The prevalence of and reasons for interruption of anti-tuberculosis treatment by patients at Mbekweni Health Centre in the King Sabata Dalindyebo (KSD) District in the Eastern Cape province

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Abstract

Background: In spite of effective therapy, tuberculosis (TB) is still a major health problem in developing countries. In 1993, therefore, the World Health Organization declared TB a global emergency. In South Africa, TB is one of the most prevalent diseases, with an incidence of 556 per 100 000 population. In spite of free TB drugs in the public service and the directly observed treatment short course (DOTS) strategies, there is still a high prevalence of TB and a high treatment interruption rate in rural South Africa.

Methods: The objectives of this study were to establish the prevalence of TB and reasons for the interruption of TB treatment by patients attending Mbekweni Health Centre in King Sabata Dalidyebo (KSD) district in the Eastern Cape province. This was a cross-sectional study in which data were collected from 15 July 2004 to 15 January 2005 from patients who were on TB treatment and interrupted their treatment between 6 August 2001 and 30 December 2003.

Results: Of the 255 TB patients who attended for treatment, 121 (47.5%) had interrupted their treatment. Reasons given for interruption included change of living place (18.96%), no money to go to the clinic (15.52%), feeling better (13.78%), side effects of the drug (6.90%), did not know the treatment course (5.17%), physical disability either old or too sick to collect treatment and nobody to help (5.17%), clinic too far (1.73%), drug not available in the clinic (13.83%) and no reasons (8.62%).

Conclusion: The prevalence of treatment interruption was high in this study. Change of living place, lack of money for visiting the clinic to collect treatment, feeling better, and no drugs at the clinic were the major reasons given for interruption of treatment. Ensuring the availability of TB drugs at the health centre/clinic, patient education about TB and strengthening the DOTS programme, including a stipend for the DOTS supervisors, would help to reduce the prevalence of treatment interruption.

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Introduction

In 1993, the World Health Organization (WHO) declared tuberculosis (TB) a global emergency because it kills more adults each year than any other infectious disease.[1] TB accounts for 1.6 million deaths annually.[2] Despite large efforts in the field of mycobacterium TB research over the past few decades, little progress has been made in the development of novel chemotherapeutic agents. However, the availability of the genome sequence has led to the identification and characterisation of potential drug targets for this pathogen.[3–6] The problem is further compounded by the fact that, tentatively speaking, it is estimated that one-third of the world's population harbours *Mycobacterium tuberculosis* in some latent or dormant form and therefore is at risk of developing reactivation of the disease.[7]

About 9 million new cases of TB occur each year, which includes people who are also infected with HIV/AIDS. The global case load is certainly rising and being driven upwards in sub-Saharan Africa by the spread of HIV/AIDS. One of the reasons for the persistent burden of TB is failure to address the principal risk factors.[8] In 1991, the World Health Assembly set a target for 70% case finding of smear positive TB and 80% of those identified cases should complete anti-TB treatment.[9] The most dramatic increase in the number of reported cases has been in sub-Saharan Africa. Between 1984 and 1990, increases of 86%, 140%, 154% and 180% were reported in Tanzania, Burundi, Zambia and Malawi respectively.[10] The impact of HIV on TB prevalence is clearly seen with the increase in the prevalence of congenital TB, paucibacillary or smear-negative TB, extrapulmonary TB, reactivation and reinfection TB and immune reconstitution inflammatory syndrome (IRIS).[11] It has been estimated that a billion people will be newly infected with *Mycobacterium tuberculosis* between 2002 and 2020, unless TB control is further strengthened. More than 150 million people will develop active disease and 36 million people will die.[12]

South Africa is a middle income country and is relatively well provided, with 143 laboratories performing sputum smears and 18 culture laboratories also capable of performing drug sensitivity testing.[13]

Tuberculosis is the most common notifiable disease in South Africa. It ranks second among the 22 high-burden TB countries in terms of TB incidence and seventh in terms of overall TB burden.[14] The rate is equivalent to 29 cases of TB every hour, with 80% of the cases occurring in the 15 to 49 year age group, representing one of the highest rates in the world.[15]

