

Lassa virus serology in rodents: spatial survey in Guinea, west Africa

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Lassa fever is a hemorrhagic fever, due to an arenavirus, and affects 150,000-300,000 persons per year in west Africa, leading to 5,000-10,000 deaths per year. The disease appears to have two geographically separate endemic areas: the Mano River region (Guinea, Sierra Leone and Liberia) in the west, and Nigeria in the east. Because of the recurrent public health problem in these countries, we made an extensive field study in Guinea, between 2002 and 2005. We then demonstrated that the multimammate mice *Mastomys natalensis* was the only host of the Lassa virus. The spatial survey conducted in 17 villages distributed in Coastal, Upper and Forest Guinea, showed that 3 villages were infested by the virus. Using the same collection done at this time, we investigate now the Lassa virus serology in the rodent population to verify if other species than *M. natalensis* could be potential carriers. A standardized trapping was conducted in different habitats: houses, cultivations and forest. The rodents were identified morphologically and molecularly by sequencing the *cytochrome b* gene. The screening of IgG antibodies was done by using the indirect immunofluorescence assay, with the strain Bantou 289 as antigen. The average seroprevalence was 8% (129/1551), distributed as follow: 18% (109/596) in *M. natalensis*, 3% (7/251) in *Mastomys erythroleucus*, 12% (4/32) in *Lemniscomys striatus*, 4% (4/112) in *Praomys daltoni*, 7% (3/40) in *Mus minutoides* and 1% (2/163) in *Praomys rostratus*. They were mainly found (122/129) in the 3 villages where the Lassa virus was previously described, suggesting that other species than *M. natalensis* could also serve as carrier in the circulation of the virus in high endemic zone. But 3 other villages located in coastal Guinea showed 6 seropositive animals, where the reservoir was absent from this area. These findings are discussed in the framework of ecoepidemiology of the disease.

Keywords: IgG, Lassa fever, *Mastomys natalensis*, rodents, serology, tropics, west Africa, zoonosis