

In Morocco, *Leishmania tropica* was known until 1995 as the etiologic agent of few human and dog cutaneous leishmaniasis (CL) in Central South Morocco. In 1994, and for the first time, we reported one case of canine visceral leishmaniasis due to *L. tropica* MON-102 from the northern area of Morocco, and in 1995, an emerging focus of human CL also due to *L. tropica* MON-102 in a neighboring northern city was identified. The RAPD comparative analysis of some northern and southern *L. tropica* stocks from humans and dogs showed polymorphic profiles using 11 primers. Two main groups could be individualized and amongst them one seems associated with the most virulent stocks, while no marker of geographical origin could be identified. These preliminary data suggest a new hypothesis about the history of *L. tropica* in North Morocco.

356 DYNAMICS OF THE TRANSMISSION OF VISCERAL LEISHMANIASIS IN TUNISIA : FROM THE FIELD TO THE MODELS. Ben Salah A \*, Smaoui H, Diwani F, Anderson RM, Dellagi K, and Ben Ismaïl R. Laboratoire d'Epidémiologie et Ecologie Parasitaire, Institut Pasteur de Tunis, Tunisia; Ecole Nationale des Ingénieurs de Tunis, Tunisia; Department of Zoology, Oxford University, UK; and Laboratoire d'Immunologie, Institut Pasteur de Tunis, Tunisia.

A deterministic mathematical model allowed the simulation of the dynamics of the transmission of visceral leishmaniasis (VL) among the vector, the dog reservoir and the human host. Structure and parameters of the model were drawn from extensive epidemiological surveys in the field : i) A prospective study of a cohort of 917 dogs followed for three years in the focus of visceral leishmaniasis in northern Tunisia since 1994, ii) Leishmanin skin testing of 9000 people living in different epidemiological situations (general populations of endemic areas for canine infection with and without human cases, contacts of human VL cases) and iii) Epidemiological investigation of 187 cases of human visceral leishmaniasis that occurred between 1990 and 1995 in Kairouan, iv) Entomological surveys for the density of sandflies in the classic focus of visceral leishmaniasis in northern Tunisia. Sensitivity of the model to the different parameters of transmission showed that contact rates between hosts and parasites are the key factors influencing the prevalence of the infection. This result is in agreement with epidemiological findings which indicate that full-blown Kala-azar is associated with an early intense contact between humans and parasites, witnessed by the leishmanin skin reactivity among human VL contacts in the governorate of Kairouan. An age structured version of the model revealed a good agreement between the expected and observed prevalences at the equilibrium. These findings clearly support the relevance of mathematical modelling for the understanding of the dynamics of leishmaniasis when they are based on deep epidemiological knowledge.

x 357 MOLECULAR EPIDEMIOLOGY OF PERUVIAN AND BOLIVIAN LEISHMANIASSES. <sup>Anna-Laure</sup> Banuls AL\*, Dujardin JC, Guerrini F, Arevalo J, Solano MA, Bermudez H, De Doncker S, Jacquet D, Le Ray D, and Tibayrenc M. ichel CEPM, centre ORSTOM Montpellier, France; Laboratory of Protozoology, Prince Leopold Institute of Tropical Medicine, Antwerpen, Belgium; Laboratory for Trypanosomatidae Biochemistry, Instituto de Medicina Tropical Alexander Von Humbolt, Lima, Peru; and Centro, Universitario de Medicina, Universidad Mayor de San Simon, Cochabamba, Bolivia.

In this study, we analyzed by Multilocus Enzyme Electrophoresis (16 loci) and Random Primer Amplified Polymorphic DNA (10 primers) a Peruvian and Bolivian sample of 188 *Leishmania* natural isolates. Two main lines of results were reached: (1) certain species were recorded for the first time in given countries: *Leishmania lainsoni* in Bolivia and *L. guyanensis* in the Peruvian Andean Valleys. (2) drastically different species can coexist in the same focus, and even, in the same host. These results emphasize the need for a sharp molecular identification of *Leishmania* species, the more so since that different species tend to be associated with distinct clinical forms. Both MLEE and RAPD provide markers specific of: (i) given species; (ii) given geographical areas; (iii) possibly given clinical forms, although this last result definitely has to be confirmed on larger samples.

358 IMPACT OF DOG CONTROL ON CANINE AND HUMAN VISCERAL LEISHMANIASIS IN JACOBINA, BAHIA, BRAZIL. Ashford DA\*, David JR, Freire M, Sherlock I, Eulalio MC, Sampaio DP, and Badaro R. Department of Tropical Public Health, Harvard School of Public Health, Boston, MA; Universidade Federal da Bahia, Salvador, Brazil; and Fundacao Osvaldo Cruz-Bahia, Salvador, Brazil.

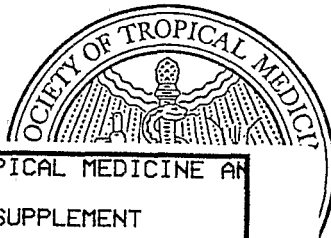
To assess the effect of removing *Leishmania*-infected dogs on the incidence of visceral leishmaniasis, a controlled intervention study was performed in northeast Brazil. In the intervention area, the attempted elimination of seropositive dogs resulted in an initial significant decline in the annual incidence of seroconversion among dogs from 36 to 6 percent over the first 2 years. In the following 2 years, the incidence of seroconversion among dogs in the intervention area increased to 11 and 14% respectively. In a control area in which dogs were surveyed but seropositive dogs were not removed, the cumulative incidence did not vary significantly from year to year, ranging from 16 to 27%. In the intervention area, the prevalence of visceral leishmaniasis among dogs declined from 36% before the intervention to 10% and remained stable. Also, when the number of human cases before and after the



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