Knowledge and healthcare seeking behaviour of pulmonary tuberculosis patients attending Ilala District Hospital, Tanzania

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Abstract: A cross-sectional study was conducted, based on systematic sampling of consecutive patients with pulmonary tuberculosis (TB) symptoms and who attended the TB clinic for their medication at Ilala District Hospital, Tanzania. The study sample comprised of 153 people who were almost equally distributed among men and women. Three quarters (75%) of the subjects were vaccinated against TB with the majority being 40 years and younger. Half the study subjects were diagnosed to have TB between the 2nd and 4th month after their symptoms appeared. A chest X-ray was used to initiate anti-TB therapy in half the subjects. No consistency was followed in the diagnostic procedures done to confirm the diagnosis. Over half the patients (54.3%) admitted that they openly speak about their illness to others but that only one-third (33.3%) of their friends and family responded in a considerate and sympathetic manner. One-third (36.6%) of the friends and relatives became less friendly and the remaining one-third openly portrayed fear and tried to discriminate the patient even after the commencement of medications. The patients' compliance rate was 100%. The counselling received from the health personnel and the patients' own motivations to improve their health, was the main driving force in seeking treatment and taking daily medication. Discrimination against TB patients by relatives and friends is likely to hinder positive health seeking behaviour and thus impede control of this disease.

Key words: Tuberculosis, healthcare seeking behaviour, diagnosis, discrimination, Tanzania

Introduction

Tuberculosis (TB) is among the most important communicable disease in the world. Tanzania is among the 22 countries with the highest tuberculosis burden in the world (Netto et al., 1999); yet it is one of the only three countries that came close to meeting the World Health Organization (WHO) targets for tuberculosis control (Netto et al., 1999). Re-emergence of tuberculosis in Tanzania has been witnessed in recent years, with the notification rate of smear-positive increasing from 38 per 100 000 population in the period 1983–1987 to 69/100 000 in 1993–1997. This increase has mainly been attributed to the HIV epidemic (Chum, 1998; Range et al. 2001).

In the 1960s and 1970s, effective control reduced TB cases in industrialized countries (Styblo, 1976). On the other hand, in developing countries control practices emphasized case finding over effective treatment, and it is thought that TB cases increased due to this practice (Styblo, 1976). The use of Bacillus Calmette-Guerine (BCG) vaccine was not effective in reducing the incidence due to inadequate coverage, and high infection rate in developing countries. Thus, effective TB control required an adequately functioning health system that could support well-organized diagnosis and treatment services.

In July 1977, the Tanzania National Tuberculosis and Leprosy Programme (NTLP) was launched by the Ministry of Health (NTLP, 2003). The NTLP developed the Directly Observed Treatment Strategy (DOTS) evolved by WHO worldwide (WHO, 1994). Despite these efforts, the number of TB cases among 15-49 years olds in the country increased from 11,753 in 1983 to 63,000 in 2003 with 26.2% of the total in Dar es Salaam alone (NTLP, 2003). Since, community knowledge and attitudes are important aspects of disease control and prevention, this study was therefore, carried out to determine behavioural characteristics of pulmonary tuberculosis (PTB) patients attending the outpatient clinic at Ilala District Hospital, Tanzania.

Materials and Methods

This facility-based study was conducted at Ilala District Hospital in Tanzania. Ilala district is one of the three districts in Dar es Salaam, Tanzania. The district is 273km^2 and is divided into 3 divisions and 22 wards. The district population is about 634,924 (http://www.tanzania.go.tz/census/.

The target population was all the TB patients receiving medication from the hospital TB clinic in June 2003. Data was collected through interviewer-administered questionnaires, observations, recordings from the TB clinic cards and filling in the check list for prevalence of BCG vaccination; time lapse between initial symptoms and final diagnosis; diagnostic tests performed; perception of the illness by the patient and their surrounding community; compliance to DOTS treatment. Information on household persons per room was also sought from each candidate.

The ethical clearance to carry out the study was provided by the Hubert Kairuki Memorial University. The details of the research protocol were discussed

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with each candidate and those who gave their informed consent were recruited in the study.

