SUMMARY

Epikmen ET. Neuropathological findings of bovine herpesvirus-5 in naturally infected calves and its association with apoptosis.

BHV-5 (Bovine herpesvirus-5) is a viral pathogen that causes fatal nonpurulent meningoencephalitis especially in calves. The agent is a member of the *Alphaherpesvirinae* subfamily of *Herpesviridae* family and classified as a *Varicellovirus* genus.

In this study, a total of 21 calves (between 1 day to 5 months of age) were included and macroscopic, histopathologic, immunohistochemical findings were described. Immunohistochemical distributions of BHV-5 in viral antijen in in the tissues of the central nervous system (CNS) were detected by Avidin-Biotin Peroxidase Complex (ABC) method. In the infected tissues, apoptotic cells were detected by TUNEL (Terminal Deoxynucleotidyl Transferase-Mediated dUTP Nick End-Labeling) method. Apoptotic pathways were described by ABC method with anti-activated caspases-3,-8,-9 antibodies.

Clinical findings; contractions of jaw muscles, bruxism, nystagmus and opistotonus were observed. Incoordination, inability to stand on legs, recumbency followed by tremors in leg muscles and tetanic contractions were noted. At necropsy, a spesific macroscopic lesion was not seen. In histopathologic exemination of the CNS, nonsuppurative encephalomyelitis was described, characterized by degeneration and necrosis, diffuse or focal gliosis, perivascular mononuclear cell infiltration, meningitis and demyelination. In the immunohistochemical examination, BHV-5, viral antijen was observed in the CNS as follows: brain stem, serebral hemispheres, medulla spinalis were seen in the neurons of cerebellum and glial cells. TUNEL method showed that apoptotic cells were generally dispersed in glial and neuronal calls particularly in the areas of BHV-5 antigen immunpositive reactions of the CNS. The immunpositive reactions of activated caspase-3,-8,-9 detected in glial and neuronal cells indicated that apoptosis was induced by both intrinsic and extrinsic pathways. On the other hand, Bcl-2 (an anti-apoptotic marker) immunoreactions especially in the neurons and lesser extend glial cells indicated that BHV-5 infected neurons could have an important role in permenancy of infection and establishment of latent infection.

Key words: Apoptosis, bovine herpesvirus-5 (BHV-5), caspases, pathology, TUNEL.