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Pattern of presentation of tuberculosis and the hospital prevalence of tuberculosis and HIVco-infection in University College Hospital, Ibadan: a review of five years (1998 – 2002)

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Summary

A 5-year review (1998-2002) was done at the pulmonary unit of the University College Hospital (UCH), Ibadan, Nigeria to determine the pattern of presentation of tuberculosis (TB) and the prevalence of TB and human Immunodeficiency virus (HIV) co-infection. A total of one thousand patients were managed for TB but 777 confirmed as having TB had their case files analysed. There were 418 males and 359 females giving a male to female ratio of 1.16:1.00. Pulmonary tuberculosis (PTB) accounted for 78.6% of the patients seen over the period, followed by tuberculosis meningitis 7.8% then TB spine 6.8% and that of the lymph node 4.1%. The other types of TB (Abdomen, pericardial and miliary) accounted for less than 3%. The highest number of cases of tuberculosis (27.8%) was in the 20-29 age group for both male and female followed by those less than 40 years (26.0%). Less than 20% (18.3%) were 40 years old and above. The number of TB cases decreased sharply from a total of 188 in the year 2000 to 89 in 2002. The decrease in number was most likely due to the fact that directly observed therapy short course (DOTS) are now available at other centres within the city and its environs. Only 180 out of the 640 cases of TB were confirmed as HIV positive giving a seroprevalence rate of 28.12%. The annual distribution of TB/HIV co-infection showed a rising trend from 26 cases in 1998 to 42 cases in 2002.

Keywords: *Tuberculosis, pattern, prevalence, human Immunodeficiency virus.*

Résumé

Une revue de 5 ans (1998-2002) était faite dans l'unité pulmonaire du Centre Universitaire Hospitalier (UCH, Ibadan, Nigeria pour déterminer l'incidence et la prevalence de la tuberculose (TB) et du combinée TB et VIH. Mille patients étaient soignés de la tuberculose desquels 777 étaient confirmés tuberculeux et leur registres examinés. Il y avait 418 mâles et 359 femelles d'une proportion de 1.16:1. La tuberculose pulmonaire estimait à 78.6% des patients durant cette période. 7.8% de méningite tuberculeuse, 6.8% de tuberculose épinière,

4.1 % lymphatique et d'autres types de moins de 3%. le taux le plus élevé de tuberculeux était entre 20-29 ans chez les mâles et femmes suivi par ceux moins de 40 ans (26%). Moins de 18.3% étaient plus de 40 ans. Le nombre de tuberculeux a diminué de 188 en 2000 à 89 en 2002, baisse probablement due à l'accès thérapeutique à court terme disponible dans les centres de santé dans la ville d'Ibadan et ses environs. 180 sur 640 cas tuberculeux étaient confirmés positifs au VIH faisant une séropositivité de 26.12%. La distribution annuelle des co-infections TB/VIH montrait une augmentation graduelle de 26 cas en 1998 à 42 cas en 2002.

Introduction

Today, tuberculosis (TB) has become the most important communicable disease in the world, with over 8 million cases of pulmonary tuberculosis (PTB) occurring each year, 95% of which are in developing countries [1-4]. Continued increase in prevalence has been predicted [5]. The World Health Organization (WHO) estimated that the number of new cases of TB increased to 10 million by 2000 and that death attributable to TB rose from 2.5 million to 3.5 million by the end of the millennium [5-8]. About 99% of these deaths occurred in developing countries with Sub-Saharan Africa having one of the largest shares [5].

In Africa, a number of reasons have been advanced for the increasing number of TB cases in the region [9-10]. The latest being the wave of human immunodeficiency virus (HIV) epidemic experienced across the continent [10-13] WHO in 1996 estimated that out of the 22 million people infected with HIV worldwide, 14 million live in Africa. Also, 6.6 million (70% out of the 9.4 million patients with HIV/TB co-infection) reside in Africa [11]. It may be right to say that the rising prevalence of TB in Africa is amongst other risk factors, due to the ravaging HIV epidemic in the region. In view of the escalating mortality in Sub-Saharan Africa, some have asked the provocative question 'Is Africa lost?' [14]

Despite introduction of the World Health Organisation's strategy of directly observed treatment short course (DOTS) many developing countries have formidable economic and logistical problems that present enormous challenges to the implementation of effective TB control programmes.

