Is the immune response to *Neospora caninum* incompatible with pregnancy in cattle?

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Introduction

Neospora caninum is a protozoan parasite that is the most frequently diagnosed cause of abortion in dairy cattle in the UK. Why infected cattle abort is not known but it has been suggested that it is due either to induction of a cell mediated response at the foetoplacental interface that is incompatible with foetal survival or due to uncontrolled parasitaemia that develops in an immunologically immature foetus. The aim of this project is to determine the role of cytokines released at the maternofoetal interface in the pathogenesis of *N. caninum* associated abortions

Materials and Methods

Cytokine specific real time quantitative PCR assays were used to measure expression of cytokines in the maternal caruncles and foetal cotyledons from cattle infected early or late in gestation.

Results and Discussion

High levels of interferon gamma were detected in the caruncle tissues from two cows infected early in gestation and whose foetuses were killed by the infection. In six other cows, whose foetuses were still alive when the mothers were euthanised, there was no significant difference in any cytokine tested other than IL4. There was a significant increase in expression in interferon gamma, IL4, IL10, IL12, TNFalpha and IL18 in the caruncles of cows infected late in gestation but whose foetuses were alive when the animals were euthanised. These results suggest that both pro-inflammatory and regulatory cytokines are produced at the materno-foetal interface, following infection with *N. caninum*. It is not clear if the pro-inflammatory cytokines contribute to the death of the foetus or are the result of parasite induced tissue necrosis.