

Human T-cell lymphotropic virus type II in Guaraní Indians, Southern Brazil

Vírus linfotrópico de células T-humanas do tipo II em Índios Guaraní, Sul do Brasil

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Abstract

Human T-cell lymphotropic virus type II (HTLV-II) is found in many New World Indian groups on the American continent. In Brazil, HTLV-II has been found among urban residents and Indians in the Amazon region, in the North. Guaraní Indians in the South of Brazil were studied for HTLV-I/II infection. Among 52 individuals, three (5.76%) showed positive anti-HTLV-II antibodies (enzyme-linked immunosorbent assay and Western blot). This preliminary report is the first seroepidemiological study showing HTLV-II infection among Indians in the South of Brazil.

HTLV-II; HTLV-II Infections; South American Indians; Seroepidemiologic Studies

Human T-cell lymphotropic virus types I and II (HTLV-I and HTLV-II) are retroviruses belonging to the deltaretrovirus genus. HTLV-I is prevalent worldwide and HTLV-II occurs among Native American populations, in sub-Saharan Africans (Pygmies), as well as among intravenous drug users (IDUs) in Europe and the United States ¹.

High HTLV-II infection prevalence rates have been found in several Amerindian groups. Table 1 shows the data from outside Brazil. Twenty-eight prevalence rates are listed, and although in about two-thirds the numbers are below 10.0%, particularly high frequencies (greater than 30.0%) have been observed in the Guahibo of Colombia, the Chorote and Chulupi of the Chaco region, and the Alacaluf of southern Chile.

The vast majority of Native Indians in southern South America live in Brazil, Paraguay, Argentina, and Chile. In South America, only Uruguay has no remaining indigenous population. Many South Amerindians live in the remote jungle of the Amazon basin in the North, such as the Kayapó and the Krahô ^{1,2}. Native tribes from northern Brazil are known to have endemic HTLV-II infection seroprevalence, and Table 2 presents relevant figures. As before, some two-thirds show values below 10.0%, but the Kayapó have a particularly high frequency (32.0%-33.0%).

The Guaraní Indians inhabit extensive areas of Paraguay, Bolivia, and Argentina. The

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Table 1

Seroprevalence of HTLV-II among Amerindians (outside Brazil).

Country	Region	Tribe	Number of subjects	HTLV-II positive subjects		Author*
				n	%	
Canada	British Columbia	Nuu-Chah-Nulth	494	8	1.6	4
United States	Florida	Seminole	106	14	13.2	5
		Seminole	46	11	23.9	6
Mexico	Yucatan	Maya	25	1	4.0	7
Panama	Changuinola	Guaymi	317	25	7.9	8
			3,686	352	9.5	9
Colombia	Orinoco	Guahibo	92	29	31.5	10
		Guahibo				11
	Guajira	Wayuu	123	5	4.1	12
	Pacific Coast	Embera	1,014	7	0.7	13
	Andes	Inga	155	1	0.6	13
Venezuela	Venezuela	Tunebo	40	2	5.0	14
	Southwest	Guahibo	166	41	24.7	15
	Southwest	Pumé (Yaruro)	210	12	5.7	16
Peru	Amazon	Boca Colorada	22	1	4.5	17
		Galilea	42	1	2.8	17
Argentina	Gran Chaco	Toba	222	22	9.9	18
			105	23	21.9	19
		Mataco	2,051	62	3.0	20
	Neuquen	Whichi	244	28	11.5	20
		Chorote	171	61	35.7	20
		Mapuche	94	2	2.1	20
Paraguay	Gran Chaco	Angaité	21	1	4.8	21
		Chulupi	94	32	34.0	20
		Lengua	49	5	10.2	20
		Ayoreo	51	2	3.9	20
		Chaco	146	24	16.4	22
Chile		Alacaluf	23	8	34.8	23
		Yahgan	22	2	9.1	23

* Numbering as given in the references.

Table 2

Seroprevalence of HTLV-II among Brazilian Amerindians.

