Tuberculosis in the elderly: Epidemiology and outcomes at JAMOT Hospital of Yaounde

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Abstract

Background: Tuberculosis in the elderly (TBES) compared to adult TB (TBA) has been poorly published in developing countries (developing countries).Aim and Objective: The objective of this study is to present the epidemiology of TBES and the outcome of TB patients aged 65 years or older compared to TBA. **Methodology:** Our study is retrospective and comparative for the period of activity from January 2008 to December 2013 at the Diagnostic and Treatment Center (CDT) at the Jamot Hospital in Yaoundé (HJY). It is compared between subjects aged 65 years and older and subjects aged 15 to 64 who have been diagnosed with tuberculosis (TB) **Statiscal analysis:** The Khi-2 test and the exact probability of Ficher were used for the comparison of proportions. A difference was considered significant if p <0.05. **Results:** Of the 10909 TB cases, the proportion of TBES is 2.93%. The sex ratio is 1.7 in case of TBES versus 1.5 in the TBA. The prevalence of TB-HIV co-infection is estimated at 11.3% versus 37.3% for TBA (p< 0000). The location is pulmonary in 76.4% of cases in TBES against 78.1% in the subject aged less than 65 years. Elderly patients developed more pulmonary tuberculosis with negative microscopy (TPM-) 12.9% versus 11.3% and extra-pulmonary tuberculosis (PET) (23.6% versus 21.9%). The therapeutic success rate in subjects aged 65 and over is 61.6% versus 70.3% in subjects under 65 years of age. The proportion of patients lost to follow-up and the rate of transfer are higher in case of TBES. Elderly patients died more frequently than young adults in the first two months of treatment. **Conclusion:** Tuberculosis of the elderly is rare with male predominance. The proportion of deaths is greater. The follow-up of elderly patients must integrate the therapeutic management of comorbidities.

Keywords: Tuberculosis; Human immunodeficiency viruses (HIV); Elderly subject.

INTRODUCTION

In developing countries, tuberculosis (TB) and HIV infection remain public health problems. [1]. In these countries, the target of both its infections is the young adult subject because TB-HIV co-infection is very high [2]. TB in elderly patients (TBES) is rare in developing countries [3]. In industrialized countries, the incidence of TB has decreased in all age groups; but remains high in the elderly [4,5]. Most cases (95%) of tuberculosis in the elderly are related to the reactivation of lesions that have remained dormant for several decades [4]. In Cameroon, the elderly population is one of the groups at risk of developing tuberculosis [6]. It does not seem to be an epidemiological concern. However, the clinical presentation of TBES has peculiarities to the point of being at the origin of real diagnostic difficulties. According to Tidjani et al, the general signs in the course of TB in subjects over the age of 60 are infrequent and mortality increases with age [7]. Very little work is done on TBSA in developing countries compared to adult TB (TBA) [3]. Therefore, in this study, we would like to identify the epidemiological, clinical and evolutionary features of tuberculosis in the elderly, compared with that of the young adult subject.

METHODOLOGY

This is a retrospective and comparative study. She examined the files of patients registered at the CDT at Jamot Hospital in Yaounde over a 6-year period from January 2008 to December 2013.

We included patients aged 15 years and older, treated for TPM (+) positive microscopy tuberculosis, TPM (-) negative microscopy tuberculosis and extra-pulmonary tuberculosis (PET). Patients with incomplete data in the registers were excluded.

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The TB case definitions selected for our study are those of the International Union Against TB and Respiratory Disease (IUATLD) used by the National Program for TB Control (NTP) in Cameroon [8].

Sample size: We counted all cases of TBES, and for an elderly subject, we took the young adult subject who followed him directly into the register. Also, out of a total of ten thousand five hundred and ninety (1,095) cases with TB diagnosis, the final size of our sample was 620 patients, 310 (50%) were elderly patients and 310 (50%)) young adult patients meeting our inclusion criteria.

The variables of our study are the RTD parameters that are:

- the file number;

- age;

- sex

-the residence ;

- the location and bacteriological form of TB;

- the HIV status of the patient;

- the episode of TB (new case, relapse of TB, therapeutic failure);

- the therapeutic protocol;

- bacteriological monitoring;

- the outcome of the follow-up.

To these parameters, we associated the time to be lost to sight (VDP) and the delay of death.

