ASTUDY AND EVALUATIN OF THE WORK DONE IN GIZA CHEST DISPENSARY AS REGARDS TUBERCULOSIS FROM 1978-1982

THESIS

SUBMITTED FOR PARTIAL FULFILLMENT FOR

MASTER'S DEGREE IN CHEST DISEASES

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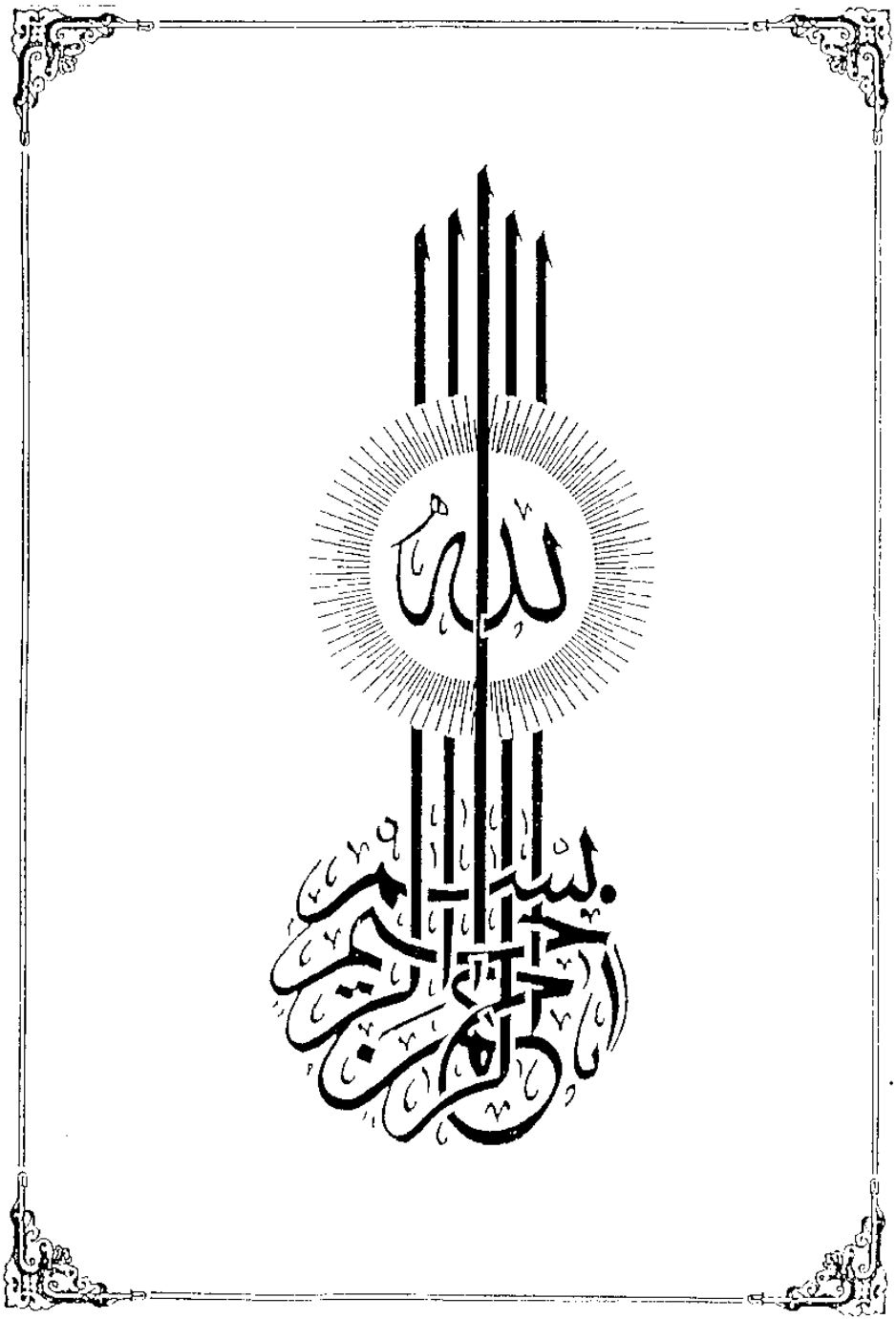
1984

C O N T E N T

		Page
1.	Aim of the work	1
2.	Introduction	2-12
3.	Review of the literature	13-21
4.	Material & Methods	22-23
5.	Results	24-37
6.	Discussion	38-51
7.	Recommendations	52-53
8.	Summary	54-56
9.	References	57-64
10.	Arabic Summary.	