Since 1995 the Damien Foundation has been supplying drugs for the treatment of TB to the University College Hospital (UCH) and health centers within Ibadan City and its environs to enable DOTS of the Nigeria National Tuberculosis and Leprosy control programme (NTLCP) to be incorporated into the treatment. DOTS involves the use of rifampicin, isoniazid, pyrazinamide and ethambutol for 2 months of intensive phase. Ethambutol and isoniazid were then continued for a period of 6 months as continuation phase making a total of 8 months anti tuberculosis chemotherapy.

This study was conducted to look at the pattern of presentation of TB, the prevalence of TB and HIV co-infection at UCH over a five-year period. This will not only offer local figures in this hospital, as there has not been a similar local study, but also serve as a basis for comparison with other hospital based studies on TB and TB/HIV co-infection in Nigeria and other parts of the world.

Materials and methods

This was a retrospective review of all cases of tuberculosis diagnosed at the University College Hospital, Ibadan over a five year-period from 1st January 1998 to 31st December 2002. The University College Hospital serves as a tertiary referral center for the metropolis of Ibadan and neighboring surroundings. Patients with tuberculosis come from far and near health centers because it is one of the first Damien Foundation Centres for anti-tuberculosis therapy.

The TB register of the Damien Foundation helped in retrieving the casefiles of the patients managed for TB over this period. Out of the 1000 cases retrieved in the register, 777 cases files that met the following criteria were analyzed.

1. Proven PTB by positive Ziehl-Neelsen staining of a diagnostic specimen such as two or three sputum smears or smears of tissue (for example, a lymph node biopsy)
2. Presence of constitutional symptoms (fever, weight loss, night sweats and/or fatigue), chronic cough, and/or pulmonary infiltrates on chest radiograph which were consistent with the diagnosis of PTB.
3. Histological diagnosis TB in tissue biopsy and Ziehl-Neelsen staining of aspirates

The tuberculosis diagnoses were grouped into the following categories as :

Pulmonary, Adenitis, Meningitis, Abdominal, Urinary, Pericarditis, Spine and Genito-urinary.

Basic demographic information such as age, sex, marital status, occupation, literacy level and place of residence were sought from their case files. Also analyzed were those screened for HIV using enzyme linked immuno-sorbent assays (ELISA) and confirmed by Western Blot.

Data analysis

All available data were entered and analyzed using the Statistical Package for Social Science (Windows version 10.0, Chicago, United State). Initial data exploration was done examining the frequency of distribution of all the variables extracted from the case files. Tables and charts were constructed for the presentation of the results. Proportions and percentages were used to describe the demographic characteristics of the patients and the comparison of the clinical variables; while mean values and standard deviations were used for clinical variables that are quantitative data.

Results

1000 patients were managed for TB during the 5 years (1998-2002) but 777 patients that were properly worked up for TB were analysed. There were 418 males and 359 females giving a male to female ratio of 1.16:1.00 The ages of the patients were between 0 to 89 years with a mean age of 26.6 years (SD=18.0 years) for males and 25.4 years (SD = 17.7 years) for females. The age and sex distribution of patients with TB are shown in Table 1.

Table 1: Age and sex distribution of patients with tuberculosis between 1998 – 2002

Age Group (years)	Number of Patients		
	Male	Female	Total
0 – 9	113	89	202 (26.1)*
10 – 19	35	55	90 (11.6)
20 – 29	121	95	216 (27.8)
30 – 39	70	57	127 (16.3)
40 – 49	33	25	58 (7.5)
50 – 59	16	22	38 (4.9)
60 – 69	20	9	29 (3.7)
70 – 79	9	4	13 (1.7)
80 – 89	1	3	4 (0.5)
Total	418	359	777 (100)

•Numbers in parenthesis are percentages

The pattern and different types of TB is shown in Table 2: Pulmonary tuberculosis accounted for 78.6% of the cases seen. This was followed with a wide gap by meningitis that made up 7.8% of the tuberculosis seen. Tuberculosis of the spine (6.8%) otherwise known as Potts disease was next while tuberculosis adenitis accounted for 4.1%. The other types of tuberculosis made up less than 3% of the cases seen. No case of genito-urinary tuberculosis was documented. The highest number of tuberculosis cases were seen in the year 1999 (215) which

