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ONCHOCERCIASIS AS A SIGNIFICANT CAUSE OF EPILEPSY: EVIDENCE FROM MODELLING THE RELATIONSHIP BETWEEN ONCHOCERCIASIS AND EPILEPSY IN 7 AFRICAN COUNTRIES

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The possible link between onchocerciasis and epilepsy is still a matter of debate. In the present study, we characterized quantitatively the relationship between the prevalence of onchocerciasis and that of epilepsy by including in a same model all the available data collected at a community level. Eight studies performed in West (Benin and Nigeria), Central (Cameroon and Central African Republic) and East Africa (Uganda, Tanzania and Burundi) met the inclusion criteria for analyses. As the methods used to diagnose *Onchocerca volvulus* infection varied between studies, the prevalences of onchocerciasis were standardized using specifically developed tools. The variation in epilepsy prevalence was then analyzed as a function of onchocerciasis endemicity using non-linear random effect regression modelling. A total of 91 communities (in which 79,270 individuals were screened for epilepsy) were included in the analysis. The prevalence of epilepsy ranged from 0 to 8.7% while that of onchocerciasis ranged from 5.2 to 100%. Variation in epilepsy prevalence is consistent with a positive exponential function of onchocerciasis prevalence, with epilepsy prevalence being increased by a 1.66 factor for each 10% increase in onchocerciasis prevalence. Using the current estimates of population living in meso- and hyperendemic areas for onchocerciasis (data provided by the African Programme for Onchocerciasis Control), we estimate that onchocerciasis-related epilepsy could represent 52,000 DALYs (Disability Adjusted Life Years) lost per year in Sub-Saharan Africa. These results give further evidence that onchocerciasis could represent a significant cause of epilepsy and that the burden of onchocerciasis might have to be re-estimated by taking into account this relationship.

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PROGRESS TOWARD ELIMINATION OF LYMPHATIC FILARIASIS IN THE EASTERN MEDITERRANEAN REGION

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Lymphatic filariasis (LF) is endemic in several Eastern Mediterranean Region (EMR) countries. LF in the EMR is caused by *Wuchereria bancrofti* and primarily transmitted by *Culex* in rural and semi-urban areas with *Anopheles* transmission in Southern Sudan. The estimated population at risk in the region is 12.6 million, representing 1% of the global LF burden. LF has been targeted for elimination under the GPELF umbrella in Egypt, Sudan and Yemen. Egypt (with an estimated population at risk of 2.7 million) initiated one of the first national LF elimination programs based on mass drug administration (MDA) with DEC and albendazole in 2000. The program used villages as implementation units (IUs) and included IUs with baseline infection rates $\geq 1\%$. The program maintained high coverage

rates, reported (91%) by the government and ($\geq 80\%$) by independent surveys. MDA was discontinued in 149 IUs (92.5% of the total) that met WHO stopping criteria after 5 rounds. The government is now providing MDA twice per year in 12 "hot spot" IUs that failed to meet stopping criteria after 5 rounds and in 17 IUs that have not yet completed 5 rounds in an attempt to quickly complete the "mop-up" phase of the program. Yemen's program targeted approximately ~110,000 people at risk with MDA with albendazole and ivermectin. Sentinel sites were surveyed for microfilaremia and for antigenemia in children in 2006 (after 5 rounds of MDA). Stopping criteria were met in all IUs except Socotra Island, where MDA is continuing. Sudan has a large LF problem and a complex political situation. Mapping activities have confirmed that LF is endemic in all 15 states in Northern Sudan (NS). A pilot MDA program (integrated with other disease control activities) is planned for two IUs in NS in 2008. A non-government organization is helping Southern Sudan authorities to complete mapping and initiate MDA in two states in 2008. Clinical LF cases have been reported in Djibouti, Oman, Pakistan, Saudi Arabia and Somalia. Additional work is needed to determine whether LF transmission occurs in these countries.

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A BLOOD AND FAECAL PARASITE SURVEY ON SATAWAL ISLAND, FEDERATED STATES OF MICRONESIA

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Satawal is a small isolated coral island located in the Federated States of Micronesia (FSM) with a population of approximately 500. A blood and faecal parasite survey conducted by a team from the FSM Department of Health and the School of Public Health and Tropical Medicine, James Cook University, Australia found a surprisingly high prevalence of parasites. Lymphatic filariasis is believed to be uncommon in FSM, but 34% of the Satawalese had a positive ICT filarial antigen test and 18% were microfilariae positive. Infection in males was approximately twice that of females, probably due to the differing exposure to infective mosquitoes at peak biting times. A mass chemotherapy program using Diethylcarbamazine and Albendazole has been introduced. Children from grades 1 to 8 were screened for intestinal parasites. *Ascaris lumbricoides* prevalence ranged from 100% to 69.2%, *Trichuris trichiura* from 28.6% to 7.7% and Hookworm from 1.5% to 7.7%. *Entamoeba coli*, *Entamoeba histolytica/dispar*, *Giardia lamblia* and other protozoa were also present. The intense transmission of intestinal parasites is almost certainly due to promiscuous defecation and measures must be taken to improve sanitation along with de-worming of children.

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HUMAN HELMINTH CO-INFECTION: A MULTI-LEVEL ANALYSIS OF SPATIAL, HOUSEHOLD AND FAMILIAL CLUSTERING OF POLYPARASITISM IN SOUTH-EASTERN BRAZIL

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Polyparasitism in humans is extremely common in tropical regions, and may have profound consequences for human health and well-being. Despite its wide-scale occurrence, the factors influencing patterns of polyparasitism within communities remain ill-defined. We have investigated the relative roles of exposure-related and host-dependent factors as sources of heterogeneity in the distribution of co-infection

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