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**2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN MODIFIES THE LEVELS OF P21 AND TERT PROTEINS DURING BOVINE HERPESVIRUS 1 INFECTION**

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Introduction:

2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD), a persistent environmental contaminant, suppresses immune responses and decreased host resistance to infectious disease (1). Infection of bovine cells (MDBK) with Bovine Herpesvirus 1 (BHV-1), a pathogen that in cattle can provoke genital disorders, abortions and shipping fever, in presence of TCDD, leads to an increase virus replication (2) and anticipated virus-induced apoptosis (3). Telomerase, the enzyme that replicates chromosome telomeres, is found at high levels during embryogenesis and in tumors, but it is maintained at relatively low levels in the majority of somatic tissues. Several viruses have been shown to modulate telomerase activity through up-regulation or down-regulation. Recently our group demonstrated that BHV-1, in the early stages of infection, significantly up-regulates telomerase activity (4). Since TCDD, in MDBK cells, induced a significant decrease of telomerase activity (5), herein we analyzed the effects of TCDD on TERT (telomerase reverse transcriptase), subunit of telomerase, in bovine cells infected with BHV-1. Furthermore, we analyzed p21 protein levels and cytoskeleton alterations by Giemsa staining.

Methods:

Monolayers of MDBK cells were infected with BHV-1 (Cooper strain), in presence or not of TCDD (0.01 pg/ml, 1 pg/ml and 100 pg/ml). At different time post infection, we have performed Giemsa staining and Western blotting of TERT, p21 and anti-β-actin.

Results and Discussion:

In infected groups, p21 protein levels increased as a function of time after infection, in agreement to previous studies (6). While in all groups exposed to TCDD, we detected anticipated increase of p21 protein levels. TCDD exposed groups showed anticipated decrease of TERT protein levels compared to controls. These modulations are consistent with the results of previous studies (5). Moreover, infected and exposed cells displayed cell shrinkage and pycnotic nuclei much earlier than unexposed groups. These observations indicate that TCDD modifying p21 and TERT levels could be interfere with viral replication.

Keywords: BHV-1 – TCDD – TERT – p21 – cytoskeleton.

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