The seriousness of the epidemic was confirmed in June 1996, when the WHO declared that South Africa had one of the worst recorded TB epidemics in the world because of the rising rates of HIV and the emergence of multidrug resistant TB. The TB epidemic is largely a result of historical neglect, health service fragmentation and poor patient management, compounded by one of the fastest growing HIV epidemics ever recorded.[15] In 1996, 86 221 TB cases were reported, 18% of which interrupted their treatment and potentially spread the disease.[16] In South Africa, 550 out of 100 000 have TB. The provinces affected the most are KwaZulu-Natal, the Western Cape, Eastern Cape and Gauteng, which have 80% of TB cases in South Africa. Of these, only 54% are cured and 13% of patients stop taking treatment.[17]

In the Eastern Cape province there has been a dramatic increase in reported cases of pulmonary TB, from 10 358 in 1995 to 28 800 in 1997. The incidence for 1997 was about 500 per 10 000.[18] The provincial cure rate for all pulmonary TB cases in 1997 was 38.3%, with a treatment interruption rate of 21.9%.[19] It represents a huge waste of money and an even greater cost in terms of morbidity and mortality.

This study was done at the Mbekweni Health Centre TB clinic, which is one of the four community health centres (CHC) in the King Sabata Dalindyebo health district. The objective of the study was to explore and describe the reasons why patients at Mbekweni Health Centre do not complete their TB treatment and the rationale was to make recommendations to improve treatment compliance.

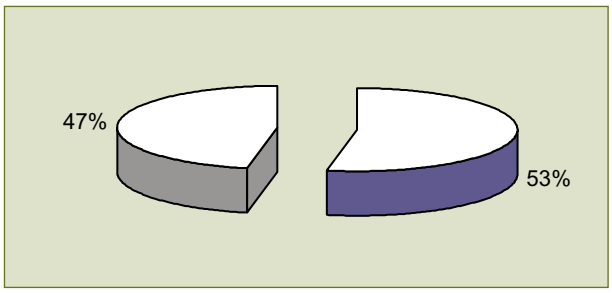
Methodology

A cross-sectional study was undertaken for which all TB patients who were registered at Mbekweni Health Centre for their treatment from 6 August 2001 to 24 December 2003 were included. Demographic and treatment information was obtained from the GW 20 TB treatment blue cards, kept by the TB clinic. The sample size was 95 for a treatment interruption at an expected frequency of 50% with 95% confidence interval. Patients were informed of the study and verbal or written consent was obtained prior to participation. A health educator, nurses and field workers interviewed the participants either at the health centre or at the patient's home. The participants had the option of being interviewed or of completing a questionnaire. During the interview, the opportunity was taken to counsel the patients about TB, the TB treatment course and possible complications of interrupting TB treatment. Approval for the study was obtained from the Ethics Committee of Walter Sisulu University, and permission was obtained from the District Health Manager and the Nursing Service Manager of Mbekweni Health Centre.

Results

According to the records of the GW 20 TB blue cards, 255 patients were registered as pulmonary TB patients on treatment between 6 August 2001 and 30 December 2003, and 121 (47.5%) of these patients did not complete their TB treatment which is shown in Figure 1. Only 61 of these patients who had interrupted their TB treatment could be traced.

Figure 1: Distribution by treatment outcome



Those patients who were interviewed or completed the questionnaire themselves indicated various reasons for interrupting their TB treatment, e.g. no drugs at the clinic and no money to go to hospital (13.83%), too busy at work (3.46%), relative advised to stop treatment (3.46%), did not know the treatment course (5.17%), and clinic too far away (1.73%), while 8.62% provided no reasons. Out of 61 patients 58 patients who interrupted their TB treatment answered the questions while 3 patients did not answer the question, which is shown in Table I.

Sixty of the patients were not interviewed as they were not at home at the time or had changed residence. The age of those who had

Table I: Reasons for interrupting TB treatment according to gender.

