

OPTIMIZED DOG-CULLING PROGRAM DOES NOT REDUCE *LEISHMANIA* INFECTION IN CHILDREN IN AN ENDEMIC AREA: RESULTS OF A COMMUNITY-BASED TRIAL

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In Brazil, zoonotic visceral leishmaniasis (ZVL) control programs based on the mass elimination of seropositive dogs have failed to reduce the number of leishmaniasis cases. However, these programs have been done under sub-optimal conditions. We studied a cohort of children in an urban area in Brazil to determine, whether a dog-culling program optimized with: (i) replacement of a relatively low-sensitivity indirect immune-fluorescent test on blood eluate by a more sensitive enzyme-linked immunosorbent assay on serum blood samples; (ii) shortening of the time interval from serodiagnosis to removal of dogs; and (iii) screening a high proportion of the dog population could reduce the incidence of human *Leishmania* infection (HLI). The study ran from Dec/1997 to Jul/2000, with two follow-up assessments performed at 15-month intervals. All seronegative children age 6-month to 12-year living in two neighborhoods endemic for ZVL were included in the cohort. One area was randomly assigned to the intervention (optimized dog-culling program) and the other remained as a control. Incidence density rates (IDR) for *Leishmania* infection were compared in the study areas. We used Cox regression models to adjust the data for potential confounding. Overall, 1,173 children were studied. The adjusted IDR for *Leishmania* infection was 28.0/1,000 and 30.8/1,000 child-years in the intervention and control areas, respectively, RR=0.91 (95%CI 0.56-1.47, p=0.7). Our results suggest that dog-culling programs do not reduce the incidence of HLI, even with an optimized intervention. Possible reasons for this failure include: currently available serologic methods lack sufficient sensitivity and/or specificity to accurately identify all infected dogs warranting removal in order to prevent *Leishmania* transmission; destroyed dogs are immediately replaced by susceptible puppies, and quite often, by already infected dogs; and other reservoirs may be involved in maintaining canine infection. Further efforts on ZVL control should be directed to developing new strategies or to testing control methods already in place with properly designed trials.