

Prevalence of HTLV1, HIV and BVH and their Association in Blood Donors at Tokoin Teaching Hospital of Lomé (Togo)

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ABSTRACT

A transversal study was realised in the Bacteriology and Virology Laboratory of Tokoin Teaching hospital of Lomé in order to determine the prevalence of HTLV 1, HIV and B viral hepatitis (BVH) and their association in 158 occasional blood donors. Serodia HTLV 1, Engygnost HBS monoclonal II and Vironostika kits were used for the detection. The prevalence obtained were :

HTLV 1 = 4.4 %, HIV = 5.7 % and BVH = 9.5 %. The associations were :

HTLV 1 = 4.4 %, HIV = 5.7 % and BVH = 9.5 %. The associations were : HTLV 1 + HIV + BVH = 0.6 %, HTLV + HIV = 0, HTLV 1 + BVH = 0 and HIV + BVH = 1.2 %.

Taking in account the prevalence of HTLV 1 and the rarity of association with the others virus in blood donors, each of the 3 virus must be detected before transfusion.

Key words: HTLV1, HIV, BVH Prevalence, blood donors.

RÉSUMÉ

Une étude transversale a été réalisée dans le laboratoire de Bactériologie et Virologie du Centre Hospitalier et Universitaire de Tokoin au Togo dans le but de déterminer la prévalence du HTLV1, VIH et de l'hépatite virale B (BVH) et leur association dans les spécimens de sang de 158 donneurs de sang occasionnels. Les kits de détection utilisés pour ces études étaient le Serodia HTLV1, Engygnost HBS monoclonal II et Vironostika. Les prévalences obtenues étaient les suivantes: HTLV1 = 4,4%, VIH = 5,7% et BVH = 9,5%. Les associations observées et leur pourcentage respectif étaient: HTLV1 + VIH + BVH = 0,6%; HTLV1 + VIH = 0; HTLV1 + BVH = et VIH + BVH = 1,2%. Ces résultats montrent qu'il y a un faible taux d'association entre HTLV1 et les autres virus détectés dans le sang des donneurs; ainsi nous suggérons que chacun des trois types de virus cités ci-dessus devrait être testé dans le sang des donneurs avant leur transfusion chez les patients.

Mot clés: HTLV1, VIH, BHV, prévalence, donneurs de sang.

INTRODUCTION

The pathologies at HTKV1 (Human T-Cell Leukaemia / Lymphoma Virus type 1) are clearly established. They are haematological (T-cell leukaemia) and neurological (Tropical spastic paralysis). These affection are characterized by a great latency (20years on average) after the initial infection (1,2,3). But the neurology manifestations can occur earlier, six months-eight years in case the contamination occurred though blood transfusion. The known regions of high prevalence for this virus are Japan, the Caraihs and Africa. Moreover, it shares the same transmission ways as the HIV (Human Immuno-deficiency Virus) and the BVH (B Viral Hepatitis) for which the prevalences are known as being high in the sub-Saharan Africa (4,5,6,7).

The objectives of this study are :

- to determine the prevalence of HTLV/HIV and BVH in blood donors
- appreciate the effect of the infection at HTLV1 on transfusional security
- specify the association

MATERIAL AND METHODS

It was a transverse study realized in the Microbiology Laboratory of the Tokoin Teaching Hospital of Lomé in 1999. The sample was composed of 158 occasional blood donors successively recruited during familial giving of blood from September to November 1998.

On each blood sample, the virus HTLV1, HIV and BVH were respectively detected by the agglutination test Serodia HTLV1 (Fujirebio Laboratory Inc, Tokyo), the Vironostika HIV Uni-FormII plus 0 test (Oorganon Teknika Laboratory) and the Engygnost kit HBS monoclonal II (Behring Diagnost HBS kits are immunoenzymatic tests (ELISA) based on the one step sandwich principle. The following demographic data have been considered for all of the donord : age, sex and country of origin. Our data were treated by computer and analysed statistically (calculation of extreme values, of the average, of the prevalence and the standard deviation).

