

permethrin impregnated sisal curtains in malaria control in western Kenya.

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Abstract:

A trial to determine the effectiveness of sisal eaves-curtains impregnated with permethrin for malaria control was conducted in the malaria holoendemic western Kenya between 1991 and 1993. Indoor resting densities of *Anopheles gambiae* s.l. and *Anopheles funestus* were reduced by 90.9% and 93.8% respectively in protected houses. The entomological inoculation rate (EIR) was reduced by 72% in the intervention village. There was no significant reduction in vector longevity or survival as shown by the sustained high sporozoite rates. Monthly bioassays for retained insecticidal potency of permethrin on the fibre indicated vector mortality rates above 95% over the period. Of 283 and 240 children followed up from the intervention and control villages, a mean malaria prevalence of 43.2% and 52.2% respectively was observed over the trial period ($p < 0.01$). The prevalence rose to 73.5% and 75.7% ($p = 0.541$) respectively after the removal of the curtains. No significant differences were observed in the mean parasite density between the groups or between the proportions with parasite density exceeding 2,500 per microliter and with or without fever. The prevalence of splenomegaly was significantly lower in the intervention group compared to the control, both during ($p = 0.005$) and after the intervention ($p < 0.001$). There was no significant difference in the mean change in haematocrit at the end of the intervention. We observe that permethrin impregnated sisal curtains effectively retain permethrin, alter favourably the indoor vector density and EIR, and could provide a reduction in malaria prevalence.