Field studies of Bovine Viral Diarrhea virus (BVDV) in El-Sharkia and El-kalubia Governorates

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Abstract
In this study, a total of 154 samples (28 tissue samples , 63 buffy coats and 63 serum samples), were collected from calves (2-12 months old) suffering from respiratory manifestations, recumbency, anorexia and abdominal respiration , as well as from closely contact apparently healthy calves, from El-Sharkia and El-kalubia Governorates. The results of BVDV detection using direct immuofluroescent antibody technique (DFAT) in the tissue samples and buffy coat revealed diffuse or granular intracytoplasmic fluorescence in infected cells with a number of positive samples (6 and 12) from El-Sharkia & (10 and 8) from El-kalubia Governorates; respectively. Detection of BVD antigen using immunocapture ELISA kit (I-C ELISA) in buffy coat revealed that (30 &19) samples were positive from both Governorates; respectively. Reverse transcriptase polymerase chain reaction (RT-PCR) confirmation of BVDV in the tissue samples indicated the presence of BVDV type 1 in five samples including lungs (2), kidneys (2) and lymph node (1) with specific band at 360 bp. The results of BVDV antibodies detection in the serum samples using virus neutralization test (VNT), revealed a number of positive samples (26 & 15) while by using competitive ELISA was (33 &21) in the two Governorates; respectively. The relationship between the VNT positive samples and the reactivity in (ELISA) in the serum samples was recorded.

Key words: *BVDV , ELISA , lymph node, intracytoplasmic fluorescence .*

Introduction

Bovine Viral Diarrhea (BVD) is an important widespread disease of cattle but also reported in -pigs, other domesticated and exotic ungulates **(Løken, 1995).** BVDV is a member of Family Flaviviridae, genus Pestivirus. It is an enveloped virus with single-stranded RNA genome of approximately 12.5 kb. Two genetically distinct forms of BVDV type I and II have been identified based on genetic comparisons, BVDV type I has been subdivided into BVDV type Ia represented by reference strain **NADL** and BVDV type Ib represented by reference strain **OSLOSS**. BVDV is also separated into two biotypes, cytopathic (cp) and non-cytopathic (ncp) based on its effects in cell culture **(OIE, 2008).**

The main source of BVDV infection is the persistently infected (PI) animals that shed virus in the environment, but other infected species can also transmit it by direct contact. Transmission by indirect contact may happen through the use of contaminated equipment or through insemination with BVDV infected semen **(Fulton *et al.*; 2005)** .

BVD is an endemic disease occurs during the first year of life in calves, but reinfection can occur at any age. It causes high economic loss by which during infection, 60-85% of the cattle herds' are positive to BVDVantibody and 1-2% are (PI) **(OIE, 2008).** BVD in cattle causes various clinical syndromes in cattle including diarrhea, mucosal disease (MD), reproduction disfunctions (abortion, teratogenesis, embryonic resorption, fetal mummification and still-birth) and hemorrhagic syndrome **(Nadis, 2010).**

The diagnostic assays are in general, aimed for detection of the infectious virus or viral components. These assays include virus isolation, fluorescent antibody technique (FAT), immunohistochemistry (IHC), antigen capture ELISA (ACE), and polymerase chain reaction (PCR**) (Edmondson *et al.*; 2007).** Variety sets