

Publication

A sero-epidemiological approach to explore transmission of Mycobacterium ulcerans

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The debilitating skin disease Buruli ulcer (BU) is caused by infection with Mycobacterium ulcerans. While various hypotheses on potential reservoirs and vectors of M. ulcerans exist, the mode of transmission has remained unclear. Epidemiological studies have indicated that children below the age of four are less exposed to the pathogen and at lower risk of developing BU than older children. In the present study we compared the age at which children begin to develop antibody responses against M. ulcerans with the age pattern of responses to other pathogens transmitted by various mechanisms. A total of 1,352 sera from individuals living in the BU endemic Offin river valley of Ghana were included in the study. While first serological responses to the mosquito transmitted malaria parasite Plasmodium falciparum and to soil transmitted Strongyloides helminths emerged around the age of one and two years, sero-conversion for M. ulcerans and for the water transmitted trematode Schistosoma mansoni occurred at around four and five years, respectively. Our data suggest that exposure to M. ulcerans intensifies strongly at the age when children start to have more intense contact with the environment, outside the small movement range of young children. Further results from our serological investigations in the Offin river valley also indicate ongoing transmission of Treponema pallidum, the causative agent of yaws.

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