Statistical analysis:

Quantitative variables were expressed by their median (interquartile range). The qualitative variables have been described in terms of proportions. The Khi-2 test and the exact probability of Ficher were used for the comparison of proportions. A difference was considered significant if p <0.05.

RESULT

a. Epidemiology and clinical presentation of tuberculosis

Ten thousand five hundred and ninety (1,095) patients with tuberculosis were enrolled at CDT at Jamot Hospital during the study period. The proportion of patients aged 65 and over was 2.93%.

Of the 620 patients definitively included, 310 (50%) were elderly patients and 310 (50%) were young adult patients meeting our inclusion criteria.

The socio-demographic characteristics and diagnosis of TB are shown in Table 1. The median age in elderly TB patients was 70 years; against 35 years in young adult patients. Male dominance is noted in both groups. In TBSA, the sex ratio is 1.7 versus 1.5. The proportion of first-time TB represents 95.2% of TBSA cases compared to 92.9% and that of relapses is 4.8% versus 7.1% with no statistically significant difference between the two groups. Of the 247 elderly patients tested for HIV, the prevalence of TB-HIV co-infection is estimated at 11.3% versus 37.3% among the 276 subjects aged less than 65 years.

TPM (+) was less common in elderly patients (63.5%) than in adult patients (66.8%). Elderly patients developed more TPM (-) (12.9% versus 11.3%) and PET (23.6% versus 21.9%). There was no statistically significant difference in pulmonary and extra pulmonary tuberculosis in both age groups.

Table 1: Characteristics of TBES compared to TBA

Variables	Age ≥ 65 years	15 ≤ Age < 65 years	P
Sexe	*n = 310*	*n = 310*	
Female (F)	116 (37,42%)	125 (40,32%)	
Male (M)	194 (62,58%)	185 (59,68%)	
Sex-ratio M/F	1,7	1,5	
TB new cases	295 (95,2%)	288 (92,9)	
TB relapse	15 (4,8%)	22 (7,1)	
HIV infection	n= 247	n=276	
Positive	28 (11,3%)	103 (37,3%)	0,000
Négative	219 (88,7%)	173 (62,7%)	
unprecise	63	34	
Localisation type	n= 310	n= 310	
TPM (+)	197 (63,5%)	207 (66,8%)	0,684
TPM (-)	40 (12,9%)	35 (11,3%)	
TEP	73 (23,6%)	68 (21,9%)	

TPM (+): Tuberculosis with Positive Microscopy. TPM (-): Tuberculosis with Negative Microscopy TEP: Extra Pulmonary Tuberculosis

Table 2: Follow-up and becoming of elderly and adult TB patients

Variables	Age ≥ 65 years	15 ≤ Age < 65 years	P
Therapeutic success	n=310	n=310	
Cured + treatment completed	191(61,6%)	218(70,3%)	
Failure	2(0,6%)	2(0,6%)	0,895
Out of sight	63(20,3%)	58 (18,7%)	0,299
Dead	34(11%)	19 (6,1%)	0,017
Transfered	20(6,5%)	13 (4,2%)	0,124
Death time	n=34	n=19	
	23 (67,6%)	11 (57,9%)	0,570
Intensive phase < 2 months	11(32,4%)	08 (42,1%)	
Continuity phase >2 months			
« Out of sight » time	n=63	n=58	
< 2 months	17 (27%)	12 (20,7%)	0,397
≥ 2months	46 (79,3%)	46 (79,3%)	

b. Becoming subjects for tuberculosis follow-up

The follow-up of patients and their fate are presented in Table II. The therapeutic success rate (cure + treatment completed) is 61.6% in the elderly subjects versus 70.3% among the subjects under 65 years old. The proportion of patients lost to follow-up (PVD) in TBSA is 20.3% versus 18.7%. The time to be POS is higher between the second and sixth month of follow-up with proportions of 79.3% in the two groups TBSA and TBA, versus 27% and 20.7% in the first 2 months of treatment. Patient transfer rates are 6.5% for TBSA and 4.2% for subjects under 65 years of age. Overall, the reported mortality of the elderly patient is statistically different from that of the subject aged less than 65 years with proportions of 11% versus 6.1% (P < 0.017). Contrary to the phenomenon of lost to follow-up, death occurs in most cases before the end of the second month of follow-up with rates of 67.6% (TBSA) and 57.9% (TBA) versus 32.4% (TBES) and 42.1% (TBA) in the continuation phase.

