



Applying patient centered approach in management of pulmonary tuberculosis: A case report from Malaysia

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ABSTRACT

A 24 year university student with history of productive cough was registered as sputum smear confirmed case of pulmonary tuberculosis. During treatment, patient suffered from itchiness associated with anti tuberculosis drugs and was treated with chlorpheniramine (4mg) tablet. Patient missed twenty eight doses of anti tuberculosis drugs in continuation phase claiming that he was very busy in his studies and assignments. Upon questioning he further explained that he was quite healthy after five months and unable to concentrate on his studies after taking prescribed medicines. His treatment was stopped based on clinical improvement, although he did not complete six months therapy. Two major reasons; false perception of being completely cured and side effects associated with anti TB drugs might be responsible for non adherence. Non sedative anti histamines like fexofenadine, cetirizine or loratadine should be preferred over first generation anti histamines (chlorpheniramine) in patients with such lifestyle. Patient had not completed full course of chemotherapy, which is preliminary requirement for a case to be classified as "cure" and "treatment completed". Moreover, patient had not defaulted for two consecutive months. Therefore, according to WHO treatment outcome categories, this patient can neither be classified as "cure" or "treatment completed" nor as "defaulter". Further elaboration of WHO treatment outcome categories is required for adequate classification of patients with similar characteristics. Likelihood of non adherence can be significantly reduced by applying the WHO recommended "Patient Centered Approach" strategy. Close friend, class mate or family member can be selected as treatment supporter to ensure adherence to treatment.

KEY WORDS

Pulmonary tuberculosis; patient centered approach; treatment outcome; itchiness non-sedative anti histamines.

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INTRODUCTION

Tuberculosis is a global tragedy with incidence rate of around 9 million cases per year. It is one of the foremost causes of adult deaths every year. Fundamental objectives of tuberculosis (TB) control are to detect disease as early as possible and to make sure that those diagnosed complete their treatment and be cured. In mid 1990s, Directly Observed Treatment Short course (DOTS) strategy was adopted as basis of tuberculosis control. Isoniazid (H), pyrazinamide (Z), rifampicin (R), ethambutol (E) and streptomycin (S) are recommended as first line treatment[1]. Treatment outcome of tuberculosis is reported on the basis of classification (table 1) which is developed and recommended by the working group of WHO and International Union against Tuberculosis and Lung disease (IUATLD)[1].

Adherence to T.B treatment is crucial in achieving "cure". One of the major barriers to successful treatment outcome is default from treatment. In 2006, WHO has reported 5% default rate for smear positive pulmonary tuberculosis patients[1]. In developing countries, major causes of default include, feeling of being completely cured once sign and symptoms are resolved[2], lack of patient motivation, side effects of drugs, economic and transportation problems and socio-psychological factors[3]. Default or interruption from treatment may result in persistent infectiousness[4], relapse, drug resistance[5] and increased morbidity & mortality. In order promote drug adherence, WHO has emphasized on patient centered approach. Regular supply of drugs, high quality continuous ambulatory care, and positive activities to remove barriers to TB treatment are the key elements of patient centered approach[1].

Time delays between onset of symptoms and start of treatment is another important consideration in management of TB. Sherman et al[6] reported increased risk of *Mycobacterium tuberculosis* transmission as a consequence of these delays.

We would like to discuss a case of pulmonary tuberculosis with family history of TB. Time delay between onset of symptoms and start of TB treatment was around one month. During treatment patient experienced itchiness associated with anti TB drugs. Patient was not traceable after 5 months of treatment. Although, patient did not complete full course of treatment but his therapy was stopped after six months.

CASE DESCRIPTION

A 24 year male patient (49kg) with family history of tuberculosis (parents and cousin) approached primary health care unit with history of productive cough for one month, loss of weight and pleuritic chest pain for last ten days. Next day, he was referred to tertiary health care unit (chest clinic of Hospital Pulau Penang) as a suspected case of pulmonary tuberculosis. Patient reported at chest clinic after 14 days of issuance of referral letter from primary health care unit. In chest clinic, he was registered as sputum smear confirmed (S +1, 1-9 acid fast bacilli/100 fields) case of pulmonary tuberculosis. Chest X ray showed consolidation in upper lobe of right lung. ESR of patient was elevated to 24 mm per hour. All other biochemical tests were normal. Time delay between reporting at chest clinic and start of treatment was one day. Drugs prescribed for intensive phase (IP) of TB treatment were isoniazid (225mg), rifampicin (450mg), pyrazinamide (1200mg), ethambutol (825mg) (in fixed dose combination) and vitamin B₆ (10 mg) to be administered on daily basis at primary health care unit. After one month (next scheduled appointment at chest clinic), patient reported at chest clinic with complain

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Table 1: Tuberculosis treatment outcome categories according to WHO and IUATLD recommendations.

