

## КРАТКИЕ СООБЩЕНИЯ BRIEF REPORTS

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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 anti-borrelial 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 ( $n = 114$ ). Имунная 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 *Rickettsia* 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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