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Evidences about Human Tick-Borne Infections in Cuba

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Serosurveys for IgG antibodies to Borrelia burgdorferi sensu stricto in a population exposed to tick bites (n = 247) and blood donors (n = 114) were done to assess the prevalence of tick-borne infections in Cuba. Seroprevalence of antiborrelial IgG antibodies was estimated in 0.6–7.2 % and 0 % of risk population and blood donors, respectively. While previous expositions to A. phagocytophilum (7.2 %), E. chaffensis (3.6 %) and B. microti (11.5 %) were serologically detected. These reports suggest the presence of tick-borne pathogens in Cuba, nonetheless lacking of further accurate information strongly calls to the need of more deeply studies.

Key words: *Borrelia, Anaplasma, Ehrlichia, Babesia, seroprevalence, IgG, Cuba*

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Распространённость клещевых инфекций среди населения о. Куба

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Для оценки распространённости клещевых инфекций среди населения о. Куба были проведены серологические исследования на наличие специфических антител к Borrelia burgdorferi sensu stricto, Anaplasma phagocytophilum, Ehrlichia chaffensis and Babesia microti среди людей, пострадавших от укусов клещей (n = 247) и среди здоровых доноров (n = 114). Иммунная прослойка в отношении Borrelia burgdorferi sensu stricto составила 0,6–7,2 % среди группы риска и 0 % – среди здоровых доноров крови. Кроме того, были выявлены случаи контакта населения с A. phagocytophilum (7,2 %), E. chaffensis (3,6 %) и B. microti (11,5 %). Полученная информация указывает на возможность существования активных природных очагов трансмиссивных клещевых инфекций на Кубе. Для получения точной информации о распространённости клещевых патогенов в Республике Куба необходимы углублённые исследования.

Ключевые слова: *Borrelia, Anaplasma, Ehrlichia, Babesia, иммунная прослойка, IgG, Куба*

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INTRODUCTION

Hard ticks (Acari: Ixodidae) are ectoparasitic arthropods and vectors of pathogenic microorganisms, affecting both humans and animals. The main species of hard ticks in Cuba are: *Rhipicephalus sanguineus* sensu lato, *R. microplus*, *Dermacentor nitens* and *Amblyomma cajennense* sensu lato; the last one is a three-host tick that feeds on a large spectrum of hosts, including humans. In our country, tick-borne infections in humans have not been officially recognized due to the absence of direct manifestation of the causal agents in samples from clinical cases.

MATERIAL AND METHODS

Serosurveys for IgG antibodies to *Borrelia burgdorferi* sensu stricto in a population exposed to tick bites (*n* = 247) and blood donors (*n* = 114), and for *Anaplasma phagocytophilum* (*n* = 83), *Ehrlichia chaffensis* (*n* = 55)

and *Babesia microti* (*n* = 61) in people from the same population at risk were done. Sera from patients with clinical suspicion of Lyme disease during 1998–2016 were tested by ELISA-IgM/IgG and Western blot-IgM/IgG for specific antibodies to *B. burgdorferi* sensu lato. Exploratory studies searching pathogens (*Borrelia* spp., *Anaplasma* spp., *Ehrlichia* spp., *Babesia* spp., *Coxiella burnetii* and *Ricketssia* spp.) on Cuban ticks mainly from horses, bovines and dogs have been conducted using Polymerase chain reaction, Reverse line blot hybridization and DNA sequencing.

RESULTS AND DISCUSSION

Seroprevalence of antiborrelial IgG antibodies was estimated in 0.6–7.2 % and 0 % of risk population and blood donors, respectively. Borrelial infection was also confirmed by specific IgM and IgG detection on clinically suspected patient sera. While previous expositions to *A. phagocytophilum* (7.2 %), *E. chaffensis* (3.6 %) and *B. microti* (11.5 %) were serologically detected. DNA from *Anaplasma/Ehrlichia* spp., *Babesia* spp., *R. amblyommii* and *Coxiella burnetii* were detected in ixodid, mainly *A. cajennense*. These are the first reports suggesting the presence of tick-borne pathogens in Cuba, nonetheless lacking of further accurate information strongly calls to the need of more deeply studies.

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