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161 – Causes of disease VIII

Treatment of viral diseases

The antibiotics that can be used to treat bacterial diseases will not treat viral diseases. There are some antiviral drugs, such as those for HIV, which are used in man but their costs are such that they are non-starters for poultry. Things might change in the future. Remember, at the outset, in the1930s, penicillin cost thousands of dollars per gram to manufacture, whereas today it costs just cents per gram.

As traditional medication does not work against viral diseases an approach of prevention via vaccination has been used. For many viral diseases this has been one of our industry's success stories. Vaccination is a process that stimulates the animal's immunity to a level at which it affords protection against infection. In nature all infectious disease-causing agents, such as bacteria and viruses, have substances on their surfaces which stimulate the animal's immune system to produce antibodies. These protect the animal against infection by the same disease-causing agent.

In vaccination these antigens are administered to the animal in a vaccine, thus protection (immunity) is produced in a similar way to how it is produced in nature. Vaccination is disease specific in nature so we have to decide which diseases we want to vaccinate against and then select the appropriate vaccines.

Viral changes

Under certain conditions viruses and, in some cases, their antigenic profiles can change. A good example of this is the influenza virus. Sometimes such changes coincide with a reduction in vaccine efficacy.

Testing for viruses and viral diseases

The first way to test for a virus is to look for it. This can be done using an electron microscope to check faeces or gut contents. Some viral infections result in the production of large intranuclear or intracytoplasmic inclusion bodies that can be seen histopathologically in certain tissues using a light microscope. Immunohistochemical tests can detect viral antigens in tissues and by using specific reagents the specific diseases can be detected. More recently PCR has become a useful diagnostic tool.

Antibodies form 10-14 days after infection and another diagnostic tool is to confirm the presence of disease in blood samples using tests such as RST, HIT or ELISA.

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