DISCUSSION

In our series concerning the CDT of Jamot Hospital in Yaoundé, the proportion of patients aged 65 and over was 2.93%, a rate comparable to that found by Horo et al [3] in a study conducted in Abidjan in Côte d'Ivoire. Ivory. This frequency is lower than that reported by most authors in developed countries [9-12]. This high frequency of TB in elderly people in industrialized countries is probably due to the fact that the geriatric population is significantly higher in these countries than in African countries [13]. Indeed, subjects aged 65 and over represent 12.4% to 24% of the population of industrialized countries [14,15], whereas only 3.3% of the Cameroonian population is 65 years old and over [16]. The institutionalization of the elderly is also a factor that can explain the high incidence of TB in elderly people in developed countries. Indeed, Stead et al. In the United States, the prevalence of tuberculosis among institutionalized elderly subjects was found to be four times higher than that seen in the non-institutionalized geriatric population [5]. The comparative study between TBSA and TBA notes a male predominance in each group. These data are consistent with those of Horo [3] and those of Tidjani [7].

TB-HIV co-infection was significantly lower in the elderly with 11.3% versus 37.3% in the TBA (p = 0.000). These results are similar to those of Horo et al. Who had found 9.05% in the elderly patient against 44.38% in the young adult patient [3]. They would be explained by a high seroprevalence of HIV infection in the young adult patient. This reinforces the fact that globally, patients aged 15-45 are the target of TB and HIV in developing countries] [17,18].

The distribution of clinical forms of TB is overlapping in both age groups. In TBES the pulmonary localization is 76.4% versus 78.1%, and the PET of the subject aged 23.5% versus 21.9% for the young adult. Similar proportions are found in Africa by HORO; but also in France, where TBES is predominant, in 2002, the proportion of pulmonary TB was 72.2% and that of PET was estimated at 26.7% [19]. The retrospective nature and the lack of precision in the RTDs during the PET scans did not allow us to evaluate the frequency of the different locations. Unlike HORO which finds a preponderance of pleural TB and less ganglionic TB in the elderly. The incidence of ganglionic TB decreases with age to make room for urogenital sites [19].

At the end of the follow-up, the proportion of lost to follow-up and the transfer rate are higher in the elderly but the difference is not significant. The therapeutic success rate is lower in case of TBES. The death rate was significantly elevated in elderly patients compared to young adults in this study. Tidjani et al. showed similar results to ours as well as Touré et al [20]. This could be explained by the presence of co-morbidities, unfortunately the design of RDT do not allow the notification of these co-morbidities, nor the clinical presentation and the side effects related to taking medications.

In developed countries, the aging of the population is accompanied by increasing morbidity. Older age is known to be a risk factor for TB [21].

The decline in immunity in the elderly would partly explain the occurrence of TB; this may be a decompensation factor for a pre-existing underlying chronic condition. [22,23].

CONCLUSION

TB of the at least 65 years old is rare 2.93%, with male predominance in both age groups. Young adult patients had a significantly higher TB-HIV coinfection (33.2%) than elderly patients (9%). No significant difference was found between elderly patients and young adult patients in the frequency of isolated pulmonary and extra-pulmonary involvement. The therapeutic success rate (cured +) completed treatment) in elderly patients was 61.6% versus 70.3% in young adult patients. The future of elderly patients and young adults was similar.

Conflicts of interest: The authors declare that there is no conflict of interest.

Author's contribution:

-Design of the study: Bitchong Ekono, Azoumbou Méfant, Atangana Paul Jean, Ze Jean Jacques, Olinga Medjo, Awana Armel Philippe, Idrissou Bouba, Sil Mabouang VR, Afane Ze.

-Data collection and analysis: Bitchong Ekono, Azoumbou Méfant, Atangana Paul Jean, Ze Jean Jacques, , Olinga Medjo, Awana Armel Philippe, Sil Mabouang VR

-Writing of the manuscript: Bitchong Ekono, Azoumbou Méfant, Ze Jean Jacques, Atangana Paul Jean, Olinga Medjo, Awana Armel Philippe, Sil Mabouang VR.

-Revision of the manuscript: Afane Ze.

-All the authors declare to have read and approved the final version of the manuscript

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