

## Research Article

# HUMAN IMMUNODEFICIENCY VIRUS (HIV) SEROPREVALENCE AT THE NATIONAL BLOOD TRANSFUSION CENTER (CNTS) IN N'DJAMENA-CHAD.

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### ABSTRACT

**Introduction:** To assess the seroprevalence of the human immunodeficiency virus (HIV) in blood donors. **Materials and methods:** This is a retrospective study carried out at the CNTS in N'Djaména (Chad) over a period of 5 years (2012-2017). Consulting registration registers and exam bench sheets, incomplete files were excluded from the study. The parameters studied were sex, age and HIV serology. **Results:** 110648 donors were included in the study, 2.07% (n = 2292) had at least positive HIV serology. The male sex is much more infected 0.77%. The 17-27 and 28-38 age groups are 0.47%, 0.27% respectively. **Conclusion:** At the N'Djamena national blood transfusion center, HIV seroprevalence is lower than in the general population. This high percentage of HIV should prompt the CNTS and technicians to improve laboratory tests and screening facilities such as rapid tests detecting AgP24 and even PCR.

**Keywords:** HIV, blood donors, CNTS, N'Djamena, Chad.

Chad. No conflict of interest between the authors

### INTRODUCTION

HIV infection is now a pandemic [9], the transmission of infectious agents such as the human immunodeficiency virus (HIV). In developing countries many people die from lack of blood [12]. Blood transfusions save lives and improve health, millions of patients do not have access to safe blood due to lack of reliable blood donors. Blood transfusions are an essential aspect of health care and everyone should have equitable access to clean blood. In sub-Saharan Africa, two factors account for the difficulties encountered in achieving transfusion safety, the existence in the population of a high frequency of infections transmissible by blood transfusion and the still insufficient proportion of voluntary donors who make up the most common group. more secure [4]. At the end of 2020, UNAIDS estimated the number of people living with HIV worldwide at 37,7 million, or 17% compared to 2001, of whom 4 million were due to blood transfusions. Today, HIV transmission by this route is still prevalent for the majority of the world's populations [3,10]. This study makes it possible to guarantee transfusion safety with a view to donating blood without risk to patients. Factors that contribute to the transmission of infectious diseases by transfusion in sub-Saharan Africa are high rates of transfusion in certain groups of patients especially women and children; a high prevalence of human immunodeficiency virus (HIV) in blood donor populations [6]. These infections have a negative impact on blood safety. The probability of transmission of the various infectious markers by a transfusion increases. The objective of this study is to assess the seroprevalence of infectious markers with a view to contributing to the improvement of transfusion safety by a good selection of both biological and clinical donors, to reduce the risk of transmission of infection by blood transfusion .

### METHODOLOGY

This is a retrospective study of HIV / AIDS infection in blood donors. The study took place over a period of 5 years, from January 1, 2012 to December 31, 2017. Our target population consists of all voluntary and family blood donors. Made up of 110,648 donors, our sample is exhaustive. All blood donors (voluntary, family) registered at the Chad National Blood Transfusion Center (CNTS) are included in the study. The serodiagnosis on each donation was carried out by the following reagent: DetermineTMHIV-1/2 for HIV. We collected data from results sheets, registers, routine monthly reports of CNTS activities. The qualitative variables used are: the categories of blood donors (volunteers, family) as well as the test performed (HIV). For the quantitative variables, only the age of the donors was considered. The data collected was encoded, entered, processed and analyzed using World 2007, Excel 2007 and SPSS (version 18) software.

### RESULTS

Distribution of donors according to their socio-demographic characteristics Of the 110,648 blood donors, 95% are male and 5% female. The age of the study population is 17 to 60 years old.

Variables		HIV status n (%)	P – value
Sex (n=2292)	Male	0,77	1767
	Female	0,25	523
Age (n=2292)	17-27	0,47	1100
	28-38	0,27	620
	39-49	0,07	172
	50-60	0,17	400
	Donor category (n=110,648)	Volunteers	36,4
	Family	63,6	70348

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## DISCUSSION

Despite the difficulties in this work, we have certain limitations in collecting the data. There is bias regarding the following information about blood donors: Lifestyle, occupation and medical history, which could influence the prevalence. The overall HIV seroprevalence in this study was 2.7% and remains lower than those reported in the literature for the general population of Chad, Batina et al respectively (3.4%, 4.7%) [4, 11] and the National Blood Transfusion Center of Chad, Fisher et al respectively (2.6%, 5.6%) [7,8]. Moreover, it is both practically identical to that reported for Cameroon [2] and lower than those relating to other African countries: 3.8% in Ghana [2], 5.5% in Maiduguri [2], 10.6% in Nigeria [5] and 16.7% in Ethiopia [1]. This situation could be explained by the HIV seroprevalence in the general population of Chad. The influence of age seems obvious. HIV seroprevalence, higher among donors aged 17-27 and 28-38, drops sharply in the 50-60 age group. According to Loua, seroprevalence by age shows that the age group under 20 is the least affected and the most affected is over 45. While our study is unlike that of Loua. To ensure transfusion safety and that of recipients, all intended blood units must comply with the following universal steps: registration, medical interview coupled with clinical selection and pre-test counseling, biological selection. Unfortunately very few units of blood go through the normal circuit. Sometimes the blood does not even undergo a single serological or immunohematological test, especially in rural areas.

## CONCLUSION

At the end of our study, we note that the overall seroprevalence in blood donors for anti-HIV antibodies is 2.7%. Blood donors aged 17-27 have a higher HIV seroprevalence than other donors, whereas those aged 39-49 and 50-60 have a low HIV prevalence. Relative to gender, our study showed that male donors have a higher HIV seroprevalence than female donors. The prevalence of HIV in our study remains a major public health problem in developing countries in general and in Chad in particular and allows systematic screening in any blood donor to ensure the safety of the blood and that of recipients.

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