex 2016 ---------- 15

Figure (3): Treatment Success Rate ---------- 16

Figure (4): Indications of GeneXpert ---------- 33

List of Figures of results

Figure (1): Mean Age in males and females with pulmonary TB---- 66

Figure (2): Occupation in male cases with Pulmonary TB---------- 66

Figure (3): Occupation female cases with Pulmonary TB ---------- 67

Figure (4): Special Habits of medical importance in male and female cases.---------- 67

Figure (5): Median duration of symptoms before diagnosis in male and female cases. ---------- 68

Figure (6): Symptoms in male and female cases with Pulmonary TB ---------- 69

Figure (7): Chronic disease in male and female cases with Pulmonary TB. ---------- 70

Figure (8): Radiology findings in male and females cases with Pulmonary TB. ---------- 72

Figure (9): Compliance to antituberculous drugs in male and female.---------- 73

Figure (10): Complications of antituberculous drugs in male and female.---------- 74

Figure (11): Outcome of treatment in male and female cases. ------- 74

List of Tables of review

Table (1): TB burden in Egypt 2016---------- 14

Table(2): TB incidence by age and sex---------- 14

Table (3): TB case notifications 2016.---------- 15

Table (4): Universal health coverage and social protection---------- 15

Table (5): Drug–resistant TB care 2016 ---------- 16

Table (6): Treatment success rate and cohort size---------- 16

Table (7): TB preventive treatment 2016---------- 16

Table (8): Grading of AFB smears as per WHO and International Union against TB & Lung Disease (IUATLD) recommendation:---------- 28

Table (9): Interpretation criteria for the Quantiferon-TB Gold In-Tube assay. ---------- 39

Table (10): Recommended Doses Of First Line Anti-tuberculous Drugs. ---------- 46

Table (11 &12): The Child-Pugh score. ---------- 48

Table (13): Management of side effects. ----------50&51

Table (14): the protocol of diagnosis of pulmonary TB according to sputum microscopy results. ---------- 56

Table (15): the first-line anti-TB drugs and their recommended dosages for adults based on the patient's weight. ---------- 58

Table (16 &17): The Child Pugh score. ---------- 61

List of Tables of results

Table (1): Comparison of the socio-demographic data between females and males. ---------- 65

Table (2): descriptive data regarding type of the patient and duration of symptoms ---------- 68

Table (3): Presenting symptoms in male and female Pulmonary TB ---------- 69

Table (4): Comparison between concomitant disease between females and males ---------- 70

Table (5):Comparison of the work-up and treatment regimen between females and males. ---------- 71

Table (6): comparison of the follow up period between females and males ---------- 73

Introduction

TB is an infectious disease triggered by TB of the bacillus Mycobacterium. It typically influences the lungs (pulmonary TB) but may affect other locations (extra-pulmonary TB) as well. The disease spreads when individuals with pulmonary TB, for example by coughing, expel bacteria into the air.

Overall, a comparatively tiny percentage (5–15%) of the approximately 1.7 billion individuals infected with mycobacterium TB during their life will develop TB illness. However, the likelihood of having TB disease among individuals infected with HIV is much greater and also greater among individuals affected by risk variables such as under-nutrition, DM, smoking and alcohol use. ***(Global TB report 2017)***

TB is one of the world's top ten causes of death. 10.4 million individuals became sick with TB in 2016 and 1.7 million died from the disease (including 0.4 million among HIV-positive people). In low- and middle-income nations, over 95% of TB fatalities happen ***(WHO fact sheets 2017)***

TB in Egypt continues to be a public health issue in Egypt. Although Egypt is in an age of epidemiological transition from communicable to non-communicable diseases like many other nations, TB still needs to be resolved and resolved as a health issue influencing big areas of society, particularly the poor and vulnerable. ***(National TB Control Program, Egypt 2017)***

Twice as many instances of TB are recorded among males in most low-income countries as among females, a difference frequently ascribed to biological and epidemiological features as well as socio-economic and cultural obstacles to access to health care. The World Health

Organization (WHO) has encouraged gender-specific TB comparisons to determine if females with TB are less probable to be diagnosed, recorded and handled than males with TB..***(Jime´nez-Corona et al, 2006).***

Gender definition is the state of being male or female (typically used in terms of social and cultural distinctions rather than biological distinctions. ***(Oxford dictionary 2017).***

Age and gender have a marked impact on life-long TB epidemiology, as males and females have distinct combinations of risk variables for TB and are seeking diagnosis and therapy through distinct pathways. ***(Paul manson et al, 2017)***

Research region has been overlooked on the gender elements of TB, and little attention has been paid to these control elements of TB. Infectious diseases in general and TB in specific could be viewed as a process following the chain of occurrences beginning from exposure to infection, disease growth, efforts to find a cure for people and groups. There are gender-related variables at each of the steps that affect males and women's care and cure. ***(Holmes et al., 1998)***

Aim of work

The aim of this work is to assess gender differences in patients with pulmonary TB among patients at Abbassia Chest Hospital.