Results

A total of 153 TB patients met the study inclusion criteria. Most patients were those who received daily medication, but a few were attending the clinic every 2 days to collect their medication. The majority (75%) were young adults (20-49) years old. The <20years old and ≥49 years old accounted for 9.8% and 30%, respectively. Males were 54.2% and females were 45.8%. The BCG scars were observed in 117 (76.5%) patients, most of which (75.2%) were in the 20-49 years group. All 15 cases under the age of 20years had BCG scars. Only 7/23 (30%) of those ≥49 years old had BCG scars.

Time period between occurrence of symptoms and final diagnosis in hospital was on average 7 weeks.

19.3% (28/153) were diagnosed after >20 weeks (Table 1).

Symptoms which prompted reporting to health facility were mainly productive cough (60.1%); night sweats (51.0%), shortness of breath (39.9%), and chest pain (24.0%). Majority (53.6%) of cases were put under treatment after chest X-ray only. Standard diagnostic procedure (chest X-rays and 3 positive sputum tests) were completed in order to make definitive diagnosis in 41 (26.8%) cases (Table 2). A high level of ascertained previous TB contact was mentioned by 51.6% (79/153) of the cases (close family members and neighbours).

The major social characteristic associated with tuberculosis among the patients was overcrowding. Forty-three (28%) interviewees lived in single-room house while another 23% (35/153) in two room houses, with person per room ratio (PPR) of 1:4. Fifty-four (83/153) patients admitted to have TB, while 46% (70/153) preferred not to disclose the

Table 1: Number of patients and their time lapse between the presentation of initial symptoms and final diagnosis

Time lapse (in weeks)	Number of patients	Percentage of total patients
≤ 4 weeks	39	25.5 %
5– 8 weeks	33	21.6 %
9– 12 weeks	16	10.5 %
13– 16 weeks	27	17.6 %
17– 20 weeks	10	6.5 %
20-52 weeks	15	9.8 %
≥ 52 weeks	13	8.5 %
Total	153	100 %

Only 25.5% (39/153) of the patients reported to have been diagnosed and put under treatment within 4 weeks of presentation of initial symptoms. Some

illness. The main reason for non disclosure from the patients was fear of stigmatization by relatives. Fifty-six (36.6%) noted relatives, friends and neighbours distancing from them but sympathetic. Forty-six

Table 2: Diagnostic tests used to confirm PTB and thus initiate therapy

Diagnostic tests	Number of patients	% of total patients
Chest X-ray only	82	53.6 %
3 sputum samples only	23	15.0 %
Chest X-ray + 3 sputum samples	41	26.8 %
Chest X-ray + 2 sputum samples	2	1.3 %
Chest X-ray + 1 sputum sample	1	0.7 %
2 sputum samples only	4	2.6 %
Total	153	100 %

Table 3: Number of persons per room (PPR) among the candidates

PPR	Number of patients	Percent
< 1	5	3.3 %
1 – 1.9	53	34.6 %
2 – 2.9	45	29.4 %
3 – 3.9	32	21.0 %
4 – 4.9	11	7.2 %
5 – 5.9	3	2.0 %
6 – 6.9	4	2.6 %
	153	**100 %**

(30.1%) of the patients noted open expressions of fear and hostility from friends and relatives. Only 33.3% (51/153) noticed no change in attitudes from friends and relatives. Nineteen percent of the patients declared their illness openly to others while 14.4% (22) preferred not to disclose their illness to others. In both groups, there was no change in how people responded after they found out about their illness. There was 100% treatment compliance among the TB patients attending the clinic. None of the patients interviewed had missed a single day of treatment and took their medication in the presence of a nurse.

Some 90.2% (138) of the patients acknowledged the counselling they had received from health care providers on the importance of continuing with their treatment at the time of their diagnosis. The wish to improve their health and recover from TB was the maindriving force for the compliance in treatment among 84 (54.9%) candidates. Other reasons included treatment centre being within a short walking distance (40.5%); patients (4.6%)wished to complete their medication after noticing some improvement following initiation of treatment; and monitoring of treatment outcome (1.3%).

Discussion

These findings indicate much higher prevalence of tuberculosis among the young adults. Similar findings have been reported in Spain (Vall et al., 1997). Three quarters of the patients had BCG scar indicating they had been vaccinated against the disease. The majorityof those vaccinated were the young individuals of less than 40 years of age indication high vaccination coverage in recent years. The occurrence of TB among individuals with BCG scars indicates a failure of the vaccine to provide absolute immunity to all. The inability of BCG to provide a significant level of immunity especially in a population where the infection rate is high has been reported in studies elsewhere (Bugiani et al., 2003). Studies among the immigrant population in developed countries (Chaloner & Ormerod, 2002) and in Tanzania (H.N.S. Mkerenga unpubl.) have shown absence of relationships between

BCG vaccination and decrease in incidence of TB the respective population.

