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Intrauterine *Neospora caninum* inoculation using contaminated semen with different numbers of tachyzoites

Enrique Serrano[1], Ignacio Ferre[1], Koldo Osoro[2], Gorka Aduriz[3], Rinaldo A. Mota[1], Antonio Martínez[2], Raquel Atxaerandio[3], Carlos O. Hidalgo[4] and Luis Miguel Ortega-Mora[1]

[1]Departamento de Sanidad Animal, Facultad de Veterinaria, Universidad Complutense de Madrid, Ciudad Universitaria s/n, E-28040 Madrid, Spain
[2]Área de Sistemas de Producción Animal, Servicio Regional de Investigación y Desarrollo Agroalimentario (SERIDA), Consejería de Medio Rural y Pesca, Asturias, E-33300 Villaviciosa, Spain
[3]Departamento de Sanidad Animal, Instituto Vasco de Investigación y Desarrollo Agrario (NEIKER), Berreaga 1, E-48160 Derio, Bizkaia, Spain
[4]Área de Selección y Reproducción Animal, Servicio Regional de Investigación y Desarrollo Agroalimentario (SERIDA), Consejería de Medio Rural y Pesca, Asturias, E-33202 Gijón, Spain

Abstract

Background. *Neospora caninum* DNA has been reported in fresh and frozen semen from naturally-infected bulls. Recently, the *N. caninum* infection in heifers by intrauterine inoculation via contaminated semen with 10^7 *N. caninum* tachyzoites has been also demonstrated.

Aims. The objective of the present study was to investigate the potential of different *N. caninum* tachyzoite doses to infect heifers when administered *in utero* by artificial insemination via contaminated semen.

Methods. Five groups of cyclic heifers were hormonally synchronized and artificially inseminated with semen containing 0 (A, controls, 5 heifers), 10^2 (B, 7 heifers), $5x10^3$ (C, 8 heifers), $5x10^4$ (D, 9 heifers), and $5x10^5$ (E, 5 heifers) live *N. caninum* NC-1 isolate-tachyzoites, respectively. Experimental infection was followed for 100 days. Parasitaemia and specific serum IgG and interferon-gamma (IFN-g) responses were studied.

Results. Parasitaemia was detected in 1, 2, and 3 heifers of groups B, C, and D, respectively, between 19 and 23 days post-infection. Persistent specific serum antibody responses were detected in 2, 2, and 3 heifers of groups C, D and E, respectively. In addition, 1, 3, and 2 heifers of groups C, D, and E, respectively, showed specific serum antibodies higher than cut-off level at sometime during the course of the study. Heifers seroconverted between 23 and 55 days after experimental infection. Specific IFN-g levels were detected in 1, 4, 6, and 3 heifers of groups B, C, D, and E, respectively, between 19 and 55 days post-infection.

Conclusions. This study provides evidence that the intrauterine infection via contaminated semen using 5x103 tachyzoites is possible.

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