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Investigations of filarial worms of man in metropolitan Lagos

Short communication

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Of the 7 species of filarial worms known to be important parasites of humans, 4 exist in Nigeria; these are *Wuchereria bancrofti*, *Loa loa*, *Onchocerca volvulus* and *Mansonella perstans* (*Dipetalonema perstans*).

Early studies (Cowper and Woodward, 1961; Ngu and Folami, 1965; Nnochiri, 1968) showed that the transmission foci of each parasite are not uniformly distributed. More recent, and detailed studies have been carried out on the epidemiology of Onchocerciasis (Edungbola and Asaolu, 1984) and loasis (Ogunba, 1977; Hori et al., 1984) in the Central and Western States of the country, respectively. The early conception (Nnochiri, 1968) that *Onchocerca volvulus* is not transmitted in metropolitan Lagos remains unelucidated.

In the present investigation, two categories of subjects were studied between 1982 and 1984. The first consisted of patients who attended out-patient clinics of the Lagos University Teaching Hospital (LUTH). 2 ml blood samples were collected into sequestrin bottles usually between 10.00 a.m. and 1.00 p.m. The second category consisted of in-patients, on admission for conditions unrelated to filariasis. From these patients, two blood samples were taken, one between 11.00 a.m. and 1.00 p.m. and the other at mid-night. Biopsy of their skin snips were taken either from the thighs or iliac crests during day time and placed in physiological saline.

The blood and biopsied skin specimens were microscopically examined for microfilariae first as a direct wet preparation and in addition the negative blood samples were concentrated and reexamined. Microfilarial count was made on positive blood samples, and in a known weight of the skin after staining in Giemsa.

All the rivers and their banks except the lagoons were searched for the larval and adult stages of *Simulium* species on four different occasions.

No microfilaria of *Wuchereria bancrofti* was diagnosed from the 777 persons whose night blood specimens were examined. Fifty-five (5%) of the study population were infected with *Loa loa*. The infection rate was significantly higher in male patients, 31 (6.4%) of whom were infected, than in female patients in whom an infection rate of 3.9% was recorded. There was high infection rate (5.3%) in the age-group above 50 years.

The prevalence of infection with *Mansonella perstans* was 0.8%. The infection rate was higher among the male subjects as compared with the female subjects in whom the parasite was confined to the age-group 31–40 years and the above 50 years age-group. There was no correlation between infection rate and sex.

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Of 1102 skin snips examined, 5 (0.5%) were infected with *D. streptocerca*, consisting of 3 infections in male patients and 2 infections in female patients. No mixed infection with *Onchocerca volvulus* was recorded.

Microfilariae of *O. volvulus* were recorded in 36 (3.3%) of the skin snips examined. The number of positive specimens was approximately evenly distributed among male patients and female patients with 3.2% and 3.3% infection rates, respectively. Seventeen (53%) out of 32 positive cases were those who arrived in the metropolis within 6 months, while altogether 29 (90.6%) of these positive cases arrived in the metropolis within the past 5 years. The result of the microfilarial count shows that cases of high microfilarial density (more than 150 microfilariae per mg of skin snips) were restricted to new arrivals.

Extensive search of the rivers and the river banks for the larval stages and/or adults of *Simulium* species, the vector of *O. volvulus*, was futile.

No case of *Wuchereria bancrofti* was diagnosed in this study. Similarly, Cobban (1959) did not record any positive specimen among his 31 *W. bancroftian* cases. Likewise, Ngu and Folami (1965) examined 1340 night blood specimens from the western and mid-western region of Nigeria but could demonstrate microfilariae of *W. bancrofti* in only 2 of the specimens. The prevalence figures obtained for *L. loa* in this study and in previous reports (Ogunba, 1977) showed that the infection rate was very variable in different populations. The different infection rates of 6.4% and 3.9% recorded for the male subjects and the female subjects, respectively, were significant. The different infection rates of both sexes and variability of prevalence of infection among different population are undoubtedly due to difference in exposure rates. Both *Chrysops silacea* and *Chrysops dimidiata*, the vectors of *Loa loa*, are confined to the swampy and/or stream areas in the riverine forest where they readily attack man (Hori, 1984). It is therefore possible that transmission is confined to the fly habitats.

It is of interest to find that 5 (0.5%) of 1102 skin snips examined were positive for *Dipetalonema streptocerca*. This parasite has not been reported as one of the filarial worms that are transmitted in Nigeria. Unfortunately, the patients in whom the parasites were diagnosed, were not available for interviewing to ascertain the possibility of acquiring the infection outside the country. However, the presence of both infected persons and potential vectors (species of *Culicoides*) which are abundant in the country has raised the probability of the existence of foci of infection either now or in the very near future. Further research in this regard is desirable.

Onchocerca volvulus is perhaps the most prevalent pathogenic filarial worm in most parts of Nigeria. However, the absence of any suitable habitats for *Simulium larvae*, and the fact that those with heavy microfilarial counts were new arrivals from endemic areas, are evidence in favour of the contention that *Onchocerca volvulus* is not transmitted in metropolitan Lagos.

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