The time period between the presentations of symptoms to the final diagnosis ranged from a week to over a year. A quarter of the interviewees came to the hospital within a month and were initiated on treatment while about half of the population were diagnosed and began treatment from the 5th–16th week after the onset of symptoms. Some of the reasons for this delay may be the slow progression of symptoms, financial constraints preventing early treatment, seeking treatment from sources other than the conventional health care facilities, and atypical presentation of signs and symptoms leading to initial misdiagnosis (Mfinanga et al., 2007). It has already been shown that a time lag of about 30 weeks was common among TB patients in Dar es Salaam, Tanzania (Kasimbazi, 1985). Over three-quarters of the patients sought treatment within 16 weeks. This relatively early period is likely to have been attributed to the increase in health promotion campaigns that have been strengthened in recent year.

In this study, the typical symptoms of TB included productive cough, night sweats and extreme unusual tiredness. Atypical symptoms such as anorexia, headache and abdominal pain also accounted for a small proportion of the presenting symptoms. The standard diagnostic procedures included a chest X-ray and 3 sputum samples, which were undertaken from the majority but not all the cases. Even in the absence of a positive sputum sample, treatment was initiated based on features suggestive of tuberculosis from the chest X-ray. Eventually half the population began anti-TB treatment based on suggestive positive results of the chest X-ray. However in some cases of a positive sputum sample a chest X-ray was deemed unnecessary. This means, the sputum sample results were not considered very reliable. In a different study, Mfinanga et al. (2007) reported that about one fifth of TB patients in Dar es Salaam are misdiagnosed as non cases and therefore not treated.

Although about half the patients did recollect being in contact with a TB patient,the commonest contact was another family member. One of the

reasons for failure for some of patients to give a history of TB contact is likely to be due to poor recall ability. However, lack of knowledge of the TB status of their relatives can not be ignored. An interesting point to note is that one of the patients on the first day returned the following day to change her statement of having no history of TB contact as she remembered later that a family member had been suffering from TB about the same time she developed symptoms. The risk of TB infection is often high among close contacts of infectious patients (CDC, 1995). These close contacts are usually family members; because transmission of TB generally occurs indoor, where droplet nuclei stay in the air for a long time (WHO, 1998). In a study in Bangkok, Thailand, the prevalence of tuberculosis infection among households contact was found to be 47.08% (Tornee *et al.*, 2005), confirming the existence of knowledge that TB transmission is associated with environmental factors (Sepkowitz, 1996; Clark*et al.*, 2002).

Over half the population were sharing homes with 3-6 other members. The average of five persons per household is an indication of large families living together. The persons per room ratio give an indication of the level of household congestion and also the socioeconomic standard of the person. The PPR ratio was greater than one, therefore considered to be high. Overcrowding has been one of the risks factors in tuberculosis transmission. In a recent study in Canada, Clark *et al.* (2002)observed that tuberculosis incidence was higher in communities with a higher average housing density. Overcrowding housing conditions are known to increase exposure of susceptible people to those with infectious respiratory disease, and may increase the probability of transmission (Hawker *et al.*, 1999; Tornee *et al.*, 2005).

In this study, many patients complied with the treatment regime. Compliance was supported by the encouragement by healthcare providers on the importance of remaining compliant. The findings of this study showed that about half the patients declared their illness openly to others. They also wished to tell their friends about the symptoms they developed, encourage them to seek medical help if they develop similar symptoms. However, fear of discrimination was described by a proportion of the TB patients; most likely because, most people associate TB with HIV infection. It needs to be realised that tuberculosis is a treatable disease and that once treatment has commenced for two weeks and medication continued till the end of the regimen, there is little danger of transmission.

Prevention is the key to curbing the spread of this disease, especially with its resurgence in the post-HIV era. There is a need to follow a protocol for diagnosing tuberculosis, especially since sputum samples can be easily collected and tested at hospital levels.

Each case should be investigated, followed up and treated according to clearly laid down guidelines. As treatment becomes more decentralized to lower health facilities including health centres and dispensaries, the involvement of the family and the community is crucial to achieve early detection along with maximum coverage and compliance of treatment.