Table I : Prevalence (%) of HTLV1, HIV and BVH in blood of donors

PREVALENCE	HTLV 1 N =158	HIV N = 158	BVH N = 158
	7 (4.4 %)	9 (5.7 %)	15 (9.5 %)

Table II : Prevalence of their association among the blood donors

ASSICIATIONS	EFFECTIFS	%
HTLV1 + HIV + BVH	1	0.6
HTLV1 + HIV	0	0
HTLV1 + BVH	0	0
HIV + BVH	2	1.2
	3	1.8

Table III : Distribution of the prevalence of HTLV1 , BVH and HIV according to sex

Sex	HTLV 1	HIV	BVH
MEN (128)	6 (4.7 %)	5 (4 %)	14 (11%)
WOMEN (30)	1 (3.3 %)	4 (13.3 %)	1 (3.3 %)

Table IV : Distribution of the numbers of cases of HTLV 1, HIV and BVH according to age brackets

AGE BRACKETS	HTLV 1	HIV	BVH
< 20 (n = 7)	1	0	0
20-29 (n = 68)	1	2	5
30-39 (n = 50)	3	5	7
40-49 (n = 23)	1	2	2
50 - 59 (n = 10)	1	0	0

RESULTS

Demographic data

One hundred and fifty-eight (158) blood donors among whom 128 males and 30 females were the subject of this study. The sex-ratio was four men for one woman (4.26). The minimal age of the donors was between 20 and 39 years old ($n = 118$; 74.7 %). There were on hundred and fifty togolese (94.9%), one Ghanaian, four from Benin and two from Niger.

Serological studies

Among 158 blood samples, 27 carried at least one of the three virus with a global prevalence of 17 %. The risk of transmission of the HTLV1 after detection and destruction of the samples contaminated by HIV and by BVH was 4.3% (6 from 136).

Concerning Table IV, no Infection of HIV and BVH was observed among the donors aged less than 20 years, or more than 49 years (over 17 patients). In the case of patients aged from 20 to 49 years, a prevalence of 6.4 % (9 over 141) for HIV and a prevalence of 9.9 % (14 over 141) for BVH were observed. On the other hand, the infection of HTLV 1 was observed at all ages.

DISCUSSION

Studied Population

The patients were relatively young with an average of 32 years. There was a high male predominance (sex ratio: 4.26). The population of our study, just like the one observed in RWANDA, reflects the populations of the developing countries in which more than 50 % are less than 20 years old [6]. Moreover, it must be emphasized that for the giving of blood, young men are more appealed to. The male predominance can be explained by the African conception of giving of blood, which linked to vigour and vitality. Short, the giving of blood is a "male affaire" in Africa. It must all the same be emphasized that pregnancy and breast-feeding are contra-indications of the giving of blood.

Prevalence and Association

The prevalence observed in the study was 4.4 % for HTLV 1 . It is four times higher than that observed by NUBUKPO in 1988 in pregnant women in TOGO as well as in other African countries [8.9]. Thus the infection at HTLV 1 would be in progression in the general population of TOGO due only not to its latency but also to no- prevention of the transmission ways namely the blood transfusion. Indeed, according to some Japanese studies, the risk of infection by blood transfusion is 60 % [3]. The detection of the HIV and

the BVH does not influence the risk of contamination by the HTLV 1 in the studied population at all, there was no association of HTLV 1 / HIV and HTLV / BVH. Only one subject over seven positives of HTLV 1 was eliminated after the detection of the HIV and the BVH because of a triple infection HTLV 1, HIV, BVH.

The distribution according to age (table IV) confirms the high risk of transmission of the HIV and BVH infections during the sexual activity, as already emphasized by other authors [4, 1.]. On the other hand, the distribution of HTLV 1 among all age brackets makes us suggest its high transmission by ways different from the sexual ones, namely the maternal milk and the blood ways [3, 6]. It emerges from this that the detection HIV and BVH cannot be sufficient to ensure the transfusional security. Indeed, the risk of contamination by HTLV 1 is real because the associations are rather rare.

The prevalence observed for HIV (5.7%) and BVH (9.5%) show the high endemicity of these virus in Lomé [7, 10]. As far as the HIV is concerned, its prevalence in the general population in Togo was estimated to 8.5% in 1997 [10]

CONCLUSION

The prevalence of the infection of HTLV 1 among blood donors at Tokoin Teaching Hospital of Lomé was 4.4 % . Its residual risk of transmission during the blood transfusion after detection and elimination of the contaminated samples by HIV was 4.3 % and therefore very close to the global prevalence of the infection the studied population.

Considering this prevalence and the rarity of the associations among the blood donors, each of the three virus must be searched for in every giving of blood.

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