Detection of the Small Ruminants Lentivirus (SRLV) in blood, semen from bucks naturally and experimentally infected in the semi-arid region of Brazil

Detecção do Lentivírus de Pequenos Ruminantes (LVPR) no Sangue e Sêmen de Bodes Naturalemnte e Experimentalmente Infectados no semi-árido do Brasil

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RESUMO

O objetivo deste estudo foi relatar a eliminação do CAEV e comparar os perfis virais de animais naturalmente e experimentalmente infectados. Foram selecionados, quatro animais naturalmente infectados pelo CAEV e cinco experimentalmente infectados. Foram realizados os testes de IDGA e Nested-PCR. Os resultados foram analisados pelo teste do qui-quadrado (P <0,05). A soroconversão foi detectada 16 semanas após a inoculação viral em 80% dos bodes naturalmente infectados. Não foram observadas diferenças estatisticamente significativas quanto à presença do DNA proviral no sangue e sêmen nos dois grupos testados. Não foi identificado um padrão de eliminação viral durante o período de avaliação, contudo o DNA proviral foi verificado em intervalos mais curtos após a 18ª semana e a 22ª semana, nos machos infectados experimentalmente e naturalmente, respectivamente. Portanto, caprinos no período que antecede à soroconversão eliminam o DNA proviral do CAEV no sêmen e são importantes fontes de infecção.

Palavras-chave: caprino, LVPR, Nested-PCR mc

Keywords: goat, SRLV, Nested-PCR

INTRODUCTION

Animals positive for small ruminants lentivirus (SRLV) in the PCR blood test presented positive result in one or more tissues and fluids of the reproductive tract. Specifically in goats, SRLV DNA was present only in the testis, vesicular glands,

ejaculated semen and epididymis (Peterson et al., 2008, Paula et al., 2009).

PCR has been shown to be highly specific for CAEV proviral DNA detection in infected animals because crossed reaction has not been identified with other ruminant retroviruses such as Maedi Visna Virus (MVV), bovine immunodeficiency virus or bovine leukemia virus. This specificity is important because goats may be infected with other retroviruses (Clavijo & Thorsen, 1996).

The aim of this study was to report the chronology of CAEV elimination and compare the blood and semen viral profiles of animals naturally and experimentally infected by SRLV raised in the semi-arid region of Brazil.

MATERIALS AND METHODS

The experiment was carried out at the National Goat Research Center, Brazil (Embrapa). Nine bucks were selected, four naturally infected by CAEV and five animals proven negative that were inoculated with the goat lentivirus (CAEV-Cork strain). Every week the animals were submitted to semen collection using an artificial vagina. The blood was collected by puncturing the jugular vein with tubes containing EDTA, seven days after inoculation (experimentally infected group) or at the start of the experiment (naturally infected group) and then at every 30 days. The genomic viral DNA was extracted from semen and blood and then Nested-PCR was applied. An agar gel microimmunodiffusion (AGID) was performed to detect anti-CAEV antibodies. The results were described in percentage and analyzed by the chi square test ($P<0.05$).

RESULTS

The presence of anti-CAEV antibodies was detected in the 16th week after inoculation that characterized the seroconversion from four of the five naturally infected goat bucks (80%). The fifth reproducer presented late seroconversion, totaling 32 weeks post-inoculation. A quantity was observed in the total of samples collected of 12.50% and 17.14% positive results in the blood and 10.98% and 11.25% positive results in the semen of the naturally and experimentally infected animals, respectively, and there was no statistical difference. No statistically significant differences were observed regarding the presence of proviral DNA in the blood and semen of the naturally and experimentally infected animals. A viral elimination patter was no identified during the assessment period, but the presence of proviral DNA was shown at shorter intervals

after the 18th week and the 22nd week, for the experimentally and naturally infected bucks, respectively.

CONCLUSIONS

Bucks recently infected in the phase that precedes seroconversion eliminate SRLV proviral DNA in the semen and are important sources of infection that should be considered in a control program of this small ruminant lentivirus.

Bearing in mind the intermittent elimination of the virus in the semen, Nested-PCR could be used as an important tool to select ejaculations without the virus from animals, that although infected, show high genetic and economic value.

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