Region	Ethnic group	Linguistic group	Number of subjects	HTLV-II positive subjects		Author*
				n	%	
Amazon	Kayapó	Jê	264	88	33.3	24
			207	67	32.4	2
	Krahô	Jê	172	21	12.2	24
			Mundurukú	161	13	8.1
	Arára (Laranjal)	Karíb	44	5	11.4	2
	Tiriyó	Karíb	26	4	15.4	2
	Xikrín		206	31	15.0	25
	Parakanã	Tupí	89	2	2.2	25
			52	1	1.9	2
	Galibí	Karíb	148	3	2.0	2
	Wayampí	Tupí-Guaraní	71	1	1.4	2
	Wayána-Apalaí	Karíb	50	1	2.0	2
	Yanomámi	Yanomámi	102	4	3.9	2
	Cinta-Larga	Tupí	50	1	2.0	2
	Karitiána	Arikém	50	2	4.0	2
Yamamadi	Arawá	36	2	5.6	2	
South	Guaraní	Tupí-Guaraní	52	3	5.8	**

* Numbering as given in the references;

** This paper.

Guaraní and Kaingáng are the two most numerous tribes in southern Brazil. Culturally, the Guaraní and Kaingáng are quite different, beginning with their languages, which are mutually unintelligible. The Kaingáng language belongs to the Jê family, while Guaraní is classified in the Tupí-Guaraní family. Both have been living in southern Brazil and neighboring countries for centuries and have been in contact with non-Indians since colonial times. Nevertheless, intermixture with neo-Brazilians is not high, mainly due to the fact that they generally live on reservations especially established for them. About 3,000 Guaraní Indians, scattered over 27 localities, presently live in Southern Brazil. Of these, two-thirds speak the Mbyá dialect and one-third the Nandeva dialect³.

The present sample was obtained among Guaraní Mbyá-speaking subjects living in Rio das Cobras, Laranjeiras do Sul, State of Paraná (25°20'S, 52°30'O) in the South of Brazil (Figure 1). The total Guaraní population on this reservation was estimated as 418³. Blood from 100 individuals was collected with anticoagulant and refrigerated as quickly as possible. At the laboratory in Curitiba, red cells and plasma were separated, and the latter was immediately frozen at -20°C. Afterwards, aliquots were sent under refrigeration to Porto Alegre and kept frozen there since 1988³.

In 2001, plasma samples remaining from 52 individuals (28 women and 24 men) were screened for HTLV-I/II by an enzyme-linked immunosorbent assay (Murex HTLV-I+II, GE80/81, United Kingdom) and positive samples were further studied by Western blot (HTLV blot 2.4, Genelabs Diagnostics, Singapore). The three positive samples (2 males and 1 female) were typed as HTLV-II according to the manufacturer's instructions, showing a prevalence of 5.76%. Unfortunately there are no cells available to perform molecular studies.

Southern Brazil is geographically and ethnically closely related to the North of Argentina and South of Paraguay, both being areas well-recognized as endemic for HTLV-II. To our knowledge, this is the first study demonstrating HTLV-I/II infection among Amerindians from the South of Brazil, suggesting the Guaraní as an endemic group for these viruses. Further studies will focus on molecular and phylogenetic analyses in a larger number of samples.

Figure 1

Geographic location of southern South Amerindians tested for HTLV-II seroprevalences.



Resumo

O vírus linfotrópico de células T-humanas do tipo II (HTLV-II) é identificado em muitos grupos de ameríndios. No Brasil, tem sido encontrado em indivíduos da população urbana, bem como em índios oriundos da região Amazônica. Os Índios Guarani, do Sul do país, foram investigados para infecção por HTLV-II/III. Três indivíduos, oriundos de uma amostra de 52 índios, demonstraram sororeatividade para HTLV-II (ensaio imunoenzimático e Western blot). Este estudo preliminar foi o primeiro a identificar a presença de infecção por HTLV-II em ameríndios do Sul do Brasil.

HTLV-II; Infecções por HTLV-II; Índios Sul-americanos; Estudos Soroepidemiológicos

Contributors

M. Menna-Barreto conceived and wrote the manuscript. F. M. Salzano and S. L. Bonatto were the research supervisors and performed a critical review of the manuscript. A. L. Bender performed the laboratory work. L. B. Freitas, L. T. Tsuneto, and M. L. Petzl-Erler collaborated in the field work, sample processing and storage.

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