	Reasons	Male (No) %	Female (No) %	Total (No) %
1	No treatment at clinic	(1) 1.73	(7) 12.1	(8) 13.83
2	I did not miss the treatment		(2) 3.44	(2) 3.44
3	Side effects of drugs	(1) 1.73	(3) 5.17	(4) 6.90
4	No money to go to clinic	(8) 13.79	(1) 1.73	(9) 15.52
5	Too old / sick / nobody to collect treatment	(2) 3.44	(1) 1.73	(3) 5.17
6	Change of living place	(6) 10.34	(5) 8.62	(11) 18.96
7	Felt well and better	(4) 6.89	(4) 6.89	(8) 13.78
8	Busy at work	(1) 1.73	(1) 1.73	(2) 3.46
9	Relative told to stop TB treatment during pregnancy or as patient had no TB	(1) 1.73	(1) 1.73	(2) 3.46
10	Did not know the treatment course		(3) 5.17	(3) 5.17
11	Clinic too far	(1) 1.73		(1) 1.73
12	No reasons	(4) 6.89	(1) 1.73	(5) 8.62
	Total	29 (50%)	29 (50%)	58 100%

interrupted their treatment ranged from four to 75 years. The mean, mode and median age were 43.8 years, 60 years and 43 years respectively. There were 29 females and 31 males, and most of the interrupters were male in the age group 60 to 69 years. More than one-third (37.9%) of the patients were uneducated and 43.1% were educated only up to Standard 5. None had a tertiary education. Of the patients who interrupted their treatment, 81% were unemployed.

With regard to the treatment regimen of the patients who had interrupted their treatment, 37 (66.6%) were new cases, 10 (20.4%) were being retreated and seven (13%) were treatment failures. Seven patients did not complete the questionnaire with regard to their treatment regimen. During the study it was observed that some patients had poor knowledge about the duration of TB treatment. One patient answered that the treatment course is only for five days, while two answered that it lasted three months and four months respectively. Thirty-four (56.6%) patients knew that the duration of TB treatment was six months, four patients said that the treatment lasted eight months, and 19 patients were totally ignorant of the duration of TB treatment.

There were different perceptions among the patients about interrupting treatment. Fourteen said they would fall ill again, 10 thought nothing would happen to them, five said they might infect others, seven had a fear of death, and two thought they could infect others and may die. Two said they would restart treatment, one said taking treatment without food might make them sick and since meals were often missed because of poverty, treatment was also frequently missed. Seventeen said they did not know the effect of treatment interruption.

Among those who interrupted their treatment, 25 (40.9%) said that they at times had treatment support either from a family member or from a village health worker.

Discussion

All the TB patients in the target population might not have attended Mbekweni Health Centre for various reasons, thus we may have missed interviewing some of them because the study was confined to those patients who attended the health centre during the time frame of the study. At a time when there is a resurgence of TB, largely due to the HIV pandemic, this is an alarming rate of TB treatment interruption. In this situation, interrupting TB treatment is dangerous because of the risk of developing multidrug resistant (MDR) and extensively drug resistant (XDR) TB. The Eastern Cape is one of the poorest provinces in South Africa and because of its poverty, illiteracy, TB and HIV, this is a recipe for disaster.

Regarding treatment interruption in other countries, the problem of non-compliance is frequent in Saudi Arabia and has serious implications. After their period of hospital admission, 456 out of 628 patients (56%) did not attend the first clinic visit. The retrieval system was successful in bringing back some of the patients, however, reducing the defaulter rate to only 13.2%.[20] In a study done in Malawi in 1995, 11.5% of the respondents were registered as defaulters.[21] A household-based survey in six randomly selected catchment areas of Ndola, Zambia established that 29.8% of TB patients failed to comply with the TB drug regimen once they started feeling better.[22]

