Chapter VI

Discussion and

Conclusion
DISCUSSION

The present study entitled "Clinical Evaluation of a Unani Adjuvant Formulation for Enhancement of Efficacy of Anti tubercular Treatment" was conducted in Department of Moalijat Faculty of Medicine (U) Jamia Hamdard, New Delhi.

The present study was conducted on 40 cases of pulmonary tuberculosis that are fresh AFB Positive patients of which 20 cases in each group, test and control. The test group (A- Group) received ATT with test drug (UNIM-104) and control group (B-Group) received ATT with placebo. Patients were selected randomly from O.P.D, Majeedia Hospital and DOTS Center of Lal kuwan, near chawdi bazar Old Delhi-6. The test drug UNIM-104 in a dose of 5 gm twice a day and Placebo were received by each patient up to three months.

The demographical observations were recorded including age, sex, marital status, occupation, past history, dietary habits, addiction, family history, living place (Habitat), socio-economic status and temperament (Mizaj).

In our study, 65% patients were in the 18 to 28 year age group. This data showed higher prevalence in ages between 18-28. This finding was in commensuration with Frieden et al, Park K, Kumar and Abbas etc. in which they have quoted higher prevalence in age group of 15-45 years.

According to this study 62% of the male patients were affected from tuberculosis. This is in accordance with the reported finding of 70% of incidence in males by Gupta et al and 58% of males by Park K. Mostly patients were married, as the disease is more prevalent in advanced age group. The highest prevalence of TB among labourers and helper which is 40% according to this study. Obviously this section of society belongs to lower socioeconomic strata and faces the constraints of nutrition, sanitation and proper housing.

As shown in the table no.6 mostly patients were in the lower income group. These data were found consistent with the statement of Park K, and study of Jamison et al in which they revealed higher prevalence in same socioeconomic status.
In this study mostly patients were having no family history of TB, and in those having family history parents were mostly effected. In this present study mostly patients were Har and Yabis temperament or Safravi Mizaj, this finding coincides with statements of Razi, Majoozi, Ibn Sina, Jurjani etc. that Diq is most common in Har Yabis Mizaj patients. Contemporary data are not available for comparison.

The improvement in fever in the control as well as in test group after 3 months of treatment was found to be highly significant. Hence it is concluded that test drug has no antipyretic effects.

The Cough (1-NAD, 2-mild, 3- moderate and 4- sever) was present in both groups in equal number. the study showed no improvement in this symptom over the course of treatment. There is no significant effect of test drug on haemoptysis, Night Sweating and weight gain. There is improvement in HB % of the test group after treatment. the earlier studies has shown same result.

The present study showed that there is decrease in TLC and DLC in the test group after starting treatment over a period of time, the findings are in line with other studies already done and the study also indicates that the drug has a significant effect to reduce the ESR at the end of therapy in comparison of control group.

In case of serum bilirubin the 'P' value was found highly significant after the end of therapy and liver enzyme also markedly decreased in test group in comparison to control group. this has also been confirmed in earlier studies.

In our study smear of AFB positive cases converted early in test group in comparison to control group indicating bacterio-static effects of the test drug.

In case of Chest X-ray the resolution was higher. At the end of follow up of present study, the result was found to be highly significant in test group, previous studies has shown same result.

In both the test and control group smear AFB positive cases of MTB at baseline became negative after 3 months of treatment, so test drug has no adjuvant role in prevention of MDR-TB as no patient went into MDR in control group.
The test drug was also found safe on kidney because no any alteration was found in (KFT) at the end of the study. In both the test and control group sputum culture positive cases of MTB at baseline became negative after 3 months of treatment, so test drug has no adjuvant role in prevention of MDR-TB as no patient went into MDR in control group.

