



BRIEF NOTE

STATUS OF HANTAVIRUS IN THE CENTRAL AFRICAN REPUBLIC

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The first serological evidence of Hantavirus circulation in Africa was reported from the Central African Republic (CAR) as early as 1981 [5]. More recently, we reported serological evidence of infection by a Hantaan-like virus in a human population of CAR [1, 3].

Since 1985, a continuous survey was routinely made on hospitalized patients based on the clinical picture of renal disfunction of unknown aetiology, associated or not with a haemorrhagic syndrome. In addition, routine trapping was carried out at the Bangui harbour on the Ubangui river in order to evaluate the importance of *Rattus rattus* as a potential reservoir of the virus. Several other rodent species were also tested.

Serological tests were conducted using immunofluorescent assay (IFA) on Vero-infected cells with Hantaan virus strain 76-118, as previously described [3]. Virus isolation attempts were made by multiple passages on Vero E6 cells; Korean haemorrhagic fever convalescent sera and/or monoclonal antibody were made to show the presence of antigen using organ cryosections [8].

Of 305 selected patients, 4 seroconverted and 10 had a significant IgG titre from 16 to 2,048 (table 1). In one case, we were able to follow the IgM and IgG antibody kinetics [1]. All 5 patients had fever, with oliguria and a high creatinine level ($> 140 \mu\text{mol/l}$); these symptoms improved within 48 h, but in all cases an associated hepatitis syndrome (SGOT ≥ 400 IU) lasted 5 days or more. In all seropositive patients, virus isolation attempts from sera and several urine samples were unsuccessful.

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TABLE I. — Prevalence of anti-Hantaan-virus fluorescent antibodies (IFA) in human sera from CAR.

Population sampled	Date of sampling	Total tested	Positive	%
General	1982-1984	293	2	0.7
General	1984-1986	191	15	7.9
Targeted (hospital patients)	1985-1987	305	14	4.6

Of 100 *R. rattus* trapped over a period of 1 year (November 1985 to November 1986), 5 were found seropositive by IFA (IgG titre of 16 to 64). From these 5 animals, Hantaan-related virus antigen was demonstrated in thin cryosection of kidney. The other organs (lung, liver and spleen) remained negative (table II). No viruses were isolated from either the lung, kidney, liver or spleen of these 5 specimens.

TABLE II. — Prevalence of anti-Hantaan-virus fluorescent antibodies in rodent sera from CAR (1982-1987).

Rodent genus	Total tested	Positive	%
<i>Rattus</i>	100	5	5.0
<i>Praomys</i>	68	1	1.5
<i>Mastomys</i>	76	0	0.0
<i>Steatomys</i>	35	1	2.9
<i>Mus</i>	25	0	0.0
<i>Lophuromys</i>	25	0	0.0
Others (*)	24	0	0.0

(*) *Aethomys*, *Thamnomys*, *Hylomys*, *Stochomys*, *Lemniscomys*.

As has been observed in preliminary serological studies in Gabon [2], this serological investigation in CAR showed a higher antibody prevalence during 1984-1986 (7.9 %) than during 1982-1984 (0.7 %) [4]. We do not have an explanation for these observations. The size of the population sampled and possible changes in the technique of preparing the antigen slides must be considered.

CAR = Central African Republic.
OFA = immunofluorescent assay.

HFRS = haemorrhagic fever with renal syndrome.

As has been shown in Senegal [7], *R. rattus* seems to be the best virus reservoir candidate; in our experience, the relatively low antibody prevalence in both human and rodent populations confirms the low level of endemicity. Nevertheless, haemorrhagic fever with renal syndrome (HFRS) in Africa appears to be mild and characterized by an episode of fever with fugacious renal dysfunction; in our experience, hepatitis seems to be associated, but no link has been demonstrated in the pathogenesis; however, while our patients with HFRS meet our criteria of selection, such criteria do not appear to be relevant if we compare seroprevalence in general with that of targeted populations.

In conclusion, these observations and those previously reported [2, 3, 6, 7] show that Hantaan-like viruses are present in Africa, particularly in West Africa. The clinical picture appears to be atypical and positive diagnosis depends upon biological tests. More investigations are needed to determine if the virus is spreading on the continent. Major efforts are needed in the isolation of African strains.

KEY-WORDS: Hantavirus, Central African Republic; *Rattus rattus*.

RÉSUMÉ

LE POINT SUR LES HANTAVIRUS EN REPUBLIQUE CENTRAFRICAINE

Après la mise en évidence, en 1982, d'anticorps spécifiques dirigés contre les virus Hantaan dans les populations humaines de RCA, des études ont été entreprises pour en déterminer la prévalence et un éventuel niveau d'endémie. D'une part, une surveillance des patients a permis de démontrer l'existence d'un syndrome associant fièvre, insuffisance rénale passagère et hépatite d'étiopathogénie imprécise, évoluant rapidement vers la guérison; d'autre part, des captures de rongeurs semblent désigner *Rattus rattus* comme réservoir de virus. Des enquêtes de séroprévalence dans les populations humaines et animales restent toutefois en faveur d'un niveau d'endémicité faible.

MOTS-CLÉS: Hantavirus, République Centrafricaine; *Rattus rattus*.

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