In conclusion, tuberculosis in Ilala district affects mainly the young adults and that BCG vaccination does not provide absolute immunity against TB. It is likely that the uneven and inadequate vaccination coverage in populations with a high infection rate makes the vaccine unable to provide the required immunity. Overcrowding and delays in seeking treatment are known risk factors of sustaining TB infection in communities. Stigma and discrimination should be addressed in order to improve treatment seeking among the infected individuals. It is therefore important to create awareness among the population on the symptoms of the disease and the availability of free DOTS services at public health facilities.

References

Bugiani, M., Borraccino, A., Migliore, E., Carosso, A., Piccioni, P., Cavallero, M., Caria, E., Salamina, G. & Arossa, W (2003). Tuberculin reactivity in adult BCG-vaccinated subjects: a cross-sectional study. *International Journal of Tuberculosis and Lung Disease* 7, 320-306.

CDC (1995) Screening for tuberculosis and tuberculosis infection in high-risk population. *Morbidity and Mortality Weekly Reports* 44, 18-34.

Chaloner, J.H. & Ormerod, L.P. (2002) Assessment of the impact of BCG vaccination on tuberculosis incidence in south Asian adult immigrants. *Communicable Disease Public Health* 5, 338-40

Chum, H. J. (1989) Ten years of the National Tuberculosis/Leprosy Programme in Tanzania. *Bulletin of International Union of Tuberculosis and Lung Diseases* 64, 34–36.

Clark, M., Riben, P. & Nowgesic, E. (2002) The association of housing density, isolation and tuberculosis in Canadian First Nations communities. *International Journal of Epidemiology* 31,940-945.

Hawker, J.I., Bakhshi, S.S., Ali, S. & Farrington, C.P. (1999) Ecological analysis of ethnic differences in relation between tuberculosis and poverty. *BMJ* 319, 1031-1034.

Kasimbazi, H.J.M. (1985) *Delay in Diagnosis of Pulmonary Tuberculosis. A study of the magnitude and factors responsible for the delay in diagnosis of pulmonary tuberculosis in Dar es Salaam*. MMed Dissertation,

University of Dar es Salaam, Tanzania.

Mfinanga, G.S., Ngadaya, E., Mtandu, R., Mutayoba, B., Basra, D., Kimaro, G., Chonde, T.M., Ngowi, P., Mfaume, S., Kilale, A.M., Egwaga, S. & Kitua, A.Y. (2007) The quality of sputum smear microscopy diagnosis of pulmonary tuberculosis in Dar es Salaam, Tanzania. *Tanzania Health Research Bulletin* **9**, 164-168.

Netto, E.M, Dye, C. & Raviglione, M.C. (1999) Progress in global tuberculosis control 1995-1996, with emphasis on 22 high-incidence countries. Global Monitoring and Surveillance Project. *International Journal of Tuberculosis and Lung Diseases* **3**, 310-320.

NTLP (2003) *Manual of the National Tuberculosis and Leprosy Programme in Tanzania.* 4th Edition. Ministry of Health United Republic of Tanzania.

Range, N., Ipuge, Y.A., O'Brien, R.J., Egwaga, S.M., Mfinanga, S.G., Chonde, T.M., Mukadi, Y.D. & Borgdorff, M.W. (2001) Trend in HIV prevalence among tuberculosis patients in Tanzania, 1991–1998. *International Journal of Tuberculosis and Lung Diseases* **5**, 405-412.

Sepkowitz, K.A. (1996) How contagious is tuberculosis? *Clinical and Infectious Diseases* **23**, 954-962.

Styblo, K. (1976) Impact of BCG vaccination programmes in children and young adults on the tuberculosis problem. *Tubercle* **57**, 17-43.

Tornee, S., Kaewkungwal, J., Fungladda, W., Silachamroon, U., Akarasewi, P. & Sunakorn, P. (2005) The association between environmental factors and tuberculosis infection among household contacts. *Southeast Asian Journal of Tropical Medicine and Public Health* **36**, 221-224.

WHO (1994) *WHO Tuberculosis Programme. Framework for effective tuberculosis control.* World Health Organization Publication No. WHOB/94.179; 1994.

WHO (1998) *Tuberculosis Handbook.* World Health Organization, Geneva.