Performance of Serological Tests for *Trypanosoma evansi* in Experimentally Inoculated Goats

CARLOS GUTIERREZ,[a] JUAN A. CORBERA,[a] MANUEL MORALES,[a] AND PHILIPPE BÜSCHER[b]

[a]*Veterinary Faculty, University of Las Palmas, 35416, Las Palmas, Canary Islands, Spain*

[b]*Department of Parasitology, Institute of Tropical Medicine, Antwerp, Belgium*

ABSTRACT: Natural *Trypanosoma evansi* infection in the Canary Islands has only been diagnosed in the camel population, but dissemination of the disease in other hosts has not been excluded. The objective of this work was to assess the performance of serological antibody tests in experimentally inoculated goats. Five Canarian goats were inoculated intravenously with at least 1×10^5 *T. evansi*. The animals were kept for 8 months and checked monthly for the presence of the parasite and specific antibodies. The serological tests investigated were the direct card agglutination test CATT/*T. evansi* and the indirect card agglutination test LATEX/*T. evansi*. All animals became positive in the CATT/*T. evansi* 1 month post-infection and remained positive with a minimum end-titer of 1/4. Similar results were obtained with the LATEX/*T. evansi*, although at lower end-titers (1/2). We conclude that CATT/*T. evansi* is adequate for assessing infection of Canarian goats by *T. evansi*.

KEYWORDS: *Trypanosoma evansi*; goat; serology; experimental

INTRODUCTION

Trypanosoma evansi was diagnosed for the first time in the Canary Islands (Spain) in 1997 in a dromedary camel presenting the chronic and terminal stage of the disease. The animal had been imported from the neighboring West African area, where *T. evansi* is highly prevalent.[1] Seroprevalences of 4.8% up to 9% were observed in camels on the Canary Islands between 1997 and 1999.[2,3] Affected animals were treated, but dissemination of the disease in other hosts is not excluded. Goats, in particular, could play an important role in the epidemiology of *T. evansi* in the Canary Islands. However, serological tests normally used in small ruminants for *T. evansi* antibody detection have not been validated for these species. Consequently, the objective of this work was to assess the performance of simple and rapid serological tests for antibody detection in experimentally inoculated goats.

Address for correspondence: Carlos Gutierrez, Veterinary Faculty, University of Las Palmas, 35416, Arucas, Las Palmas, Canary Islands, Spain. Voice: 34-92-8451115; fax: 34-92-8451142. cgutierrez@dpat.ulpgc.es

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MATERIALS AND METHODS

Five adult Canary female goats were inoculated intravenously with at least 1×10^5 *T. evansi* isolated from a dromedary camel. The animals were kept for 8 months and checked monthly for the presence of the parasite and specific antibodies. The serological tests investigated were the direct card agglutination test CATT/*T. evansi* and the indirect card agglutination test LATEX/*T. evansi*, both developed at the Institute of Tropical Medicine, Antwerp, Belgium. For parasite detection, wet film, stained blood smears, buffy coat examination, and inoculation of mice were performed. Other indirect parameters of the disease such as packed cell volume (PCV) and serum total proteins were also determined.

RESULTS AND DISCUSSION

The inoculated goats showed a subclinical course of the disease, and only a few episodes of fever (within the first weeks post-inoculation, PI) and arthritis (6 months PI) were evident. Parasitemias remained very low but were persistent. Drops in PCV (mean values: 29.5% before inoculation, BI; 20% at 4 months PI; 26% at 8 months PI), and total serum protein (mean values: 6.3 g/dL BI; 11.2 g/dL at 4 months PI; 8.6 g/dL at 8 months PI) were observed. All animals became positive in the CATT/*T. evansi* at 1 month PI and remained positive with a minimum end-titer of 1/4. Similar results were obtained with the LATEX/*T.evansi*, although at lower end-titers (1/2).

T. evansi infection has been reported in small ruminants, causing severe infection,[4] moderate infection,[5] or subclinical infection.[6] The low parasitemia found in this study could indicate that goats do not play an important role in the epidemiology of *T. evansi* in Canaries even though goats are receptive to experimental inoculation. Similar findings have also been reported by Jacquet *et al.*[1] in Mauritania and could indicate the prevalence of the subclinical form of the disease in goats.

We conclude that CATT/*T. evansi* is adequate for assessing infection of goats with *T. evansi*.

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