

An alternative strategy of preventive control of tick-borne relapsing fever in rural areas of Sine Saloum, Senegal

Mady Ndiaye,

Faculté des Sciences Université Cheikh Anta Diop de Dakar, Africa



Abstract

In Senegal, tick-borne relapsing fever (TBRF), a bacterial disease with symptoms similar to those of malaria, is a major cause of morbidity in health facilities and a neglected public health problem. The high frequency of human cases detected in Dielmo-Ndiop, in the Fatick region, has led us to implement a strategy to combat TBRF directly involving the populations. This strategy consists in cementing the sleeping rooms, attics and other outbuildings frequented by the inhabitants to avoid human contact with tick vectors. Epidemiological and medical monitoring of the TBRF incidence was carried out at Dielmo and Ndiop by testing the blood of febrile patients. Intra-domiciliary habitat conditions were improved by cementation coupled with accompanying measures consisting of, (i) asking heads of households to bring the day of the cementation water, clayey sand, gravel and encourage them to catch small rodents and insectivores that frequent their homes with a non-toxic liquid glue made available to them, (ii) track down rodent burrows and crevices resettled after cementation in each village. The application of this strategy between March 2013 and September 2015 has significantly reduced the incidence of the disease. This reduction was more evident in Dielmo than in Ndiop, where it changed from 10.55 to 2.63 cases per 100 person-years ($p < 0.001$), and from 3.79 to 1.39 cases per 100 person-years ($p < 0.001$) respectively. Thirty-six cases of TBRF have been prevented annually. The preventive control strategy reduced the incidence by 89.8% in Dielmo and 81.5% in Ndiop, suggesting that TBRF can be greatly reduced when the population is involved. Monitoring of the improved habitat in each village by a mason was continued until 2016. From 2017, the TBRF control strategy was transferred to the community level, continuing to provide the population with free cement and liquid glue to catch rodents and insectivores. Since 2018, no funding has been granted to populations who have taken ownership of the control strategy entirely despite a slight relaxation observed, but currently there are few cases of TBRF in both communities as in 2015. Public health authorities should adopt this effective tool to promote the health of rural populations through national prevention programs.



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