Lack of enhancement of caprine arthritis encephalitis virus infection in monocyte-derived macrophage cultures by sera from goats that developed severe arthritis after vaccination and virus challenge.

Title
Lack of enhancement of caprine arthritis encephalitis virus infection in monocyte-derived macrophage cultures by sera from goats that developed severe arthritis after vaccination and virus challenge.

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Abstract
We examined sera from goats that developed more rapid and severe clinical disease after vaccination with inactivated caprine arthritis encephalitis virus (CAEV) and virus challenge for CAEV infection-enhancing antibodies. Sera from one control and two vaccinated goats were examined for neutralization or enhancement of virus infection in caprine macrophages. Macrophage cultures were incubated with virus-serum mixtures, then washed and fed with fresh media and incubated. Culture fluid was collected at days 2, 4 and 8 post-infection and assayed for reverse transcriptase (RT) activity. Serum from one of the vaccinated goats neutralized virus at 10(-2) and 10(-3) dilutions (p = 0.045 and p = 0.020, respectively). The neutralizing effect was lost at higher dilutions (10(-4) and 10(-5)) of the serum, but no enhancement of infection was seen. Serum from the other vaccinated goat did not show any significant neutralizing effect at either 10(-2) or 10(-3) dilutions and increased infection (40% or greater) at higher dilutions, but the increases were not statistically significant. Therefore, there was no evidence of virus infection-enhancing activity in these sera that would suggest that the severe disease experienced by the vaccinated animals was due to serum enhancement of infection. Alternately, the severe arthritis observed could have resulted from the pro-inflammatory activities of cytokines and chemokines produced by macrophages upon
phagocytosis, or receptor-mediated uptake of CAEV-antibody complexes.

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