A serological study on the prevalence of *Toxoplasma gondii* in sheep of Lithuania

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Abstract

In the present study the seroprevalence of the protozoan parasite *Toxoplasma gondii* infection in sheep was investigated in 6 regions of Lithuania. Blood samples were taken from 354 sheep and were tested using commercial ELISA method. The total seroprevalence of *Toxoplasma gondii* infection in sheep was 42.1%. Significant differences in seroprevalence were observed between age groups (P ≤ 0.05). The results of this investigation suggest that the *Toxoplasma gondii* parasite is widely spread, and can be one of reasons of sheep abortion in Lithuania.

Key words: sheep, toxoplasmosis, ELISA test, Lithuania

Introduction

Toxoplasmosis is a disease caused by *Toxoplasma gondii* parasite, has a big economical damage for sheep farms. Oocysts, the parasite stage responsible for initiating infection, are produced following primary infection in cats. Infected with *T. gondii* sheep can establish a placental and fetal death and resorption, abortion or stillbirth (Buxton 1998, Williams et al. 2005).

Sheep toxoplasmosis also has a very big social significance. People become infected with *T. gondii* mainly by ingesting tissue cysts in undercooked sheep meat/meat products, or oocysts from an environmental contaminated with infected feline feces (Dubey 1994, Tenter et al. 2000). Although most postnatally acquired infection in humans are asymptomatic, *Toxoplasma* may result fetal death, abortion and can cause mental retardation and loss of vision, and other congenital healthy problems in infected children, and it is an important cause of morbidity and mortality in individuals with immunosuppression, including those with Immundeficiency Syndrome (AIDS), and organs transplant recipients (Smith 1997, Jones et al. 2001).

According to the statistical data, 169 cases of acquired and 3 of human congenital toxoplasmosis were confirmed during 2005 year in Lithuania.

Preliminary clinical diagnosis of sheep toxoplasmosis is detected according to epidemiological investigation and clinical signs. Cotyledons on the accompanying placenta also show small necrotic foci visible with the naked eye. A large numbers of IFA, ELISA and others serological tests have also been described and marketed by commercial firms (Dubey and Beatie 1988, Vitor et al. 1999).

The aim of this work was to test the seroprevalence to *Toxoplasma gondii* in sheep of different Lithuanian regions, where abortus of sheep was ob-