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PREVALENCE OF DRUG ADHERENCE AMONG TUBERCULOSIS PATIENTS ALONG WITH CO MORBIDITIES AT SMBBU HOSPITAL LARKANA, SINDH

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ABSTRACT

Objectives: The purpose of this study was to measure the prevalence of adherence in patients suffering from tuberculosis along with co morbidities.

Method: A cross sectional observational study was conducted to measure the prevalence of adherence by using Hill-Bone Medication adherence scale on 450 patients suffering from tuberculosis and other co morbidities at Tuberculosis Center, SMBBU Hospital Larkana, Sindh, Pakistan after taking informed consent.

Results: In this study 74% patients were male where as only 26% were female. Majority of the patients belongs to rural areas while few belong to urban areas. Literacy wise 136 study subjects were intermediate passed while only 29 patients were primary pass. 52% study subjects were unemployed where as only 19% patients were have government job. Majority of the patients were of 49 to 58 years of age while only 43 patients were of age from 79 years and above. 6% study subjects were prescribed 05 drugs, 9% were prescribed 06 drugs, 39% were prescribed 07 drugs, 36% were prescribed 08 drugs, 12% study subjects were prescribed 09 drugs. Co morbidity wise 35% patients were suffering from TB along with hypertension, 26 % with TB plus diabetes, 14% patients with TB plus hepatitis & 25% study subjects suffering from TB along with some other diseases. Prevalence of drug adherence among study subjects was very low.

Conclusion: The study concludes that the prevalence of drug adherence to anti TB & other medicines among tuberculosis patients along with co morbidities is very low.

Keywords: Tuberculosis, Co morbidity, Adherence, Non adherence

INTRODUCTION

One of the most prevalent infectious diseases worldwide is tuberculosis[1]. With more than 10 million new cases reported each year[2]. TB is still the infectious disease that claims the lives of the most adults globally. The diagnosis of this ailment may change as a result of advancements like whole-genome sequencing and fast molecular testing on sputum and non-sputum samples[3]. Despite the fact that little has changed in the management of drug-susceptible tuberculosis due to data on better efficacy with new and repurposed drugs, the WHO for the first time ever recommended complete oral therapy for drug resistant tuberculosis in 2018[4,5]. According to studies, shorter latent tuberculosis preventive regimens based on rifampicin or rifapentine are equally effective as longer regimens based on isoniazid, and a potential vaccine candidate

exists to prevent the infection from becoming the sickness[6]. But relying solely on modern equipment is insufficient. Improved patient-centered, high-quality TB care is required. The morbidity, mortality, and stigma that have long been associated with tuberculosis might be eliminated with renewed political will and improved access to high-quality care[7].

For the past 25 years, tuberculosis has been recognized as a global public health emergency since it is the infectious disease that kills more adults worldwide than any other. Public health efforts to combat tuberculosis have saved tens of millions of lives 1, but little progress has been made in terms of managing the disease, let alone eradicating it[2,3]. Currently, drug-resistant tuberculosis strains are the most fatal illnesses in the world, accounting for 25% of deaths caused by antimicrobial resistance[8]. It will take a lot of vision and extreme action to defeat this completely curable virus, which continues to be one of the major health problems in the world[6]. There is a lot of hope and research being done right now, despite the grim state of tuberculosis in the world. In the ensuing ten years, the disease's devastation might eventually begin to slow down. Tuberculosis is an illness brought on by poverty. Despite projected tuberculosis incidence rates being fewer than ten per 100,000 persons annually in the majority of high-income countries, the 30 countries with a significant tuberculosis burden (which are predominantly low-income and middle-income countries) have an estimated 183 per 100 000 individuals annually as a group, with yearly incidences of more over 400 per 100 000 individuals in eight nations[9]. A disproportionate number of poor people worldwide suffer from TB[10]. Few countries are anticipated to reach the UN Sustainable Development Goals' goal of eradicating tuberculosis by 2030 if current incidence trends persist, according to data for the disease from 1990 to 2016[10,11]. In many situations, drug-resistant tuberculosis poses a severe threat to efforts to manage the disease. Rifampicin-resistant tuberculosis is contracted by about 500,000 people annually, but only 160 684 of them obtained a diagnosis or notification, and only 139 114 of them started treatment in 2017. According to modelling, the incidence of tuberculosis will increase if rifampicin-resistant tuberculosis is not promptly diagnosed and treated. Rifampicin-resistant TB is becoming more common today. Improvements in general living conditions have significantly reduced tuberculosis morbidity and death in countries with low tuberculosis burdens, despite the fact that people from lower socioeconomic class groupings are known to have a higher risk of developing the disease[12]. A groundbreaking study carried out in recently acquired Peruvian shanty towns indicated that indoor air pollution, having few windows per room, and the socioeconomic status of the household were all important predictors of tuberculosis infection and illness[9,10].

