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Patterns of delays amongst pulmonary tuberculosis patients in Lagos, Nigeria

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Abstract

Background: Pulmonary tuberculosis continues to increase due to late patient presentation. The study was conducted at a chest clinic of a general hospital in Lagos, Nigeria, to investigate patterns of delays before treatment amongst tuberculosis patients.

Methods: Longitudinal recruitment using a health worker administered protocol to determine time interval from onset of symptoms to initiation of treatment. Presentation to a health facility after 30 days of the onset of symptoms was classified as patient delay. Doctor delay was when patients stayed for more than 15 days with the referring doctor.

Results: One hundred and forty-one patients were recruited. The mean age was 29.5 ± 11.0 years, 89 (63%) were males and 52 (37%) were females. One hundred and sixteen (82%) had positive smears. One hundred and seventeen (83%) delayed their seeking help from health facilities longer than one month after the onset of symptoms. The median patient delay was eight weeks; median doctor delay was one week, median treatment delay was one week and the median total delay was 10 weeks. Doctor delay was observed in 19 (13%) patients. Patient delay was the most frequent type of delay observed and was the major contributor to the overall total delay. Patient delay was not significantly associated with patients' socio-demographic characteristics such as age, gender and educational level.

Conclusion: Majority of TB patients at this centre did not present early to health facilities and continue to serve as reservoirs of infection. Patient education on the disease may help reduce delays in starting treatment.

Background

Tuberculosis (TB) is a problem of global importance. Among communicable diseases, TB is the second leading cause of death worldwide, killing nearly 2 million people each year [1]. In Nigeria, tuberculosis is common; a prev-

alence of 9.2% has been reported in one study [2] and a case fatality rate of 12% in a second [3].

Delay in the diagnosis of TB and commencement of treatment has been reported to be common in Nigeria and other countries [2,4-10]. These delays are attributable

both to patients and doctors. Delay in diagnosis may worsen the disease, increase the risk of death and enhance tuberculosis transmission in the community. In Tanzania, 15% of patients were found to report to a health facility within 30 days of the onset of symptoms [5]. A study from Nigeria [4] showed that 81% of patients delayed for more than one month before presentation at two chest clinics. The patients had visited local private medical facilities, traditional healers and had a low level of knowledge and awareness about the disease.

Furthermore, Nigeria is one of the few countries worldwide where TB control has been slow [11], partly due to patient delays and inefficiencies in the health system. Thus TB control is one of the major public health challenges facing Nigeria. If the control of tuberculosis must succeed, causes of delay by patients and doctors should be investigated and minimised. This study was conducted to determine the patterns of delay amongst tuberculosis patients seen at a tuberculosis clinic in Lagos, Nigeria.

Methods

Background

The study was conducted at the chest clinic of the General Hospital, Ikeja in Lagos, Nigeria. The hospital offers medical care to about 5 million people and was in the process of being upgraded to a teaching hospital at the time of the study. In Lagos State, tuberculosis is treated at no cost to the patient. The programme is run as recommended by the National Programme on tuberculosis control. A pulmonary TB may either be sputum positive or sputum negative for acid-fast bacilli. A sputum positive case is one who sputum shows acid-fast bacilli on at least two samples. Smear negative cases are diagnosed on clinical findings, Mantoux test and chest X-ray. Both sputum positive and negative cases were recruited into the study.

Study design

The study was conducted as a longitudinal recruitment of all new patients seen at the chest clinic. The study sought to investigate patterns of delay amongst TB patients. The Lagos State Hospital Management Board granted ethical approval for the study. The study was conducted between September 2000 and January 2001. All newly diagnosed cases of pulmonary tuberculosis were included in the study. The patients were interviewed at their first visit to the chest clinic. Informed consent was obtained verbally.

Survey instrument

The staff at the chest clinic administered an interview schedule to patients recruited into the study. Information obtained included patient's socio-demographic characteristics, the onset of symptoms, time interval between the onset of symptoms and the first visit to any source of medical treatment, date of diagnosis and when treatment was

commenced. Patients were also asked about the method of referral to the chest clinic, and the results of investigations conducted.

