

Tetanus News in the Infectious Diseases Department of Brazzaville University Hospital from 2018 to 2023

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Received December 25, 2023; Revised January 28, 2024; Accepted February 04, 2024

Abstract Introduction: Tetanus is a real public health problem in the tropics and in the Congo, with high morbidity and mortality despite the existence of an effective, well-tolerated vaccine. **Objective:** to contribute to the improvement of tetanus management at Brazzaville University Hospital. **Patients and method:** cross-sectional, descriptive study of tetanus cases admitted to the infectious diseases department between January 1, 2018 and August 31, 2023, i.e. 5 years and 8 months. Patients aged at least 1 year and meeting the selection criteria were included. **Results:** Out of 561 admissions, there were 102 cases of tetanus (5.5%). The patients had an average age of 31.08 ± 18.5 (2-78) years, were male (n=86; 84.3%), city-dwellers (n=100; 98%) and students (n=41; 40.2%). They had not been vaccinated (n=63; 61.7%), and the portal of entry was integumentary (n=75; 73.5%). The average consultation time was 10.2 ± 2.01 (2-15) days, for trismus (n=94; 92.2%), paroxysms (n=79; 77.5%). The Dakar score was between 4-6 in 18.6% (n=19). SAT was administered IM (n=38; 39.6%), suboccipitally (n=1; 0.9%). The portal of entry was not trimmed (n=22; 21.6%). The mean length of hospital stay was 12.5 ± 9.6 (1-37) days, and the outcome was unfavorable, with death in 42.2% (n=43). Factors associated with death were age (p=0.001), diabetes (p=0.007), occupation (p=0.03) and Dakar score (p=0.0003). **Conclusion:** The prevalence of tetanus is high at Brazzaville University Hospital, affecting both children and adults. Unvaccinated patients present with moderate and severe forms of the disease. Lethality is high, in line with age and the Dakar score. Prevention requires vaccination.

Keywords: tetanus, prevalence, vaccination, CHU, Brazzaville

Cite This Article: Ossibi Ibara BR, Ngakengni NY, Adoua Doukaga T, Ollandzobo Atipo Ibara LC, Ekati M, Mpassy, Angonga Pabota E, Bendett Lebaho P, Okoko AR, and Mbika CA, "Tetanus news in the Infectious Diseases Department of Brazzaville University Hospital from 2018 to 2023." *American Journal of Infectious Diseases and Microbiology*, vol. 12, no. 1 (2024): 16-18. doi: 10.12691/ajidm-12-1-3.

1. Introduction

Tetanus, a vaccine-preventable disease, continues to pose a real public health problem in the tropics and in the Congo, with its high morbidity and mortality. According to the World Health Organization, tetanus incidence remains high in sub-Saharan Africa, due to weaknesses in health systems [1]. In Europe, as in the United States, it is the elderly who are most affected. In Africa, it's young children and even young adults. In Senegal, the prevalence of tetanus exceeds % and is similar to that found in Côte d'Ivoire. In the Congo, all population categories are affected [2,3]. The aim of this study was to contribute to the improvement of tetanus management at Brazzaville University Hospital.

2. Patients and Method

Descriptive and analytical cross-sectional study of tetanus cases recorded in patients aged at least 1 year, staying in the infectious diseases department of Brazzaville University Hospital between January 1, 2018 and August 31, 2023 (68 months) and having consented to participate in the study either directly or through accompanying persons. All patients who were conscious on admission were asked to complete a questionnaire in order to participate in the present study. Patients with incomplete information and those discharged against medical advice were excluded from the study. Epidemiological, clinical, therapeutic, prognostic and evolutionary characteristics were described. Data were collected using .EPI. Info 3.2.2. software. Qualitative

variables were presented as headcount and percentage, and quantitative variables as mean and standard deviation. Statistical tests were used according to their applicability criteria. For all these tests, the significance threshold was set at 0.05.

3. Results

Out of 561 admissions, there were 102 cases of tetanus (5.5%). These were male patients with an average age of 31.08 ± 18.5 (2-78) years ($n=86$; 84.3%). Women represented 15.7% ($n=16$). The sex ratio was 5.4. Children under 10 years of age accounted for 10.8% ($n=11$). Patients were urban dwellers ($n=100$; 98%), with blue-collar workers accounting for 22.5% ($n=23$) and schoolchildren ($n=41$; 40.2%). Vaccination status was absent ($n=63$; 61.7%), incomplete ($n=33$; 32.4%) (Figure 1) and the route of entry was integumentary ($n=75$; 73.5%), intramuscular ($n=8$; 7.8%) (Table 1). The average consultation time was 10.2 ± 2.01 (2-15) days, for trismus ($n=94$; 92.2%), paroxysms ($n=79$; 77.5%). The Dakar score was between 4-6 in 18.6% ($n=19$) and between 2-3 ($N=65$; 63.7%). Contractures were generalized with opisthotonos attitude in most of the young patients (Figure 2). SAT was administered IM ($n=38$; 39.6%), suboccipitally ($n=1$; 0.9%). The portal of entry was not trimmed ($n=22$; 21.6%). The mean length of hospital stay was 12.5 ± 9.6 (1-37) days, and the outcome was unfavorable, with death in 42.2% ($n=43$). Factors associated with death were age ($p=0.001$), diabetes ($p=0.007$), occupation ($p=0.03$) and Dakar score ($p=0.0003$) (Table 2).

