Human filariasis in Angola: Co-endemicity, complications, and challenges in control towards elimination.

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ABSTRACT

Filaria are thread-shaped parasites belonging to the nematode class, with nine filarial nematodes using humans as the definitive host. According to the niche they occupy within the body, they cause lesions that can have severe consequences for human health, such as elephantiasis, hydrocele, and lymphedema. Caused by the species *Wuchereria bancrofti* (WB) in the lymphatic system, eye worm caused by *Loa loa* (L.L), subcutaneous filariasis, and blindness caused by *Onchocerca volvulus* (Ov) in the serous cavity—all endemic in Angola. The study and control of these diseases are imperative. The research aimed to understand the coendemicity between *Onchocerca volvulus*, *Wuchereria bancrofti*, and *Loa loa*, determining prevalence, evaluating the Knowledge, Attitude, and Practice (KAP), and relating them to the Socio Economic and Environmental Determinants (SOECA), as well as proposing a control strategy based on the context. A questionnaire was applied for thirty days to 320 people, and blood and skin samples were collected from residents of 28 randomly selected neighborhoods. One drop of dried blood was preserved on Wathman filter paper for molecular biology. Free and informed consent was presented and/or read and signed by those who could not read, and fingerprints were collected. The data were recorded and entered into a database in Excel and SPSS. The average age of the participants was 38 years, with 62.5% being women. Regarding SOECA: 105 families with small households (1-5 members), 53.3% did not have a monthly income, while 65% of medium-sized households (6-9 members) also did not have a monthly income. Simultaneously, 32.8% of small families had two meals per day, and 9.6% had three meals, while 4.6% of medium-sized families had three meals per day. On the other side, 76.6% of people consume water from streams, and 67% of people dispose of waste in the open, facilitating the pollution of streams and breeding grounds for *Culex*, *Aedes*, and *Anopheles*, which transmit *W. bancrofti*. Moreover, 76.6% are exposed to *Simulium* bites when collecting water from streams. 88% of people do not know the names of the filariasis diseases in the community, 37% refer to elephantiasis as "tala" or traditional "mina", 28.4% call hydrocele "m'bumbi", 6.9% call it "Umeque", and "Olongandu" refers to onchocerciasis. The knowledge level is very low, at 100%. The attitude is good, with 91.3% going to the hospital when sick, 4.1% using traditional treatment, and 4.7% turning to the church. The practice, however, is poor: 99.7% do not sleep under a mosquito net, 99.4% do not use repellent or long-sleeve shirts when working in fields or by the river, 99.7% have never taken albendazole, and 100% have never attended a lecture on filariasis. The GEC for *W. bancrofti* was positive in 0.3% of samples, and biopsy was positive in 54.3% of *Onchocerca volvulus* samples, of which 5.4% were confirmed by PCR.

Conclusion: The socio-environmental and economic conditions of the residents of Chicala favor the transmission of filariasis. Knowledge about filariasis is very low, attitudes are good, and practices are poor. The epidemiological context has configured a

hyperendemic situation for *O. volvulus*, hypoendemic for *W. bancrofty*, and without *L. loa*. The risk of side effects following ivermectin treatment due to *L. loa* is excluded, but further research is required for *W. bancrofty*.

Keywords: *Oncocerca Volvulus; Wuchereria bancrofty, Loa loa;* Neglected tropical diseases.