Data analysis

All questionnaires were analysed in a computer using Epi-Info software v6.04c [12]. Standardised definitions of the different types of delays were followed [6]. The interval between the onset of symptoms and the first contact with a health facility was defined as patient delay while the interval from the time of visit to the first facility to the chest clinic was defined as doctor delay if no treatment for tuberculosis had been initiated. Treatment delay was the time interval from diagnosis until treatment was started while total delay was the time from the onset of symptoms until treatment was commenced and was made of these three components. Furthermore, presentation after 30 days of the onset of symptoms was classified as patient delay; doctor delay was when patients stayed for more than 15 days with the referring doctor [8]. Both descriptive and inferential statistics were determined. The level of significance was set at $P < 0.05$.

Results

Socio-demographic characteristics of patients

One hundred and forty-one patients were recruited into the study. The mean age was 29.5 ± 11.0 years. Eighty-nine (63%) patients were males and 52 (37%) were females. The mean age of females (27.6 ± 11.0 years) was comparable to that of the males (30.7 ± 10.9 years, $p = 0.10$). Ninety-nine (70%) had at least secondary school education. Thirty (21%) patients were unskilled workers including traders and housewives and 50 (36%) were skilled workers (Table 1).

Diagnosis of TB

Symptoms of tuberculosis experienced by patients include cough (128 patients, 91%), fever (117, 83%), weight loss (103, 73%), chest pain (85, 60%), night sweats (63, 44%) and haemoptysis (42, 30%). Twenty-one (15%) patients gave a history of exposure to someone who had chronic cough at home while 9 (6%) had such an exposure at the place of work. One hundred and thirty-one patients (93%) had a chest X-ray suggestive of tuberculosis and 116 (82%) had sputum positive smears. The association between those who had radiological evidence of the disease and positive sputum smears was slightly below the level of significance ($p = 0.053$). Seventy-three (52%) patients knew that TB was treated at no cost, 24 (17%) patients thought that fees were charged while 44 (31%) did not know.

Type of facility first visited

One hundred and four (74%) patients consulted with various types of hospitals as the first place for seeking help

Table 1: Socio-demographic Characteristics of New Pulmonary Tuberculosis patients in Lagos, Nigeria.

| Characteristic | n | % |
|------------------------------|-------------|-----|
| Mean Age (SD) years | 29.5 ± 11.0 | |
| Gender | | |
| Female | 89 | 63 |
| Male | 52 | 37 |
| | 141 | 100 |
| Educational level | | |
| None | 19 | 14 |
| Primary school | 23 | 16 |
| Secondary | 66 | 47 |
| Post-secondary school | 33 | 23 |
| | 141 | 100 |
| Socio-economic status | | |
| Unskilled workers | 30 | 21 |
| Skilled | 50 | 36 |
| Students | 48 | 34 |
| Upper social class | 13 | 9 |
| | 141 | 100 |

Table 2: Source of First Consultation of New Pulmonary Tuberculosis in Lagos, Nigeria

| Source | n | % | |
|--------------|----------------------------|-----|------|
| Hospital | Private | 60 | 42.6 |
| | Government | 35 | 24.8 |
| | Primary Health Care Centre | 9 | 6.4 |
| Non-hospital | Chemists | 17 | 12.0 |
| | Prayer houses | 12 | 8.5 |
| | Traditional healers | 8 | 5.7 |
| | | 141 | 100 |

while 37 (26%) went to other places such as chemists and prayer houses (Table 2). More patients went to private hospitals than any other type of facility. Prior to presentation at the chest clinic, 19 (14%) patients did not go to any hospital at all while 98 (70%) visited one hospital and 24 (17%) visited between two to four hospitals. Ninety (64%) patients were referred to the chest clinic by doctors, 22 (16%) came by themselves and 29 (21%) were brought by friends and relatives.

Patterns of delays

Patterns of delays are shown on Table 3. The mean total delay was 14.3 ± 9.3 weeks. Patient delay was the most frequent type of delay observed and the greatest contributor to total delay. Patient delay was observed in 117 (83%) patients. The mean time to presentation was significantly longer in patients who delayed (14.0 ± 9.2 weeks) than in those who did not (3.7 ± 0.7 weeks, $p < 0.001$). Twenty (17%) patients visited a health facility within 30 days of

the onset of symptoms, 63 (45%) did so within 1–3 months, 38 (27%) between 4–6 months and 16 (6%) after 6 months.

