Pre-Treatment Loss To Follow-Up During Course Of Tuberculosis: A Systematic Review

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Abstract

A critical problem in the fight against tuberculosis (TB) is "loss to follow-up (LTFU)", which can result in treatment resistance and TB outbreaks. Countries, places, years, and institutions have various percentages of LTFU patients. In some locations, the proportion of LTFU patients is so high that it is almost equal to 50% of all patients. This review details underlying issues such as age, gender, education, place of residency, financial factors, migration, and societal stigma. Each time a treatment program is developed, these elements must be taken into account. There have been suggestions for certain interventions that might be able to address the LTFU issue. Given these issues, an aggressive approach should be taken to minimize the incidence of LTFU patients to zero.

KEYWORD: LTFU, TB, Tuberculosis, Loss to follow-up etc.

1. INTRODUCTION

An illness like TB requires more than merely biomedical treatment. Standard TB therapy, as advised by the WHO, should last at least six months. [1] To be cured, patients must consistently and uninterruptedly get treatment. However, therapy termination due to LTFU is a serious concern that requires immediate care, particularly in patients with "multidrug-resistant tuberculosis (MDR-TB)". The percentages of LTFU & its contributing causes vary by country. Comprehensive knowledge of these underlying reasons is required for any nation's "National Tuberculosis Program" (NTP) to be effective and productive. Therefore, to accomplish the objectives of the NTP, adequate actions targeting LTFU are required. [1, 2]

As per suggestions of WHO, the definition of LTFU is "A TB patient who did not start treatment or whose treatment was interrupted for two consecutive months or more." [2, 3]. Because these people are more likely to develop treatment resistance, LTFU poses major health risks to the public. They continue to infect the public by dispersing potentially resistant bacilli. As seen in Norway, the United States, and Austria, even one case of LTFU could start a TB outbreak. Most index patients in these outbreaks are immigrants who infect their families, acquaintances, and other social networks. [4, 5]

However, few studies of extra-pulmonary TB patients like the French study showed 25% for lymph node TB patients [6], Gabon study shown 24.3% for cervical lymph node TB patients [7], and in India, 10% for military tuberculosis patients having neurological manifestations [8] and 25.8% in Saudi Arabia for CNS tuberculoma patients. LTFU among certain special populations like childhood and elderly TB patients should pay attention to. Fellow healthcare workers, due to their less medical knowledge, may

create troubles in the healthcare services. Prisoners and migrants are also coming under special population; were in illegal foreign fishermen, the ration was major [9]. Individual governments are less effective in resolving cases from immigrants; 'international intergovernmental' have to put maximum efforts to succeed in the program.

2. FACTORS CONNECTED TO LTFU

1. Individual Factors

Age is a sociodemographic trait that has been linked to LTFU among other sociodemographic traits. Elderly patients had higher LTFU, according to investigation from Brazil, India, & China [2, 12], although research from Botswana, Norway, & South Africa indicates that adolescents are at a high risk [13]. One UK research found that individuals between the ages of 15 and 44 were also at a high risk for LTFU. In Georgia, Ethiopia, Kenya, & Uzbekistan, males have a continually greater LTFU, according to numerous studies [14].

Urban residency is associated with LTFU in Uzbekistan, while rural residency is associated with LTFU in Pakistan. Reason may be two like one is access to the treatment center mean nearness LTFU and another is transportation to commute to center. Health education regarding TB and the right kind of counselling should always be at the center of a program to cure TB [3]. Financial concerns such as unemployment in Uzbekistan, pre-school kids, jobless laborers, as well as retirees from China, financial restraints observed in India, and homelessness in the US indicate that low income continues to impede LTFU [10,15-19].

Prior to beginning treatment, a thorough review of one's personal history should be conducted in order to identify any risk factors for LTFU. Patients who use tobacco, illicit drugs,smoking or alcohol should also receive extra attention because these conditions are also linked to these behaviors [2,16,17,19,20].

Some factors specific to disease are also to responsible for this. Patients suffering from extrapulmonary TB as well as co-morbid conditions such as HIV infection & diabetes mellitus; already infected LTFU patients are more likely to relapse [10,13,21].

2. Treatment support services

Lack of provider support and assistance may be a hindrance to regular follow-up and protection against LTFU. Time flexibility is a need of patients [3, 19].

3. Diagnosis and treatment

Initiation of the treatment (within 30 days of onset) and timing of treatment interruption during the intensive phase are important. According to the investigators, patients treated in PFP [private-for-profit] "Directly Observed Treatment facilities" are affluent, have higher education, nutrition, & awareness of TB than those treated at PNFP DOT facilities. So, intervention should be targeted toward the patient as a whole; not for a single problem. The provider must be consistent throughout intensive phase and continuation phase [22].