South Africa faces one of the most devastating TB epidemics in the world. Nearly 48% of the defaulters were lost to follow-up during the time of the survey. A lack of family support was found to be a factor strongly predictive of defaulting.[23] Our study revealed that most of the defaulters were in the 60 to 69 year age group and among the uneducated and unemployed. In South Africa, nurses at primary care level manage about 90% of TB patients. Despite efforts to improve the quality of care for these patients, many fail to complete their treatment as prescribed. Poor rapport between healthcare providers and TB patients is a major reason for non-adherence to treatment.[24] In this study, 42.6% of the patients responded that a doctor informed them that they had TB, 42.7% were informed by a nurse, 9.8% by the village health workers and 4.9% by others. In a study conducted in Hlabisa, South Africa in 1994 and 1995, 629 (17%) out of 3 610 surviving patients failed to complete treatment. This had increased from 11% in 1991 to 22% in 1996.[25] In a study conducted in the Eastern Cape in 2001, 13% of patients interrupted their TB treatment, while a study in the OR Tambo district municipality in 1999 and 2000 found an interruption rate of 19%.[26] The Vulindlela TB home-based care (HBC) project was started at Ntafufu Clinic in Port St Johns in February 2004. Before the project, 74% of TB patients did not complete the course of treatment. After volunteers began to support the patients, 81% completed the treatment successfully.[26] In this study, 47.5% of the patients interrupted their treatment. This was perhaps an indicator of poor follow-up of patients. As this is the first study of this nature at Mbekweni Health Centre, a follow-up study should be done after introducing the remedial measures. Uneducated and unemployed males aged between 60 and 69 years comprised the majority of defaulters. These groups will need special attention and measures in the future, along with the support of family members, health workers, TB field workers, community members, community leaders and the government during and after the treatment. In this study it was found that those who were poor and had to pay more than R6.00 in taxi fare to get to the health centre and back home formed the majority of defaulters. This was supported by the finding that 26.6% of the patients had no income at all, while 16.6% were earning less than R500.00 a month. This study answers some of the questions. Further study needs to be done to find out whether the patients were well informed and counselled by healthcare professionals about their disease, drugs, dose, duration of treatment, possible side effects of drugs, complications of disease, possible complications of treatment

interruption and follow-up dates. In this study it was found that 31.6% of the defaulters did not know the duration of treatment and 28.3% did not know the consequences of treatment interruption. This highlights poor communication and a lack of support during the treatment period. Fourteen per cent of the patients indicated that, at times, they could not get the treatment from the health centre. This represents a healthcare system failure. MDR and XDR TB result mainly from treatment that is inadequate in terms of dose, duration, inappropriate drug regimen, poor quality of drugs and poor compliance by the patients. Complete education of the patients about their disease, drugs, dose, treatment duration, importance of DOTS and treatment compliance is vital to improving the cure rate and to prevent MDR and XDR TB. It is difficult to achieve an 85% cure rate (WHO recommended target) without defaulter tracing and visits to the patients' homes. Even though TB treatment policy and guidelines are in place, key indicators and targets have been identified, and registers and key monitoring tools have been developed, a lack of proper supervision of staff and health institutions and unmotivated, untrained and inadequate staff prevent the desired outcomes from being achieved. Patient overload in the health institution, delays in receiving or not receiving laboratory results and a poor supply of medicines, sputum jars and other necessary materials are some of the realities that act as obstacles to improving the cure rate.

Conclusion

This study established an unacceptably high proportion of TB patients who interrupt their treatment for various reasons. The major reasons were change of living place, no money to go to the clinic, no treatment at the clinic, and that they felt well and better. Other reasons were side effects of the drugs, too old or too sick, did not know the treatment course, that the clinic was too far or that they were busy at work. Some of the patients interrupted their treatment without any reason.

Recommendations

To improve the cure rate and treatment compliance rate, TB drugs and clinics should be easily accessible. Patients should be well informed about the disease and the drugs, e.g. dose and duration of treatment. They should be equipped with education and information about treatment compliance, possible side effects of the drugs, and the effects of treatment interruption, such as possible physical complications, treatment failure, multidrug resistant TB and extensively drug resistant TB. National TB treatment policy, protocol, guidelines, recording, reporting, monitoring and supervision should be a priority. There should be adequate staff, e.g. doctors, nurses and village health workers to treat the patients, as well as for follow up or for home visits as soon as the patients interrupt their treatment. Should the patients move to a new place, they should be advised to inform the clinic and get a transfer letter from the clinic to a nearby health institution to continue their treatment. Where illiteracy and poverty are high, as in the study setting, the idea of voluntary work does not solve the problem. There should be some incentive for the field workers and health workers so that they can cover their daily expenses. Home visits to all TB patients who interrupt their treatment are highly recommended. These visits would help with monitoring and supporting patients, with collection of sputum and with providing their monthly supply of medicine at their home. The visits would also help with tracing those who interrupt their treatment, thereby reducing the treatment interruption rate, treatment failure rate, cross-infection rate, and MDR and XDR TB, and with improving the TB cure rate and reducing the prevalence of TB in the country. Continuity and holistic care of all TB patients is recommended and should be practised.

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