Table 1. Distribution of patients by point of entry

Point of entry	n	%
Integumentary	75	73,5
Intramuscular	8	7,8
Uterine	2	1,9
Open fracture	4	3,9
Chirurgical	3	2,9
Not found	10	9,8
Total	102	100

Table 2. Factors associated with death

Variables	EVOLUTION		OR	IC95%	P
	Recovery	Death			
Age range	n (%)	n (%)			
40-49 ans	5(8,5)	12(27,9)	4,1	1,3-12,9	0,009
Profession					
military	0(0)	3(7)	-	—	0,03
Background					
Diabetes	0(0)	5(11,6)	-	-	0,007
Signs of examination					
Profuse sweating	0(0)	5(11,6)	-	-	0,007
Score of Dakar					
2-3	43(72,9)	22(51,2)	0,3	0,1-0,8	0,02
4-6	2(3,4)	17(39,5)	18,6	4,0-86,6	0,000003
MOLLARET					
Stage II	39(66,1)	17(39,5)	0,3	0,1-0,7	0,007
Stage IIIA	2(3,4)	16(37,2)	16,8	3,6-78,7	0,0000009

Table 3. Epidemiological aspects of tetanus patients

Epidemiological aspects	N	%
Age (years)		
<10	11	10,8
40-49	17	16,7
Sexe		
Male	86	84,3
Female	16	15,7
Profession		
Pupils/students	41	40,2
Craftsmen/Workers	23	22,5
Comorbidities		
Malaria	25	24,5
HTA	5	4,9
Diabetes	5	4,9
Total		

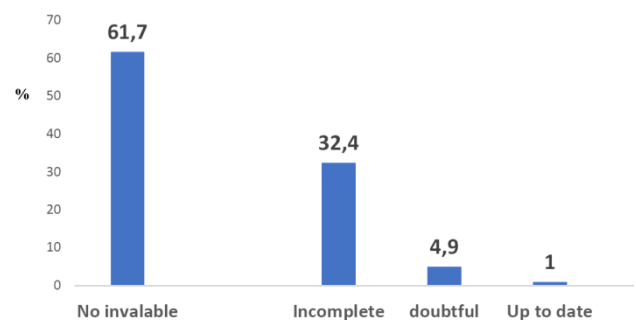


Figure 1. Vaccination status of patient



Figure 2. Attitude in opisthotonos (Source : Dr ossibi Ibara, SMI/CHUB)

4. Discussion

The present study presents some selection biases related to its nature. Some information may be missed in retrospective studies. Future prospective cohort studies would shed more light on the disease. However, this medical thesis has lifted the veil on the epidemiological situation of tetanus at Brazzaville University Hospital.

The prevalence of tetanus remains high, and is similar

to that found in the sub-region [4,5]. Male patients, mostly of young age, are the most affected. This is a population category that works in occupations likely to cause trauma, such as blue-collar and white-collar workers [2,4,5]. The predominance of schoolchildren, as reported in other African countries, is linked to the coverage weaknesses of the Expanded Program on Immunization [3,6]. In Europe, as in the USA, these are people aged over 60 who have not been vaccinated or have lost their immunity [1,7,8]. In over 60% of cases, patients were not vaccinated. This reality, which is specific to African countries, suggests that it will be difficult to eradicate this disease by 2030, as called for by the WHO. The organization of mass vaccination campaigns could improve the tetanus vaccination situation in the Congo. The predominance of integumentary routes of entry is not new, having been reported in Dakar and Abidjan [9,10]. Intramuscular and gynecological routes of entry always have a poor prognosis, as reported in the subregion [11,12]. The average consultation time for patients seems long. These long delays, which are common in Africa, are partly due to ignorance of the disease, and to the low socio-economic level, which makes it difficult for these populations to access health care structures, as the cost of treatment is out of reach [2,4,6]. Tetanus was generalized on admission, with a 1975 Dakar score of 2-3 in more than half the cases. The prognosis of tetanus depends on the evolutionary score of the disease, and also on the quality of management. A significant proportion of Nicolaier's bacille cases were untreated, and tetanus serum was administered sub-occipitally in only 0.9% of cases, and IM in 39.6%. Prompt and adequate administration of TSS has a positive impact on the prognosis of the disease, since it counteracts the effects of the toxin or prevents it from attaching to the anterior horn of the spinal cord. A sub-occipital approach is recommended in cases where the Dakar score exceeds 3 [13]. Delays in consultation and the low socio-economic status of patients are the main reasons for long hospitalization times for these severe forms. Our study found a high case-fatality rate of 42.2% of cases and in relation to age, comorbidities including diabetes and Dakar score. These results are similar to those found in West and Central Africa [2,3,4,5,9]. It would seem that immunosuppression, such as that induced by diabetes, influences the prognosis of the disease, since it can alter the immune response and affect antibody production [14]. This observation had already been made in the same department as in Togo [15,16]. Cultural and cultural considerations specific to these populations, poverty, and our working conditions characterized by the limitation of therapeutic means largely justify this high case-fatality rate.

5. Conclusion

Tetanus remains a frequent ailment in the infectious diseases department, in a context of lack of vaccination and low socio-economic status. The development of communication strategies linked to vaccination and the

raising of the population's standard of living, coupled with the upgrading of technical facilities, would make a significant contribution to improving the epidemiological situation of tetanus in the Congo.

Conflict of Interest

The authors declare that they have no conflict of interest in connection with the present study

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