4. Drug side effects

Drug side effects like hepatitis, vomiting, might need self-rating are associated with LTFU as seen in USA and India [11, 19].

5. Social factors

Treatment may get difficult for the factors like migration and social stigma. Migration from the developing to developed countries like UK and USA and Asian countries is a factor [5,12,18, 23]. Social TB stigma, where people do not like to give counseling to health workers in order to have fear to get this news spread to the community, is also another social factor. At such places, some secret treatments should be started. TB stigma may prevent or cause LTFU. LTFU may also be affected by things like marital & family relationships, domestic tasks, peer pressure, and the way a family works [3, 19].

6. Scoring instrument

Rodrigo et al. (2012) made a scoring tool to forecast the chance of LTFU. Scores of 0, 1, 2, 3, 4, & 5 points are linked to a lost to follow-up possibility of 2.2 percent, 5.4 percent, 9.9 percent, 16.4 percent, 15 percent, and 28 percent, together with their risk factors (RFs) associated. This makes it easier for healthcare professionals to recognize people who may be at risk of LTFU and take preventative measures [24].

3. INTERVENTIONS

1. Directly observed treatment (DOT)

WHO-recommended "Directly Observed Treatment Short Course (DOTS)", which is well-known in the field of TB. Patients suffering from tuberculosis have had their lives saved as a result of this. On the other hand, a review & meta-analysis on DOT in comparison to self-administered therapies came to the conclusion that the rate of TB cure as well as treatment completion was low with self-administered treatment in these experiments, as well as direct observation didn't significantly enhance either of these factors. Consequently, requests for complementary and alternative tactics in addition to DOT were made in an effort to address its shortcomings [25].

2. mHealth

The "Global Observatory for eHealth (GOe)" has given definition of mHealth as "medical and public health practice supported by mobile devices, such as mobile phones, patient monitoring devices, personal digital assistants (PDAs), and other wireless devices"[26]. Reminders for appointments and programs to increase treatment compliance are the two that are most important for lowering the LTFU rate.

In 2017, Hermans and colleagues looked at a text message service for appointment and medication reminders at the "Infectious Diseases Institute (IDI)" in Kampala, Uganda. 96 percent of the people who used the service discovered it beneficial, which was affirmed by the qualitative findings. The study of the data, however, didn't support these observations. The tiny sample size could be the cause of the lack of statistical significance. So, further bigger sample sizes needed tobe evaluated. [27]

3. eCompliance

OpASHA created the biometric-based application called eCompliance, which works similarly to mHealth in that it sends text message notifications when a dose is missed. OpASHA stated the rate of LTFU is < 4%. OpASHA claimed and tested in Uganda by Snidal et al. (2012) [28], where LTFU rate is unexpectedly reduced to 0% in the intervention group, which was outstanding result. But the large-scale was supposed tobe incorporated to reduce LTFU.

4. Community-based Programs

Health extension workers' (HEWs) creative community-based initiative to enhance TB treatment. HEWs were conducting active case findings, then sputum smear process and anti-TB treatment was conducted, and monitored. Patients' proportion LTFU decreased appreciably upto 3% [29]. eCompliance of LTFU, as well as community-based initiatives, utilized "task shifting" towards basic healthcare personnel to assist this program at the fundamental level.

5. Social Support Programs (SSPs)

A new SSPs like "treatment support group" supports a variety of requirements of the patient like transportation, treatment and emotional support, and may provide housing for homeless patients. The LTFU rate reduced to zero.

6. Legislation

Law enforcement may be able to solve the LTFU problem in some nations. Generally for the homeless and alcohol abused LTFU patients were being isolated in prisons instead of hospital. The medical officers have to carry out a short-term incarceration of the LTFU patients by using power of health laws.

Patient detention presents ethical and civil rights issues. The "Siracusa Principles", which were approved by the UN Economic and Social Council, say that the main objective of arrests is to safeguard the public health. In light of this knowledge, it is clear that imprisonment is not a viable alternative to the measures that are being taken to combat the RFs of LTFU [30].

4. CONCLUSION

LTFU is a serious and unignorable issue. Through this work, the effects of LTFU, their prevalence in various nations, and their underlying causes have all been discussed. Many researchers have created potentially effective intervention techniques to fight and to prevent against LTFU. However, further data and efforts are required in order to minimize the prevalence of LTFU patients. Take this into consideration, and a determined plan should be adopted to decrease the percentage of LTFU patients to zero.

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