**Low prevalence of epilepsy and onchocerciasis after more than 20 years of ivermectin treatment in the Imo River Basin in Nigeria**

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**Abstract**

**Introduction:** High epilepsy prevalence and incidence have been reported in areas with high onchocerciasis transmission. Recent findings suggest that proper community-directed treatment with ivermectin (CDTI) is potentially able to prevent onchocerciasis-associated epilepsy (OAE). We assessed the epilepsy prevalence and onchocerciasis transmission in two Nigerian villages following more than 20 years of CDTI.

**Methods:** A cross-sectional door-to-door survey was performed in two villages in the Imo river basin reported to be mesoendomic for onchocerciasis (Umuoparaodu and Umuezeala). Individuals were screened for epilepsy using a validated 5-item questionnaire. Persons suspected to have epilepsy were examined by a neurologist or a physician with training in epilepsy for confirmation. Onchocerciasis was investigated via skin snip microscopy and rapid diagnostic tests for Ov16 antibodies. Results were compared with previous findings from the Imo river basin.

**Results:** A total of 843 individuals from 257 households in the two villages were encountered. We detected four persons with epilepsy (PWE) giving a crude epilepsy prevalence of 0.5%. This finding differs from observations reported 14 years ago which showed an epilepsy prevalence of 2.8% in the neighbouring village of Umulolo (*P* = 0.0001), and 1.2% from 13 villages in the Imo river basin (*P* = 0.07). The three PWEs who developed epilepsy between the ages 3‒18 years had immigrated into the study site. The seroprevalence of Ov16 antibodies was found to be 0%. Only 4.6% of skin snips were positive compared to 26.8% in previous surveys (*P* < 0.0001). Ivermectin mass distribution coverage in the study sites in 2017 was 79.7%.

**Conclusions**: A low epilepsy and onchocerciasis prevalence was observed following more than 20 years of CDTI in the Imo river basin. Absence of Ov16 antibodies indicates minimal transmission of onchocerciasis. These results contrast with observations from areas of high onchocerciasis transmission, where epilepsy prevalence and incidence remain high. Findings from this study suggest that sustained efforts could eventually achieve elimination of onchocerciasis in these villages.