ACKNOWLEDGEMENT

I would like to express my deepest gratitude to Dr. Mahmoud El-Mishad Prof. of Chest Diseases, Ain Shams University for his fathery guidance, generous advice and unlimited support.

I would like to express my deepest thanks and gratitude to Dr. Hussein Aly Hussein Prof. of Chest Diseases, Faculty of Medicine, Ain Shams University who gave generously of his time and efforts in guiding me and whose review, constructive suggestions, helpful criticism and excellent supervision during this whole work had done a great deal towards the completion of this work.

Also I would like to thank all members of Giza chest dispensary for their help.

AIM OF THE WORK

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The aim of the study is to analyse, evaluate and criticise the results of the routine work done in Giza dispensary as regards tuberculosis over the years 1978-1982, and as we know that tuberculosis is still a major public health problem in Egypt. Many previous studies stressed the need of estimation of various epidemiological parameters for the country as a whole and in various areas, so this retrospective study have been done.

INTRODUCTION

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Tuberculosis is an infectious disease of man and other animals. It is still a major scour ge of mankind in the developing part of the world. Also it remains an important problem in many technically advanced countries. Therefore it is of great importance to try to gather statistical informations concerning this disease on a world wide scale.

Pulmonary tuberculosis is much the most important manifestation of the disease, both because it is far the most common and because patients with pulmonary tuberculosis are the principal sources of infection. (6)

In man it is caused by mycobactrium tubercle bacillus and infrequently by the closely related bovine strain (Mycobactrium bovis). It is estimated that as few as 10 organisms are sufficient to cause subsequent infection. (16)

The remains of ancient skeletons revealed characteristic changes of tuberculous pathology indicating that man was afflicted with the disease in the neolithic period some 4000 B.C., and it was common disease in Egypt around 1000 B.C. (23)

Up to very recently most people in Western Europe and America, indeed most people in the world were infected at some time in their lives. Fortunatly owing to the good resistance of the host and perhaps to the small number of infecting bacilli, the vast majority of people overcame the invaders without any important evidence of illness. In small proportion the infecting dose was so large or the host resistance was so poor that clinical tuberculosis resulted. (6)

Hippocrates (460 B.C.) the father of medicine called it phthisis which means to dry up. (28)

Avicenna, (980-1037) in his Canon of medicine gives an interesting account of the importance of phthisis, the frequency of hemoptysis in spring phthisis in pregnancy , ... etc. (19)

In 1882, the German scientist Robert Koch discovered the causative agent of tuberculosis, the tubercle bacillus or mycobacterium tuberculosis which ranks one of the most important discoveries in bacteriology in the history of medicine. (34)

Von Pirquet (1907) discovered the tuberculin test as a mean of diagnosis of tuberculosis. (28)

Roentgen (1895) discovered X-Ray which later proved to be valuable for the diagnosis of tuberculosis. (28)

Soon after the first World War the B.C.G. vaccine was evolved by The French scientists Calmette and Guerin and it was tested in 1921.

Virchow (1821-1902) the Founder of cellular pathology, described the development of caseation in tuberculous tissue and believed that the susceptibility to the disease is inherited and not the disease itself. (19)

The real break through in the battle against tuberculosis was the discovery of streptomycin in (1944), para-aminosalicylic acid (P.A.S.) in 1946, and isoniazid in 1951. (24)

These drugs have revolutionized the methods of treatment of tuberculosis and have given a hope that tuberculosis control would be attainable in a reasonable time. (24)

Rifampicin and ethambutol (1968) are new drugs which have greatly improved the cure rate of tuberculosis in particular among those who are resistant to the first line drugs. (17)

New short-term chemotherapy regimens were added recently which greatly improved the cure rate of tuberculosis.

Tuberculosis has no cause other than the tubercle bacillus discovered by Koch and there is no tuberculosis without this bacillus. Clinical diagnosis of tuberculosis, by such means as percussion, auscultation, X-Ray examination or tuberculin testing, is presumptive (Darzin). There is no healthy carriers of tubercle bacilli and all material containing tubercle bacilli is pathologic, eliminated from foci of infection. This conclusion is based on the result of thorough work of Feldman and Baggentoss (1939) and others. (19)

The W.H.O. Expert Committee on tuberculosis in 1964; from the epidemiological point of view, defined a "case" of pulmonary tuberculosis as one suffering from bacteriologically confirmed disease. (6)

Diagnosis Of Tuberculosis

1) Direct film :-

From sputum in pulmonary tuberculosis, C.S.F. deposit in tuberculous meningitis, urine deposit in renal tuberculosis and stool in intestinal tuberculosis.