Patient delay was not found to be significantly associated with age ($p = 0.96$) gender ($p = 0.87$), sputum result ($p = 0.43$), place of first consultation ($p = 0.12$), educational level ($p = 0.07$) or any of the symptoms of disease ($p > 0.05$). One hundred and twenty-two (87%) patients were referred to the chest clinic within a week of visiting a health facility by the attending doctor or health worker and only 19 (13%) had doctor delay. One hundred and twenty-seven (90%) were commenced on treatment within a week of being seen at the chest clinic. Total delay less than 4 weeks in only four (3%) patients; between one to three months in 69 (49%) patients and longer than 3 months in 68 (48%) patients.

Table 3: Patient, Doctor, Treatment and Total Delay in weeks (Mean and Median) of New Pulmonary Tuberculosis Patients in Lagos, Nigeria

| Type of Delay | Mean (Weeks) \pm SD | Median (Weeks) |
|-----------------|-----------------------|----------------|
| Patient delay | 12.3 \pm 9.2 | 8.0 |
| Doctor delay | 1.3 \pm 1.5 | 1.0 |
| Treatment delay | 0.8 \pm 0.7 | 1.0 |
| Total Delay | 14.3 \pm 9.3 | 10.0 |

Discussion

The symptoms of TB are initially similar to those of other diseases and it is not unusual for patients to consider that the problems would be simple to treat or resolve spontaneously. This may be partly responsible for 26% of patients in this study seeking help from non-medical facilities. However, the proportion (74%) of those who sought help from medical facilities is comparable to the 89% found in Malawi [13] but higher than the 58% reported from South Africa [14].

The patterns of delay observed in this study are similar to those seen in other studies [4-8,13,14]. The frequency of patient delay is lower than the 29% found in India [15]. With a median patient delay of eight weeks, the proportion of patients (83%) who delayed seeking treatment is similar to the 81% reported from Nigeria [4], though overall there are no differences in the patterns of patient delay. This present study confirms the findings of Enwuru et al [4]. The occurrence of doctor delay (13%) in this study is similar to the 10% observed in Ethiopia [8] while the median total delay of 10% is the same rate reported from South Africa [14]. Furthermore, the median duration of doctor delay was shorter amongst patients at the facility and not as frequently occurring as patient delay, unlike the situation in Ghana [6], Pakistan [16] and Turkey [17]. This may be because doctors in general practice in Lagos refer patients quickly to the chest clinic due to the high cost of treatment, which may not be affordable if the patients were to be managed in private hospitals.

Thus late patient presentation was a more important contributor to total delay in commencing treatment than doctor delay. The delay by patients is probably due to a low level of knowledge and awareness of the disease and lack of information about availability of free treatment. In Zambia, lack of money for treatment was a major contributory factor to patient delay [10]. Factors such as age of patient, educational level and residence of patient, which have been identified to be significant predictors of patient delay, could not be established in this study [5,6,18]. This may be partly because of the cosmopolitan nature of

Lagos as people can move from one part of the city to another within a short period.

With such a high number of sputum-positive cases, coupled with lack of information about treatment, the disease is likely to be continuously transmitted within the community, at work and at home making TB control more difficult. In addition, about two thirds of patients seen at the chest clinic were referred from a doctor, which provides a window of opportunity for collaboration in TB control between the private and public sector. This collaboration becomes important as one study from Lagos [19] showed that majority of private hospitals employed short treatment regimes outside the recommendations of the National Tuberculosis/leprosy Control Programme. The non-compliance has implications for continuing transmission in such patients and the development of drug resistance.

Therefore we recommend that health education about symptoms of tuberculosis and the importance of early medical treatment be vigorously mounted by all stakeholders in the health sector to reduce delays so that patients can present early for treatment.

Conclusion

Patients with tuberculosis do not present early to hospital while patient delay was more common than other types of diagnostic delays.

Competing Interests

None declared.

Authors' contributions

OOO conceived study, designed protocol, participated in data collection, performed data analysis, wrote manuscript. JBO participated in data collection and in writing the manuscript. All authors read and approved the final manuscript

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