TB is the leading cause of death that can be attributed to single infectious disease agent. It is one of the top 10 causes of death.[64,65] The vast majority of tuberculosis cases are found in developing world and the disease occurs predominantly in people aged 15-59 years.[1] It is estimated that about one third of current global population is infected asymptomatically with tuberculosis, of whom 5-10% will develop clinical disease during their life time.[31]

It is estimated that TB affects 1.7 billion individual worldwide with 8-10 million new cases in which 1.7 million deaths occur each year.[66] 80% of TB patients live in Asia and sub Sahara Africa.[67,68,70] India, China, Indonesia, Bangladesh and Pakistan account for more than half of global estimate of active TB.[71]

India is the highest burden country in the world, about one-fifth (20%) of the global burden of TB. Every year approximately 1.8 million persons develop tuberculosis, of which about 0.8 million are new smear positive cases. Two out of every five Indians are infected with TB bacilli. Every day about 5 thousand people develop the disease. Patients with this infectious disease can infect 10-15 persons in a year.[31]

However the biggest challenge of all, as per the WHO, estimated in 2009 that 4.4 lakh multi-drug resistant (MDR) stains of TB a year, which are both hard to detect and treat.

"The main issue is in Russia, China and India, where most of global MDR burden lies.

In India TB kills more adults in the most productive age group (15-54 years) than any other infectious disease. The disruption caused to society and economy is enormous. Patients take on an average of 3-4 months to recover, losing that much income. The loss is disastrous for those struggling against poverty and financial crisis. The direct cost of
disease in India annually is estimated at 300 million US dollar and indirect cost is three billion US dollar.\textsuperscript{[31]}

Tuberculosis kills more women in reproductive age group than all causes of maternal mortality combined and it may create more orphans than any other infectious disease. Nearly one-fifth of female infertility in India is caused by TB. Infected women of India face constraints. They depend on others to get necessary medical attention. It is considered as a stigma in the society. Due to this stigma every year one lakh women are rejected from society.\textsuperscript{[31]}

Those persons who are in pollution with silicosis have an approximately 30-\textit{fold} greater risk for developing TB\textsuperscript{[79]} because Silica particles irritate the respiratory system, causing immunogenic responses such as phagocytosis, which, as a consequence, results in high lymphatic vessel deposits.\textsuperscript{[80]} It is this interference and blockage of macrophage function that increases the risk of tuberculosis.\textsuperscript{[78]} Some possible indoor sources of silica include paint, concrete and Portland cement. Crystalline silica is found in concrete, masonry, sandstone, rock, paint, and other abrasives. The cutting, breaking, crushing, drilling, grinding, or abrasive blasting of these materials may produce fine silica dust. It can also be in soil, mortar, plaster, shingles, and wearing dusty cloths.\textsuperscript{[81]}

Those persons with chronic renal failure and also on hemodialysis have an increased risk: 10–25 times greater than the general population. Persons with diabetes mellitus have a risk for developing active TB that is two to four times greater than persons without diabetes mellitus, and this risk is likely greater in persons with insulin-dependent or poorly controlled diabetes. Other clinical conditions that have been associated with active TB include gastrectomy with attendant weight loss and malabsorption, jejunoileal bypass, renal and cardiac transplantation, carcinoma of the head or neck, and other neoplasms (e.g., lung cancer, lymphoma, and leukemia).\textsuperscript{[82]}

Low body weight is associated with risk of tuberculosis as well. A body mass index (BMI) below 18.5 increases the risk by 2-3 times. On the other hand, an increase in body weight lowers the risk. Patients with diabetes mellitus are at increased risk of contracting
Tuberculosis, and they have a poorer response to treatment, possibly due to poorer drug absorption. Other conditions that increase risk include the sharing of needles among I.V. drugs users; recent TB infection or a history of inadequately treated TB; chest X-ray suggestive of previous TB, showing fibrotic lesions and nodules; prolonged corticosteroid therapy and other immunosuppressive therapy; Immunocompromised patients (30-40% of AIDS patients in the world also have TB) hematologic and reticuloendothelial diseases, such as leukemia and Hodgkin's disease; end-stage kidney disease; intestinal bypass; chronic malabsorption syndromes; vitamin D deficiency and low body weight.

