BOVINE HERPESVIRUS 1 DOES NOT CAUSE APOPTOSIS IN BOVINE CELLS

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ABSTRACT

Bovine herpesvirus 1 (BHV-1) is a cause of upper respiratory tract disease in cattle. BHV-1 infection causes rapid death in bovine cells in vitro. Many other cytopathic viruses cause apoptosis, a process of cellular DNA fragmentation as a result of infection. We analyzed cellular DNA from bovine cells following BHV-1 infection to determine any apoptotic effect. Previously, we have shown that BHV-1 does not shut down or stimulate cellular DNA synthesis following viral infection. Confluent monolayers of Madin Darby bovine kidney (MDBK) or bovine turbinate (BT) cells were infected with BHV-1 at a multiplicity of infection (MOI) of 1. The cells were harvested at 0, 6, 12, 18, or 24 hours post infection or 0, 12, 24, 36, or 48 hours post infection. The cellular DNA was extracted, quantitated, loaded on a 1.0% agarose gel, and electrophoresed in a horizontal gel apparatus. The DNA present in the gel was stained with ethidium bromide, visualized with UV light, and photographed. All the cellular DNA ran at a high molecular weight, and there was no evidence of the multiple bands (DNA ladder) characteristic of apoptosis. BHV-1 infection of bovine cells in vitro does not trigger apoptosis. Other mechanisms need to be investigated to determine the factors responsible for the rapid cell death seen in BHV-1 infections.