Chapter I

Pulmonary TB case definitions and classifications

TB is a significant health issue in the world. It creates ill health among millions of individuals every year and ranks as a major cause of death globally alongside the human immunodeficiency virus (HIV).***(Global TB Report 2015)***

Tuberculous Case Definitions:

TB suspect

Anyone with symptoms or suggestive signs of TB. A productive cough for more than 2 weeks is the most prevalent symptom of pulmonary TB, which may be followed by other respiratory diseases (shortness of breath, chest pain, and hemoptysis) and/or constitutional symptoms (loss of appetite, weight loss, fever, night sweat, and exhaustion).

Case of TB

A definite case of TB (described below) or one in which a health worker (clinician or other medical practitioner) has been diagnosed with TB and has chosen to treat the patient with a complete TB course.

Note. Any individual receiving TB treatment should be registered as a case. Incomplete "trial" therapy of TB should not be used as a diagnostic method.

Definite case of TB

A patient with a complex of Mycobacterium TB recognized from a clinical specimen either by culture or through a newer technique such as a molecular line test. A pulmonary case with one or more original sputum smear tests positive for acid-fast bacilli (AFB) is also regarded a "definite" case in nations that lack the laboratory ability to regularly

detect mycobacterium TB, provided there is a functional external quality assurance (EQA) system with blind checking.***(World Health Organization 2010)***

A case of bacteriologically confirmed TB is one from which a smear microscopy, culture or WRD (such as Xpert MTB / RIF) is positive for a biological specimen. All such instances should be notified irrespective of whether therapy for TB has begun.

A clinically diagnosed situation of TB is one that does not meet the bacteriological confirmation requirements but has been diagnosed with active TB by a clinician or other medical practitioner who has chosen to offer the patient a complete TB treatment course. This definition involves cases diagnosed without laboratory confirmation based on X-ray abnormalities or suggestive histology and additional lung cases.

Clinically diagnosed cases should eventually be reclassified as bacteriologically verified (before or after starting treatment). ***(World Health Organisation, 2013)***

Bacteriologically verified or clinically diagnosed instances of TB are also categorized as follows: -Disease anatomy site -Bacteriological outcomes (including drug resistance) -Previous therapy history -HIV status.***(National TB Control Program, Egypt 2017)***

Classification according to anatomical sites of disease:

Pulmonary TB (PTB) relates to a situation of pulmonary parenchyma TB (described above). Miliary TB is categorized as lung TB due to lung lesions. A case of extra-pulmonary TB is chronic intra-thoracic lymph-adenopathy (mediastinal and/or hilar) or pleural effusion of TB without radiographic defects in the lungs. A pulmonary and extra-pulmonary TB patient should be categorized as a pulmonary TB case.

Extra-pulmonary TB (EPTB) relates to a situation of TB involving other than lung organs such as pleura, lymph nodes, stomach, genitourinary tract, skin, joints and bones, meninges. Diagnosis should be based on at least one specimen with confirmed M TB or histological or powerful clinical proof consistent with active EPTB, followed by a clinician's choice to treat a complete course of chemotherapy with TB. The case definition of an EPTB case involving several impacted locations relies on the site being the most serious type of disease. Diagnosis should be based on at least one specimen with confirmed M TB or histological or powerful clinical proof consistent with active EPTB, followed by a clinician's choice to treat a complete course of chemotherapy with TB. The case definition of an EPTB case with several impacted locations relies on the location of the most serious disease type.***(World Health Organization, 2013)***

Classification according to bacteriological results:

1. *Smear-positive instances of PTB: a case of pulmonary TB is regarded smear-positive if one or more sputum smear samples are positive for AFB*
2. *Smear-negative instances of PTB at the beginning of therapy:*
   1.Presenting TB
   2 compliant complaints. Pulmonary TB
   3-compatible radiographic abnormalities. 2 sets of AFB adverse sputum smear separated by an antibiotic course with no clinical or radiological enhancement
   *4.A clinician's decision to treat a complete course of anti-TB treatment.****(National TB Control Program, Egypt 2017)***

Classification based on drug resistance:

Cases are categorized into categories of clinical isolates confirmed to be based on drug susceptibility testing (DST).

Monoresistance: only resistance to Polydrug resistance to one first-line anti-TB medication: resistance to more than one first-line anti-TB drug (other than isoniazid and rifampicin).

Multidrug resistance: isoniazid resistance and rifampicin resistance at least.

Extensive drug resistance: resistance to any fluoroquinolone and, in relation to multidrug resistance, to at least one of three second-line injectable medicines (capreomycin, kanamycin and amikacin).

Resistance to rifampicin: rifampicin resistance identified using phenotypic or genotypic techniques, with or without resistance to other anti-TB drugs. It involves any rifampicin resistance, whether it is monoresistance, multidrug resistance, resistance to polydrugs or comprehensive drug resistance.

Not all of these classifications are mutually exclusive. It also includes multidrug-resistant TB (MDR-TB) and widely drug-resistant TB (XDR-TB) in the listing of rifampicin-resistant TB (RR-TB). While limiting the definitions of monoresistance and polydrug resistance to first-line drugs has been the practice until now, future drug regimens may make it essential to classify patients as fluoroquinolones, second-line injectable agents, and any other anti-TB drug for which reliable DST becomes accessible through their strain resistance patterns. ***(World Health Organization, 2013)***