Original Research Article

Study of supervision by household members in the prevention of defaults of the patients taking short course chemotherapy for pulmonary tuberculosis

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Abstract

Background: The default is the biggest challenge in TB control due to the length and complexity of TB treatment. A key component of the DOTS strategy for tuberculosis control is direct observation of treatment. Supervision can be done by a family member and should undertake this role. **Aim:** To identify default and cure rates among patients taking short course chemotherapy for pulmonary tuberculosis supervised by household members. **Material and Methods:** A total of 140 patients with newly diagnosed pulmonary TB were supervised by household members like spouses, mothers and father, brother or sister. All members were trained by TB program staff to properly administer anti-TB drugs to the patient and to mark the patient's treatment card after each dose was administered. **Results:** In present study, 72.85% (102/140) of the supervisors were the patient's spouse, 20% (28/140) were the mother and 7.14% (10/140) were other (father, brother, sister). Of these household members, 37.14% (52/140) worked outside of the home. All the patients supervised by household members were cured totally. **Conclusion:** The high cure rate by using household members in present study suggests that these members can be utilized as supervisors in DOTS strategies in settings with limited resources.

Keywords: Pulmonary tuberculosis, DOTS, household members, supervision.

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INTRODUCTION

Pulmonary tuberculosis (TB) is a major public health problem in developing countries. The greatest burden of tuberculosis incidence and mortality in developing countries is in most productive members of society aged 15-60 years. The standard short course chemotherapy for TB lasts six months and requires taking multiple drugs regularly. Many patients stop taking drugs after 2 months because they feel better. It has been observed that usually patients stop taking their medications before completion.[1]Such patients are called 'Defaults'. The default is the biggest challenge in TB control due to the length and complexity of TB treatment. When default rates are high, many patients are not cured and are at risk for the development of acquired drug resistance.[2] Directly observed treatment (DOT) is among the multiple strategies that have been tried to promote adherence and reduce defaults.[3,4]A key component of the DOTS strategy for tuberculosis control is direct observation of treatment. WHO technical guidelines recommend that health worker watches the patient swallow each dose of medications. Identifying the most practical and cost-effective method of supervision that results in the highest cure rates is an important issue for the implementation of the DOT

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strategy. Supervision can be done by a family member and should undertake this role. The present study aimed to identify default and cure rates among patients taking short course chemotherapy for pulmonary tuberculosis supervised by household members.

MATERIAL AND METHODS

A total of 140 patients with newly diagnosed pulmonary TB, who were treated at a tertiary care hospital were included in the study. In accordance with usual TB program procedures, before beginning anti-TB therapy patients chose whether their treatment would be supervised by a person living in their household (domiciliary supervisor) or a HCW. The study protocol was approved by the Institutional Ethical Committee.

Inclusion criteria

All patients diagnosed as a new case of pulmonary TB and supervised by household member were included in the study.

Exclusion criteria

Patients with extrapulmonary TB, undergoing secondary TB treatment and re-entering after dropouts or relapses were excluded.

Methodology

The household members (domiciliary-supervised group) ready to be supervisors were trained by TB program staff to properly administer anti-TB drugs to the patient and to mark the patient's treatment card after each dose was administered. Drugs and treatment cards were supplied to the household supervisors every other week and were reviewed together by the supervisor and a TB program worker every other week. Patients were followed-up during monthly scheduled visits to the TB reference outpatient clinics over the six months of anti-TB treatment. Sputum specimens were collected under routine TB program conditions before starting treatment and at the end of therapy. Failing to attend clinic for more than one month during treatment was defined as default. Treatment cure was defined as no clinical signs or symptoms of TB and/or having a negative sputum culture after receiving six months of anti-TB treatment. For patient profiles, data on age, sex, education, chest radiographic findings, presentation of disease, HIV status, sputum smear and treatment outcome were obtained from treatment records and the TB laboratory.

RESULTS

Maximum number of patients were between the age group of 21 to 50 years with mean of 31±4.2 years. The majority of the patients 94 (67.14%) were male. Most patients had smear positive, culture confirmed pulmonary TB.In the present study, 32.85% of the total patients were illiterate. 46.42% were having educational statusup to primary school and only 5.71% up to college level.

Table 1: Socio-demographic data of the study population

Socio-demographic data	No. of patients	Percentage
Age groups (years)		
<20	05	3.57%
21-30	52	37.14%
31-40	48	34.28%
41-50	23	16.42%
>50	12	8.57%
Sex		
Male	94	67.14%
Female	46	32.85%
Educational status		
Illiterate	46	32.85%
Primary school	65	46.42%
High school	21	15%
College	08	5.71%

In present study, 72.85% (102/140) of the supervisors were the patient's spouse, 20% (28/140) were the mother and 7.14% (10/140) were other (father, brother, sister). Of these household members, 37.14% (52/140) worked outside of the home. All the patients supervised by household members were cured totally.

Table 2: Distribution of household members worked as supervisors

Household members	No. of patients	%
Spouse	102	72.85%
Mother	28	20%
Others (father/brother/sister)	10	7.14%

DISCUSSION

A key component of the DOTS strategy for tuberculosis control is direct observation of treatment. Household members can be better treatment supervisors than HCW in some program settings since they may more effectively mobilize a network of family support around the patient's treatment than HCW can. HCW in TB programs are often overburdened by duties, large patient numbers and limited transportation for outreach patients and treatment supervision. The household members know the patient well and are invested in their care. Maciel *et al* found improved treatment outcomes by using household members as supervisors of TB treatment in a poor urban setting in Brazil.[5]Although, the feasibility and effectiveness of using household members as treatment supervisors may differ in different settings and cultures. In present study, most of the patients were from the age group 21-50 years. This is economically productive age group. These patients do not want to spare time to collect drugs from treatment centre because wasting of that much time obviously affect the daily wages. In our study, illiterate and minimal educated patients were more.

Possibly, an illiterate patient also has uneducated family members, who can have difficulty in recognizing the medication and taking notes on the treatment cards, which are required for this strategy. Patients with stronger home relationships and family resources may have elected to have a household member as a treatment supervisor. In present study, all the included patients supervised by household members were cured. Earlier studies from other program settings showed that household members are good DOT supervisors and can increase adherence and cure rates.[6,7] Our study is in concordance with these studies. If household members are used as supervisors that can frees up resources and HCW time for other important tasks in TB control. The good results achieved with this strategy in our setting suggest that this strategy can be applied in TB programs in developing countries with limited resources like India.

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