There is still no reliable, simple point-of-care test that can be used to identify the presence of tuberculosis, despite significant advancements in the diagnosis of the disease. Although clinical findings, radiographic data, and testing for bacterial products that indicate the presence of M TB also support this conclusion, clinicians frequently request a bacteriological diagnosis. Currently, WHO has approved a number of diagnostic and pharmaceutical susceptibility tests.

The WHO advises that all tuberculosis patients be offered daily treatment with fixed-dose combinations[13] The two primary therapeutic advances in the treatment of drug-sensitive tuberculosis have been high-dose rifampicin and the addition or substitution of fluoroquinolones in the regimen. Although the most common type of drug-resistant tuberculosis worldwide is isoniazid-resistant tuberculosis[14]. All-oral regimens are now recommended for the majority of individuals with rifampicin-resistant TB for the first time. Significant clinical researches have shown that shorter regimens, as well as regimens containing more effective drugs, can be used to treat rifampicin-resistant tuberculosis. It is currently standard practice to treat patients with drug-susceptible extra pulmonary tuberculosis (including meningitis and osteoarticular disease) for a full 12 months as well as children with rifampicin-resistant tuberculosis for 9 to 12 months if their condition is not severe. The number of drugs used and the time of therapy are two features of tuberculosis treatment regimens that are assumed to be predetermined but may alter depending on the severity of the infection[15,16].

The use of adjuvant medications, long-term consequences, and considerations for specific groups (including children, adolescents, and individuals with HIV, diabetes, or other co-morbid illnesses) should all be taken into account when selecting a treatment strategy. In the past, direct observation therapy has been used to improve adherence and guarantee that tuberculosis patients receive effective treatment (DOT). In order to get

better results, improving the standard of TB care must be a primary priority. To do this, system-wide action to develop high-caliber healthcare systems will be required [17].

Material and methods

Study Setting
Patients were recruited from Tuberculosis Center OPD, who were came for follow up visit at Shaheed Mohtarma Benazir Bhutto Medical University Hospital Larkana.

Target Population
Tuberculosis patients along with co morbidities.

Study design
Cross Sectional

Duration of study
08 months.

Sample size
450

Inclusion Criteria
Tuberculosis patients coming for follow up visits since 6 months. Patients with co morbidities were also included. Only those patients were included whose age equal to or greater than 18 years. Male & female both included in the study. Patients who availing consultancy of consultants of Tuberculosis OPD of Shaheed Mohtarma Benazir Bhutto Medical University Hospital Larkana.

Exclusion Criteria
Patients admitted in wards were excluded. New Tuberculosis patients who are visiting first time Tuberculosis opd of Shaheed Mohtarma Benazir Bhutto Medical University Hospital Larkana.

Measurement of Medication Adherence
The Hill-Bone Medication Adherence (HBMA) scale was used for measuring Medication Adherence among TB patients.

Data Collection Procedure
Only those hypertensive patients were enrolled, who have been visiting Tuberculosis opd of hospital since 6 months. Clinical examinations were done by consultant Pulomonologists for all patients. The Hill-Bone Medication Adherence (HBMA) scale was filled after taking informed consent, on every follow-up visit of patient. Same method was applied for all the patients on their visit for prescription refill.

Data Analysis/Statistical Procedure
The data was analyzed by using descriptive statistics.

Ethical Consideration
All the data was shared with the participants. All the methods mentioned above have no harmful effects on the patients. This study was approved by Ethical Review Committee of SMBBMU Larkana through Reference No.SMBBMU/ERC/143.

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Results

Demographic distribution of study subjects

In Table 01 demographic details of the patients are given in which majority of the study subjects were male as compared to female, while locality wise majority of the study subjects were belongs to rural areas. Literacy wise majority of the patients were of intermediate pass while minorities of the patients were primary pass. On the basis of job nature majority of the patients were without job while few have government job.

Table 1. Demographic details of study subjects

	Variables	n (%)
Gender	Male	332 (74%)
	Female	118 (26%)
Locality	Rural	287 (64%)
	Urban	163 (36%)
Literacy	Primary	29 (6%)
	Matriculation	89 (20%)
	Intermediate	136 (30%)
	Graduation	81 (18%)
	Un Educated	115 (26%)
Employment	Government Employee	87 (19%)
	Non Government Employee	129 (29%)
	Un Employed	234 (52%)

Age wise distribution of study subjects

In Table 02, age wise groups of the study subjects were given, in which majority of the study subjects were of age from 49 years to 58 years where as few of the study subjects were of age from 29 years to 38 years.

Table 2. Age wise distribution of study subjects

	Variable	n (%)
Age in Years	18-28	52 (12%)
	29-38	48 (11%)
	39-48	69 (15%)
	49-58	92 (20%)
	59-68	65 (14%)
	69-78	81 (18%)
	79 to onwards	43 (10%)

Drug wise distribution of study subjects

In Table 03, study subjects were divided according to no of total drugs prescribed to them by the consultants. Majority of the patients were prescribed seven drugs where as no any patient was prescribed only four drugs.