Table 2: Pattern of presentation of tuberculosis between 1991 – 2002 in UCH

Type	1998 No(%)	1999 No(%)	2000 No(%)	2001 No(%)	2002 No(%)	Total No(%)
Pulmonary	141(70.5)	154 (71.6)	163(86.7)	77(90.6)	76(85.4)	611(78.6)
Adenitis	11 (5.5)	12 (5.6)	3 (1.6)	4 (4.7)	2 (2.2)	32 (4.1)
Meningitis	23(11.5)	21 (9.8)	10 (5.3)	2 (2.4)	5 (5.6)	61 (7.8)
Abdominal	6 (3.0)	5 (2.3)	2 (1.1)	0 (0)	1 (1.1)	14 (1.8)
Miliary	0 (0)	1 (0.5)	1 (0.5)	0 (0)	0 (0)	2 (0.2)
Pericarditis	0 (0)	3 (1.4)	0 (0)	1(1.2)	0 (0)	4 (0.50)
Spine	19 (9.5)	19 (8.8)	9 (4.8)	1(1.2)	5 (5.6)	53 (6.8)
Genito Urinary	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Total	200	215	188	85	89	777 (100)

was followed by the year 1998 and 2000 in which 200 and 188 cases were seen respectively. Thereafter a sharp decline in number of cases was noted but the proportion of pulmonary tuberculosis increased over 80% after this year 2000.

Table 3: TB by HIV status

HIV status	Male	Female	Total
Seropositive	80	100	180
Seronegative	300	160	460
Total	380	260	640

Table 3 showed that 640 patients had their HIV status recorded but 180 patients were confirmed HIV positive. All the patients had HIV 1 infection but 2 patients had HIV 1 and HIV 2 co-infection. The hospital sero-positive rate in this 5 years review was 28.12%. The annual distribution of TB/HIV co-infection is as in Table 4, showing rising trend of HIV infection among patients with TB.

Table 4: Annual distribution of study co-infection

Years	No of TB	No of Cases of TB/HIV Co-infection	Percentage in Years
1998	200	26	13.0
1999	215	34	15.8
2000	188	38	20.2
2001	85	40	47.1
2002	89	42	47.2
Total	777	180	23.2

Discussion

Tuberculosis remains a major global health problem despite advances in the chemotherapy of the disease. This study showed that 78.6% of the tuberculosis seen had pulmonary tuberculosis and 22.4% has extrapulmonary

tuberculosis which is consistent with other studies conducted in our environment [15] and in Scotland [10]. The Scottish National Survey of tuberculosis in 1993 revealed that pulmonary tuberculosis accounted for 79% of tuberculosis notifications.

In this study, extrapulmonary tuberculosis accounted for less than 22% of the cases seen which agrees with the finding of Erhabor *et al* [15] that only 12.3% of the pulmonary tuberculosis cases had associated extrapulmonary involvement. This study showed that tuberculosis meningitis accounted for 7.8% while that of the spine was 6.8% and the lymph node 4.1% is in keeping with that of Erhabor *et al* who documented more cases of meningeal tuberculosis than lymph node affection. This contrasts that of the Scottish study where affection of the lymph node was the commonest extrapulmonary tuberculosis followed in order of frequency were genitourinary, miliary, bone, gastrointestinal, meningitis, pericardial and skin.

This study showed that majority of the infected people are below 50 years of age (82.2%) which proved the high annual risk of infection with mycobacterial tuberculosis. This agrees with previous studies [15,17] but is in contrast to what is obtained in the developed countries where the past high risk of infection reflects in the current high prevalence of infection among the elderly and low among those below 50 years of age [2]. The decline in the number of cases of tuberculosis recorded during the five years study period was likely due to the fact that DOTS was available at other health centres within the city and its environs.

The prevalence of HIV/TB co-infection in this study was 28.12%, which is within the range found in Africa (20-54%) [18-20] and the range of 4.2% to 35.1% documented by the sentinel survey group in Nigeria [21] Salami *et al* [21] and Akinsete *et al* [23] had prevalent rate of 12.6% and 15.5% respectfully which are lower than that observed in this study possibly because only adult PTB cases were studied and extrapulmonary cases were not evaluated.

This study showed a rising trend of HIV infection among patients with TB during the five years. This goes to confirm that TB resurgence would not only be attributed to poverty and social deprivation but also significantly to HIV infection [24,25].

Conclusion and recommendation

In conclusion, it could be said that the prevalence of TB in the country is in parallel with among other things, the growing number of immunocompromised hosts. Therefore to reduce the risk of TB nationwide, the following measures are suggested.

- Efforts should continue and more intensified on early diagnosis and treatment of TB by DOTS, while innovative and effective public health strategies against the spread of HIV infection will need to be evolved and fostered.
- There should be improvement in the socio-economic conditions of the people. This will bring about improvement in the nutritional status of the general population and with it an attendant fall in the prevalence of TB.

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