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Original Article

FEASIBILITY OF COMMUNITY DOT PROVIDERS FOR TUBERCULOSIS TREATMENT IN HIV INFECTED INDIVIDUALS - A PILOT STUDY*

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Summary

***Background*:** This paper summarises our experiences about the role of community DOT providers in management of TB treatment in HIV infected persons in a mainly rural population of Tamilnadu.

Objectives: To evaluate the feasibility of employing Community DOT providers for the treatment of tuberculosis in HIV infected persons, to study patients' acceptance of Community DOT providers in the closely-knit village communities and to find out the attitude and awareness of DOT Providers on TB and DOT.

Method: A total of 62 tuberculosis patients (58 males and 4 females) with HIV infection attending the Government Hospital for Thoracic Medicine, Tambaram and Chennai between July 1999 and July 2002 were selected for this study. Patients were given all the doses under supervision (clinic-based DOT) during the initial intensive phase and through Community DOT providers in the continuation phase. Data was collected both from the patients and their DOT providers about their views on DOT, advantages of DOTS, drug intake, treatment adherence, problems faced by the patients and their DOT Providers in addition to the level of awareness of Community DOT Providers on tuberculosis and DOTS.

***Results*:** Regarding treatment adherence, 95% of 62 patients had taken >75% of drugs and 39% had taken 100% drugs. DOT was appreciated both by the patients and their DOTS Providers since it is cost-effective and patient-friendly.

Conclusions*:** Community contribution to TB care even among HIV infected population is feasible, affordable and cost-effective. There is a need for greater health education and training on tuberculosis and DOTS for community DOT Providers. ***[Indian J Tuberc 2005; 52:179-183]

Key Words: HIV, Tuberculosis, DOT, Community DOT Providers.

INTRODUCTION

Directly Observed Treatment, Short-course (DOTS) was introduced in India in 1993 as part of the Revised National Tuberculosis Control Programme (RNTCP) following a review of India's National Tuberculosis Programme (NTP) a year earlier[1]. DOTS is an effective strategy to control and treat tuberculosis even in people who are HIV positive. But, directly observed treatment, in which a health worker observes and assists as patients take their medicine, is the most controversial component of DOTS[2-8]. Health facility-based DOT for all tuberculosis patients is often impractical in most developing countries, as it is more labour intensive due to high case load and may often require patients to travel long distances every day in order to receive ambulatory treatment[9]. An alternative and practical method of delivering effective treatment to patient involves community participation in tuberculosis treatment delivery in which community volunteers, local leaders, colleagues in the work place, shop-keepers, teachers and many others can be actively and usefully involved in offering ambulatory treatment at home. DOT has been implemented successfully in many countries using community-based strategies utilizing trained lay persons to observe treatment[10]. Hence, as a part of the pilot study which aimed to study the impact of different RNTCP regimens in the treatment of tuberculosis among HIV infected individuals, community-based DOT was arranged for those patients who were unable to attend the clinic due to long distances during the continuation phase. This paper describes the feasibility of employing community DOT providers for tuberculosis treatment delivery among HIV infected persons to find out their influence on patient treatment compliance. The patients' acceptance of Community DOT was studied by eliciting information on their satisfaction as well as problems or limitations faced

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due to DOT.

MATERIAL AND METHODS

Government Hospital for Thoracic Medicine is considered as a specialized centre for the treatment of tuberculosis and HIV/AIDS. Since it is a referral centre, normally the distance from patients' house to the health centre ranges between 25 kms to 450 kms. Due to limitations in attending the health centre for treatment because of the distance, we decided to involve Community DOT providers for those patients who were unable to attend the clinic as required.

The study population consists of 62 patients with HIV and tuberculosis and their DOT providers. Patients registered between July 1999 and July 2002 who received DOT were included in this study. Adult tuberculosis patients with confirmed HIV infection status were hospitalised at Government hospital for Thoracic Medicine, Chennai and were administered different RNTCP regimens.

