Short Communication

Loa loa and Mansonella perstans Infections in Ijebu North, Western Nigeria: a Parasitological Study

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SUMMARY: The prevalence and intensity of Loa loa and Mansonella perstans were studied in three villages of the Ijebu north area in Ogun State, western Nigeria. Blood samples were collected by finger-pricking from 373 (181 males, 192 females) subjects with an age range of 4 to 55 years. The blood samples were examined microscopically for the presence of microfilariae (mf). L. loa and M. perstans were present in the blood samples in 39 (10.5%) and 12 (3.2%) of the subjects, respectively. Neither of the infections were found to be sex-dependent. The geometric mean of the L. loa intensity was 1.8 mf per 50 μl of blood, while that of M. perstans was 1.5 mf per 50 μl. The prevalence of mixed infections of both L. loa and M. perstans was 1.0%.

Despite the continued deforestation and indiscriminate bush-burning that threaten the lives of vectors of Loa loa and Mansonella perstans, recent reports of the occurrence of these infections in tropical Africa, including Nigeria, have been made (1-4).

In the Ijebu division of western Nigeria, L. loa infection was reported by Ogunba in 1971 and 1972. There has been no further investigations in the area, although the current study sights were not included in Ogunba’s study areas. Also, there has been no previous record of M. perstans infection in the Ijebu division of western Nigeria. The present study was therefore initiated to determine the current prevalence and intensity of L. loa and M. perstans infestations in some communities of the Ijebu north area of western Nigeria.

The study area consisted of Abata, Awori-Jeje, and Mamu villages in the Ijebu North Local Government Area of Ogun State, western Nigeria (Fig. 1). Abata, Awori-Jeje and Mamu are approximately 8, 10, and 20 km, respectively, from Ago-
Iwoye (the Ogun State University town). The study area is located between latitudes 7°00' and 7°05'N, longitudes 3°50' and 3°55'E, and is covered by a thick rain-forest vegetation. Abata, Awori-Jeje, and Mamu currently have estimated human populations of approximately 250, 350 and 2,000, respectively. The inhabitants of the villages are primarily subsistence farmers, with a few traders at Mamu. Prior to commencement of the study, permission and ethical consent were obtained from health personnel and heads of the communities as well as from participating individuals.

Three hundred and seventy-three volunteers, with an age range of 4 to 55 years, including 181 males and 192 females, participated in the study, which took place between October 1997 and July 1998. Blood samples were collected from the volunteers by the finger-pricking method between 11:00 a.m. and 2:00 p.m. Thick blood smears were made and stained with buffered Giemsa solution (pH 7.2) for microfilariae (mf) detection, identification, and counting. In each infected subject, the mf intensity of each infection was evaluated by the number of mf per 50 μl of blood. The chi-square test (χ²) was used to determine significant differences and was tested at a 0.05 level of significance.

The prevalence of L. loa and M. persians mf according to sex in the study area are summarized in Table 1. Of the 373 subjects examined, 39 (10.5%) and 12 (3.2%) had L. loa and M. persians, respectively, in their blood samples. The prevalences among males and females were not significantly different. Similarly, the prevalences of M. persians in Abata and Mamu were not significantly different. The total prevalences of L. loa and M. persians among males and females were not significantly different. Thirty-eight (97.4%) and 11 (91.7%) of the subjects with L. loa mf and M. persians mf, respectively, were 20 years old or younger.

The microfilarial intensity of L. loa in the study area ranged from 1-20 mf per 50 μl of blood, while that of M. persians was from 1-2 mf per 50 μl of blood. The geometric mean intensity of L. loa in each of the categories (males, females, and total [males + females]) was 1.8 mf per 50 μl of blood. The geometric mean intensity of M. persians among males (1.4 mf/50 μl blood) was not significantly different from that among females (1.7 mf/50 μl blood). The total geometric mean intensity of M. persians was 1.5 mf per 50 μl of blood.

Three (1.0%) cases of mixed infection of L. loa and M. persians were recorded in the study area. Two of the mixed infections occurred in males, both of whom were 10 years old. The other was in an 11-year-old female. In each male with mixed infection, L. loa and M. persians had the same microfilarial intensities of 2 mf per 50 μl of blood.

The current prevalence of L. loa infection in the study area was similar to previous findings of Ogunba (5,6) among school children and adults in another part of the Ijebu division, western Nigeria. This finding indicates similar levels of endemicity between the present study area and the area studied by Ogunba. The presence of Chrysops silacea and C. dimidita (the vectors of L. loa) in some parts of the Ijebu division has previously been documented (5). Similarities in the prevalences of L. loa among villages in the present study indicate similar rates of transmission in the villages. In addition, similar prevalences among males and females show that both sexes have been equally exposed to the infection, which is similar to the finding of Mommers et al. (7). Efforts are currently in progress to collect Chrysops spp. and to determine their vectorial capacities in the present study area.

An important finding of the present study was the occurrence of M. persians infection in the study area. M. persians has previously been reported in other parts of Nigeria (1-3), but this is the first time that it has been reported in the Ijebu division of western Nigeria. A preliminary 6-month study has revealed the presence of Culicoides spp. with a filarial infection rate of 8.6% in the study area (unpublished data). Similar prevalence of M. persians infection among males and females have indicated equal exposure of both sexes. In this study, both L. loa and M. persians infections were primarily restricted to subjects 20 years of age or younger, the reasons for which may be investigated further in a future study.

The recorded microfilarial intensity of L. loa in the study area was low, as has previously been reported by Ufomadu et al. (1) regarding central Nigeria. Also the microfilarial intensity of M. persians in the study area was low, which agrees with findings of Mommers et al. (7) in southern Cameroon.

The detection of mixed infection of L. loa and M. persians in the study area was another important finding, and is similar to previous findings from other areas such as central Nigeria (1) and southern Cameroon (7).

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REFERENCES


