Occurrence, characteristics and control of pigeon paramyxovirus type 1 in pigeons

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Abstract

Newcastle disease (ND) is a highly contagious and devastating viral disease of poultry and other birds that has a worldwide distribution. ND in pigeons is called paramyxovirosis and is caused by antigenic “pigeon variant” of the virus (pigeon paramyxovirus type 1, PPMV-1).

During PPMV-1 infections, central nervous system symptoms and sometimes high mortality are observed. In the case of infection with viscerotropic strains which exhibit specific affinity for the kidneys, the first observed sign is polyuria, and neural symptoms appear only in individual birds in the flock.

Due to the similarity of symptoms of paramyxovirosis to the pigeon herpes virus infection (PHV), sodium chloride poisoning, overdose of ronidazole or vitamin B1 deficiency, it is necessary to perform laboratory tests to make a correct diagnosis. After virus isolation PPMV-1 can be detected initially by haemagglutination assay (HA). PPMV-1 can be confirmed by conventional serological tests such a haemagglutination inhibition test (HI) or molecular-based techniques.

In the prophylaxis of paramyxovirosis in pigeons, inactivated vaccines are used, administered by subcutaneous injection in various prevention programs. However, vaccination should be only one component of a strategy of PPMV-1 control, on a par with effective biosecurity and proper, effective methods of prevention and diagnostics of paramyxovirosis.

Key words: pigeons, pigeon paramyxovirus type 1, PPMV-1

Brief history of paramyxovirus infections in pigeons

Newcastle disease (ND) is on the A List of the World Organisation for Animal Health (OIE) as a highly infectious and contagious viral disease of birds, sometimes causing even 100% mortality. The occurrence of Newcastle disease was first diagnosed in chickens in Newcastle-on-Tyne in England and on the island of Java in 1926. The disease spread very rapidly in Asia and over the next 40 years became a panzootic (Alexander et al. 2012). In the late ’60s of the twentieth century, the second pandemic broke out, and within only four years, the ND virus escaped from the Far East through the Middle East to Europe (Śmietanka and Minta 2011a). Newcastle disease in pigeons is called paramyxovirosis and is caused by antigenic “pigeon variant” of the virus (pigeon para-