Regimens used were:

Category I: $2H_3R_3E_3Z_3/4H_3R_3$
Category II: $2S_3H_3R_3E_3Z_3/1H_3R_3E_3Z_3/5H_3R_3E_3$
Category III: $2H_3R_3Z_3/4H_3R_3$

During the initial intensive period, patients were given anti-TB drugs in the hospital three days a week. During the continuation phase, the patients coming from distant places were offered the choice of selection of the DOT providers near their houses who would be responsible for observing treatment. Each patient received a small book with the dates of drug intake for each month and the DOT providers were given on-the-spot training to observe and record treatment. When patients reported to the health facility for monthly examinations, medical officers verified the DOT books and recorded patient's adherence in their respective case papers.

Data collection involved the administration of separate questionnaire for the patients and their DOT providers by the trained personnel. The field staff visited patients' houses after the treatment is over and interviewed the patients and DOT providers. Both the patients and their DOT providers were encouraged to express their views freely. The data collected was verified and coded and statistical analysis was done by SPSS.

RESULTS

Socio-Demographic Profile of Patients and DOT Providers

The general characteristics of 62 patients and their DOT providers are summarised in Table 1. Among patients included in the study, males outnumbered females (Male 58, female 4) and among the DOT providers the males were 39 and the females were 23. Eighty nine percent of the patients belonged to sexually active age group of 18-40 years and 69% were school educated. Incidentally, 73% of the respondents came from rural areas with the mean distance of 245 kms from the health centre spending approximately Rs 80/- towards their transport charges. Out of 62 patients, 65% were employed and sickness was the main cause for unemployment. They included unskilled labourers (29%), lorry drivers (24%), farmers (20%), self-employed (12%) and others (15%). Seventy-three percent of the study subjects had their own houses. Besides, 18% of the respondents had the contact history of tuberculosis in their families, especially their parents. As far as the personal habits were concerned, 52% had reported smoking, alcoholism or both and only two were dependant on drugs. Out of 62 patients, 79% had reported that they had unprotected sex with women in the sex industry and 3% had a previous history of blood transfusion.

Out of 62 DOT providers, 63% were males, 56% were below 40 years, 84% were married and 74% were school educated. Of the 62 DOT providers, 43(68%) were employed, 17(27%) were unemployed and 3(5%) were retired. The occupation of the DOT providers included self-employed (14), health workers such as doctors, pharmacists, village health nurses (9), housewives (9), unskilled labourers (8), teachers(7), small farmers(7), and others(8). DOT providers consisted of 3 groups, community volunteers (37), family members (17) and friends

Table 1: Characteristics of patients and DOT providers

		Patients		DOTS Providers	
		Number	**%**	**Number**	**%**
Sex	Male	58	94	39	63
Age	<31 31-40 >40	27 28 7	44 45 11	18 17 27	29 27 44
Marital Status	Single Married Separated Widow	16 39 5 2	26 63 8 3	9 52 - 1	15 84 - 2
Education	Illiterate School Education College Education	18 43 1	29 69 2	3 46 13	5 74 21
Region	Rural Semi-Urban Urban	45 8 9	73 13 15	45 8 9	73 13 15

(8). The reason for the selection of family members and friends as treatment supervisors was mainly due to stigma and fear about others in small closely-knit village communities coming to know about their sickness.

DOT

Of the patients registered during the study period, 50 were treated under Category I (81%), 9 under Category II (14%) and 3 under Category III (5%) RNTCP regimens. The duration of clinic-based DOT at GHTM was not uniform for all patients due to patients' general condition, convenience and availability of beds. Regarding the treatment adherence, 95% of 62 patients had taken >75% of drugs and 39% had taken 100% drugs. Community DOT was highly appreciated by the patients and the advantages listed by the patients were: less time loss (85%), financial benefit by saving transport charges and one day wages (74%), work not affected (66%), proximity (48%) and personal attention (44%). Cost-effectiveness was an important consideration in this community DOT study.