Staining :- Because of the high lipoid content of the cell wall they are difficult to stain with ordinary gram stain. They are stained with hot strong carbol Fuchsin and resist decolorisation with 20% sulphuric acid and also with alcohol (Acid and Alcohol Fast). This is the basis of Ziel-Neelsen stain. The tubercle bacilli appear as deep pink slender rods 4 x 0.4 u, straight or curved, even or beaded, the ends are rounded, tapering or expanded, rarely filamenteous and filtrable forms, they arranged singly or in pairs, no capsule, no spore and non motile. Sputum to be positive by direct film it should contain 100,000 bacilli per ml. So direct film is a good positive test (easy, rapid and cheap.) but if it is negative it should be repeated 3-6 times on different occasions. If direct film is still negative culture of the material should be done. (19)

2) Culture methods :-

It gives more positive results, also it can be used for doing antibiotic sensitivity test. If the material is contaminated (sputum, stool or urine) Petroff's method of decontamination should be done, then the neutralized deposit is cultured on Lowenstien Jensen or Dorset's egg medium. The human type tubercle bacilli

grow best on Lowenstien Jensen medium which contains glycrine while bovine type bacilli grow well on Dorset's egg medium and sometimes even fail to grow on Lowenstien medium. Then incubate at 37°C for 2-3 weeks. Any arising colonies are identified morphologically. If no growth wait for 8 weeks before you give negative results.(19)

3) Animal inoculation :

Guinea pigs are highly susceptible to both human and bovine tubercle bacilli. Animals are tested for tuberculin sensitivity before inoculation to ensure that they are not naturally infected with tubercle bacilli. Acid or Alkali treated specimen is injected, after neutralization. intramusculary in the thigh region of guinea pig weighing about 300 gm. Less than ten viable bacilli can not be relied upon to cause infection in every animal. Two animals are normally used for the test as chance of both dying of intercurrent disease is remote and increases possibility of positive result. The animals are observed weekly from the third week on, for enlargement of femoral glands which when enlarged and tuberculin test shows positive reaction the animal is killed for postmorten examination. Acid fast bacilli should be seen in the smear from caseous material of lymph nodes or internal organs.(19)

4) Tuberculin test :

It is a skin allergic test depends upon delayed type of hypersensitivity response. Tuberculin is prepared as O.T. (old tuberculin) or P.P.D. (purified protein derivative). The active principle in both consists of protein derived from the human tubercle bacilli. When the test is positive this indicates that the individual has been infected by tubercle bacilli, but it does not tell whether it is active or latent. The reaction appears as an area of indurated swelling not less than 10 mm in diameter. (6)

5) Roentgenographic examination :

A chest X Ray is required before the physician can exclude a tuberculous lesion in the lung. Confirmation by bacteriological or other proceduresare required to make a precise diagnosis. In pulmonary tuberculosis the roentgenographic techniques used in diagnosis fall in the following :-

(1) M.M.R : They are usually done with 70 mm micro films made with photofluorographic techniques.

(2) Regular examination : This usually includes standard 14 x 17 inch posteroanterior and lateral films.

(3) Special examination : Consist of bronchogram, flouroscopy and also standard filming may be carried out in different positions e.g. Lordotic or oblique.

Classification Of Extent Of The Disease :-

The National Tuberculosis Association of the U.S.A. classified the extent of the disease as follows:-

Minimal. Minimal lesions include those which are of slight to moderate density but which do not contain demonstrable cavitation. They may involve a small part of one or both lungs, but the total extent, regardless of distribution, should not exceed the volume of lung on one side which is present above the second chondrosternal junction and the spine of the fourth or the body of the fifth thoracic-vertebra.

Moderately advanced. Moderately advanced lesions may be present in one or both lungs but the total extent should not exceed the following limits : disseminated lesions of slight to moderate density which may extend throughout the total volume of one lung or the equivalent in both lungs : dense and confluent lesions which are limited in extent to one third the volume of one lung;