Twin studies in the 1940s showed that susceptibility to TB was heritable. If one of a pair of twins got TB, then the other was more likely to get TB if he was identical than if he was not. These findings were more recently confirmed by a series of studies in South Africa. Specific gene polymorphisms in IL12B have been linked to tuberculosis susceptibility.

Some drugs, including rheumatoid arthritis drugs that work by blocking tumor necrosis factor-alpha (an inflammation-causing cytokine), raise the risk of activating a latent infection due to the importance of this cytokine in the immune defense against TB.

An Indian study was done to evaluate the ability of Curcuma longa (CL) and Tinospora cordifolia (TC) formulation to prevent anti-tuberculosis (TB) treatment (ATT) induced hepatotoxicity. The herbal formulation prevented hepatotoxicity significantly and improved the disease outcome as well as patient compliance without any toxicity or side effects.

Clinical study on treatment of Tadarrun-e-revi (Pulmonary tuberculosis) with evaluation of uanai formulation as an adjuvant therapy with Antitubercular treatment, by Dr. Fayyaz Alam, department of moalijat, Jamia Hamdard in year 2005. The test drugs used Sat-e-gilo (Tinospora cordifolia), Rub-us-soos (Glycyrrhiza glabra) and Tabasheer (Bambusa arundinaceae). The significant effect were found in reducing fever, cough, expectoration in test group in smear positive cases. ESR also decreased markedly more
in test group in comparison to control group, LFT was within normal limit. There were no significant changes in HB % TLC, DLC and no improvement was found in appetite and night sweating at the end of therapy.

A study on Management of Tuberculosis with a herbal Unani product (Lawsonia inermis) as an adjuvant drug, by Dr. Azhar jabeen, department of moalijat, Jamia Hamdard.

The two groups were compared, the results were significant in changing sputum smear positive cases in test group, there were also significant difference in serum bilirubin level after two month of study.

It may be concluded from this study that the lawsonia inermis was possibly having an antibacterial or immunostimulation effect to enhance bacterial clearance.

Clinical study on tadaran-e-evi (Pulmonary tuberculosis) and evaluation of efficacy of a Unani drug as immunomodulator as shown by enhance resolution rate by Mohd Farooq Naqish bandi in 1998.

The drug is Asgand (Withania somnifera), After treatment for two month clinical, radiological, and bacteriological features were compared. Patients weight improved, and there was improvement in sputum conversion from positivity to negativity, improvement in ESR was also noted.
Conclusion

1. In our study, 65% patients were in the 18 to 28 years age group. This data showed higher prevalence in ages between 18-28.

2. According to this study, 62% of the male patients were affected from tuberculosis.

3. The highest prevalence of TB is among labourers and helpers which is about 40% according to this study.

4. In this study, mostly patients were having no family history of TB, and in those having family history, parents were mostly affected.

5. The improvement in fever in the control as well as in test group after 3 months of treatment was found to be highly significant, hence it is concluded that test drug has no antipyretic effect.

6. There is no improvement in cough. This observation clearly indicates that the test drug is not having anti-tussive effect.

7. The study has showed that the test drug is also having haemopoietic effect as Hb is increased in Test groups.

8. There is significant improvement in LFT in our study, all these effects are due to hepatoprotective property of the test drug. The hepatotoxicity observed in control group was probably due to ATT, it is not seen in the test group because of the test drug.

9. In our study, smear of AFB positive cases converted early in test group in comparison to control group indicating bacterio-static effects of the test drug.

10. In chest X-RAY the result was found to be highly significant in test group this shows that the test drug has anti-inflammatory and healing effect.

11. In both the test and control group smear AFB positive cases of MTB at baseline became negative after 3 months of treatment, so test drug has no adjuvant role in prevention of MDR-TB as no patient went into MDR in control group.