Table 3. Drug wise distribution

S.No	No. of drugs prescribed	n (%)
1	5	29 (6%)
2	6	41 (9%)
3	7	176 (39%)
4	8	151 (34%)
5	9	53 (12%)

Co morbidity wise distribution of participants

In Table 04, patients were divided according to co morbidity wise, majority of the patients were suffering from TB along with hypertension & minority of the patients were of TB along with hepatitis.

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Table 4. Drug wise distribution

S.No	Name of the disease along with TB	n (%)
1	Hypertension	156 (35%)
2	Diabetes	117 (26%)
3	Hepatitis	62 (14%)
4	Others	115 (25%)

Measurement of adherence in patients suffering from TB along with other diseases

In table 05, adherence of the enrolled patients was measured regarding taking the medicines on time by using Hill-Bone Medication Adherence Scale. The majority of patients were found to be non-adherent to therapy, habitually missing doses both intentionally and unintentionally, and failing to take their medications as directed by their doctors.

Table 5. Measurement of non adherence of drugs

S.No	Item	Response	n (%)
1	How often do you forget to take your TB & other medicines?	1. All of the Time 2. Most of the Time 3. Some of the Time 4. None of the Time	20 (5%) 117 (26%) 284 (63%) 29 (6%)
2	2 How often do you decide NOT to take your TB & other medicines?	1. All of the Time 2. Most of the Time 3. Some of the Time 4. None of the Time	35 (7%) 103 (23%) 292 (65%) 22 (5%)
3	How often do you forget to get prescriptions filled?	1. All of the Time 2. Most of the Time 3. Some of the Time 4. None of the Time	31 (7%) 189 (42%) 211 (47%) 19 (4%)
4	How often do you run out of TB & other medicines?	1. All of the Time 2. Most of the Time 3. Some of the Time 4. None of the Time	15 (3%) 137 (31%) 289 (64%) 09 (2%)
5	How often do you skip your TB & other medicines before you go to the doctor?	1. All of the Time 2. Most of the Time 3. Some of the Time 4. None of the Time	21 (5%) 47 (10%) 171 (38%) 211 (47%)
6	How often do you miss taking TB & other medicines when you feel better?	1. All of the Time 2. Most of the Time 3. Some of the Time 4. None of the Time	157 (35%) 115 (25%) 135 (30%) 43 (10%)
7	How often do you miss taking your TB & other medicines when you feel sick?	1. All of the Time 2. Most of the Time 3. Some of the Time 4. None of the Time	49 (11%) 37 (8%) 89 (20%) 275 (61%)
8	How often do you take someone else's TB & other medicines?	1. All of the Time 2. Most of the Time 3. Some of the Time 4. None of the Time	23 (5%) 39 (9%) 117 (26%) 271 (60%)
9	How often do you miss taking your TB & other medicines when you are careless?	1. All of the Time 2. Most of the Time 3. Some of the Time 4. None of the Time	75 (17%) 81 (18%) 188 (42%) 106 (23%)

Discussion

Tuberculosis is one of the leading infectious diseases throughout the world including Pakistan. Many people are died due to untreated tuberculosis. For treatment of tuberculosis patients must take the drugs according to

the treatment guidelines, because if the patient missing the dose of drugs the resistance may be developed by the micro organism against the drugs. The studies suggest that the resistant tuberculosis is more dangerous than non resistant tuberculosis. There was no any study was conducted in Sindh province especially in Larkana division for measuring adherence among tuberculosis patients along with other diseases. There were many similar studies were conducted throughout the world to measure the adherence in TB patients, because the therapy of TB comprises on 4 drugs and if the patient have other diseases like hypertension, diabetes or hepatitis whose management may also require 2-4 additional drugs. Therefore this study similarly with other studies suggest that for such patients special attention may be given for improvement of adherence like patients may be counseled or text message reminders, phone call reminders or any other intervention may be adopted to adhere the patients with their prescribed therapy.

Conclusion

According to the findings of this study, Tuberculosis patients along with co morbidities at Shaheed Mohtarma Benazir Bhutto Medical University Hospital in Larkana had a very low rate of adherence due to medication forgetfulness, the use of multiple medications, frequent dosage intervals, low literacy rates, prolonged treatment durations, and the cost of the medications. It was seen that study participants tentionally and intentionally failed to take their medications as directed by their doctors. Therefore the therapeutic outcomes of the therapy was not achieved according to the therapeutic plan as a results the duration of the therapy becomes prolonged, in some patients resistance was also developed as a result the economical burden may also increased on patients. This study concludes that the interventions may be adopted to improve the adherence among patients so that the patients may take their prescribed medication as prescribed to them.

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