Location of DOT

The place of DOT differed depending upon the convenience and availability of patients and their DOT providers. For 86% of the respondents, DOT was given at DOT providers' houses or their workspots, for 8% at patients' houses and for the remaining 6% either at DOT providers house or at patients house during the course of treatment.

Problems encountered during DOT

A small percentage of DOT providers (16%) had expressed problems like adverse drug reactions and default by the patients. When confronted with these problems, they had either referred the patients to the health centre or local doctors. There were few instances of the drugs being given to the patients for self-administration and the reasons for not taking drugs under observation by DOT providers were out-station trips, work related, preference to take drugs after food and the non-availability of DOT providers.

Awareness about Tuberculosis and DOT among DOT Providers (Table 2)

The knowledge of DOT providers on cause, symptoms, mode of transmission and treatment of tuberculosis was elicited to find out whether they were aware of the basic facts about the disease. Of the 62 respondents, 50% mentioned TB germs as the cause of the disease and 72% had told coughing was responsible for the spread of the disease. Chest X-ray was quoted by 81% while sputum examination was given by 65% as investigations to be done for tuberculosis. Of 62 DOT providers, 66% had mentioned 6 months or 6-9 months as duration of treatment for tuberculosis. Only 7 had heard of DOT when patients approached them for drug observation.

Table 2: Awareness of DOT providers and Tuberculosis

	Number	%
I Cause of TB		
TB Germs	31	50
Addiction	17	27
Poor hygiene	13	21
Lack of food	11	18
Over work	3	5
Worries	3	5
No idea	14	23
II Diagnostic tests		
X-ray	50	81
Sputum examination	40	65
Blood test	33	53
Urine examination	12	19
Physical examination	6	6
Mantoux test	4	6
No idea	6	10
III Treatment period		
<6 months	3	5
6-9 months	38	61
>9 months	14	23
No idea	9	15

DISCUSSION

The purpose of DOT is to ensure patient adherence to treatment[11]. Hence it is important to provide DOT at a time and place that is convenient and acceptable to patients. Khan UA et al[12] had found out from his study that the high costs of attending may be deterring patients and in particular, economically active patients who have most to lose from the time taken by direct observation. According to S.J.O'Boyle et al[13], a major factor influencing compliance with DOT is the cost and time of travelling to a treatment centre and the provision of free drugs alone is therefore not sufficient. Local DOT was preferred due to financial benefit (no transport charges, no travelling time and no loss of wages), due to proximity and personal attention by the local DOT providers[14]. The results suggest that a programme based on the ambulatory treatment of patients by community DOT providers is a cost-effective design, largely because of the reduced costs to the patients themselves.

People with TB live in families and communities. A basic principle of TB control is provision of care as close as possible to the patient's home. Community based care of people with illness has become popular as communities recognize that hospitals have limitations in providing adequate support within the home or local community.

An option of a family member to give DOT

dates back to the early days of development of anti-Tuberculosis chemotherapy regimens[15]. Family support can alleviate patient's economic and social problems. Family members can also observe patients taking their medications, provide encouragement and remind them to keep their medical appointments[16]. In the specialized group of HIV/AIDS where the stigma is very strong, the patients might not feel free with the conventional DOT providers like village health nurses, ICDS workers. In the future, when there are large-scale HAART treatment strategies for HIV/AIDS patients, family members can be considered as DOT providers along with community volunteers.

The success of DOTS depends mainly on the attitude, commitment and performance of the DOT provider[17]. The finding on DOT providers' level of awareness on tuberculosis and DOTS was not satisfactory and there is a need to educate community DOT providers on tuberculosis and DOTS.

In summary, this paper describes our experiences with community DOT providers in tuberculosis treatment delivery to HIV infected persons. The result suggests that community contribution to TB care even among HIV infected population is feasible, affordable and cost-effective.

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