Outcome	Definition
Cure	A patient whose sputum smear or culture was positive at the beginning of the treatment but who was smear- or culture-negative in the last month of treatment and on at least one previous occasion.
Treatment completed	A patient who completed treatment but who does not have a negative sputum smear or culture result in the last month of treatment and on at least one previous occasion.
Treatment failure	A patient whose sputum smear or culture is positive at 5 months or later during treatment. Also included in this definition are patients found to harbor a multidrug-resistant (MDR) strain at any point of time during the treatment, whether they are smear-negative or -positive.
Died	A patient who dies for any reason during the course of treatment.
Default	A patient whose treatment was interrupted for 2 consecutive months or more.
Transfer out	A patient who has been transferred to another recording and reporting unit and whose treatment outcome is unknown.
Treatment success	A sum of cured and completed treatment.

of itchiness. Patient was still sputum smear positive (S +1) with minimal cough. In order to subside itchiness, doctor prescribed one tablet of chlorpheniramine (4 mg) to be taken at night or when required. Patient was advised to continue anti TB treatment and report at chest clinic after another one month. At appointment date (after one month), patient claimed no cough. Sputum smear was also negative for acid fast bacilli (AFB). Patient still complained occasional itchiness. After careful examination, patient's therapy was changed to continuation phase (CP). During CP, patient was advised to take isoniazid (250mg), rifampicin (600mg) and vitamin B₆ (10 mg) daily for 4 months at primary health care unit. He was also counseled to take chlorpheniramine tablet (4mg), when required. Patient was informed to visit chest clinic after two months to evaluate treatment progress. On appointment date patient claimed no cough and his chest X-ray was better. Patient was again advised to visit chest clinic after two months and continue treatment at primary health care unit. Patient continued his treatment for another one month at primary health care unit and then defaulted from treatment. He also refused to answer phone calls from chest clinic. Patient returned to the chest clinic after 28 days of defaulting treatment and explained that he was busy at work place. He also claimed that he was quite healthy after five months of treatment and unable to concentrate on his studies after taking anti TB drugs. The patient was counseled to continue his treatment, but he defaulted again after two days. He returned a week after default and on questioning, his symptoms improved with no loss of weight or loss of appetite. He was sputum smear was negative for AFB. All other biochemical tests were normal. On the basis of his clinical improvement, his treatment was stopped. He missed 7 out of 56 doses in intensive phase and 28 out of 112 doses in continuation phase. He was classified as cured.

DISCUSSION

Family members, especially children and persons working in close contact (for example class mates) with an infected person are at higher risk for being infected [7]. In current case, time difference between onset of symptoms (productive cough) and start of treatment was more than one month. Moreover, patient was a student making close contact with friends and class mates rendering them at higher risk of getting tuberculosis. Transmission of *Mycobacterium tuberculosis* is positively associated with delay in diagnosis and start of anti TB treatment of infectious individual [6]. Another important consideration in current case is the patient's default from treatment during intensive and continuation phase. Two major reasons; false perception of being completely cured and side effects associated with anti TB drugs might be responsible for non adherence. From case history it is evident that sign and symptoms (mainly cough and pleuritic chest pain) were resolved after two months. Patient himself reported that he was completely healthy after five months of treatment. Hence, resolution of sign and symptoms earlier than completion of treatment might be a reason for patient's non adherence. Jaiswal et al [2] reported perception of being cured is one of the major reasons of default from TB treat-

ment. It has been further stated that such patients are at higher risk of relapse and drug resistance [5]. WHO has recommended patient centered approach to eliminate barriers of TB treatment. This approach focuses on measures to identify and address physical, financial, social and cultural obstacles to accessing TB treatment services [1]. Convenient clinic hours with minimal waiting time, appointment of family member, close friend or general practitioner as treatment supporter, motivated health care workers with managerial support, provision of incentive packages and proper education of patient about nature and duration of therapy are few options to minimize chances of default in current case.

During treatment patient also suffered from itchiness which was treated with chlorpheniramine (tablet) 4mg at bed time or when required (PRN). Chlorpheniramine belongs to first generation anti histamines having sedation as secondary pharmacological action [8]. In current scenario, patient has to focus a lot on his studies as he is a university student. Upon questioning, patient himself stated his failure to concentrate on studies once he takes medicine. Therefore, non sedative agents like fexofenadine, cetirizine or loratidine [9] with equivalent anti histamine [10] efficacy seem to be better contenders. Consequently, sedation associated with chlorpheniramine and itchiness [3] itself might be few other reasons for non adherence.

Patient has not completed full course of chemotherapy, which is preliminary requirement for a case to be classified as "cure" and "treatment completed". Moreover, patient has not been non complaint for two consecutive months. Therefore, according to WHO outcome categories [1], this patient can neither be classified as "cure" or "treatment completed" nor as "defaulter" (table 1). However, according to TB treatment outcome indicators in England, Wales and Northern Ireland [11] we can classify this patient in "treatment stopped" category.

CONCLUSION

To reduce treatment delays, there is a strong need to educate patients so that they seek care more quickly. To avoid transmission of *Mycobacterium tuberculosis*, infectious patients must be counseled to wear specially designed masks. However it is a better option to isolate infected patients until they are noninfectious. By applying patient centered approach, we can trim down chances of non adherence. Anti histamines must be used rationally according to patient's lifestyle. Further elaboration of WHO treatment outcome categories is required for appropriate classification of patients with similar characteristics.

ETHICAL APPROVAL

Ethical approval was taken from Ministry of Health, Malaysia (ref. dim. KKM/NIHSEC/08/08/04P10-69).

COMPETING INTEREST

Authors declare that they have no competing interest.

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