DETECTION OF IgG AND IgM ANTIBODIES TO HERPESVIRUS OF TURKEYS BY ENZYME-LINKED IMMUNOSORBENT ASSAY

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A microplate enzyme-linked immunosorbent assay (ELISA) was developed for the detection of IgG and IgM antibodies to herpesvirus of turkeys (HVT), which is a widely vaccine for Marek's disease in the world. The following results were obtained.

1) IgG ELISA was sensitive enough to detect about 1ng IgG per well, but IgM ELISA was not so sensitive and showed a high non-specific reaction. The specificity of ELISA was confirmed by the blocking test.
2) Sequential detection of antibodies against HVT in chicks inoculated experimentally with HVT revealed that IgG was detected 2 weeks after inoculation, and the peak of IgM level was observed at 1 or 2 weeks after inoculation. Similar result was obtained in chicks inoculated with Marek's desease virus (MDV).
3) When antigens prepared from purified HVT or cultural fluids of MDV-infected cells were used, there was no significant difference in detection of HVT or MDV antibodies in chicks inoculated with HVT or MDV.
4) Comparing the level of antibodies in HVT-vaccinated chickens with that in unvaccinated chickens in field flocks, the former showed a higher level in both IgG ELISA and neutralizing antibody than the latter.
5) A comparison was made of antibody titers in sera obtained from HVT-vaccinated chickens in field flocks by ELISA, neutralization test and immunodiffusion (ID) test. The results indicated that the titers detected by IgG ELISA were correlated well with those by neutralization and ID tests, and that the sensitivity of IgG ELISA was higher than in the other two tests.
6) In detection of antibodies in HVT-unvaccinated chickens affected with MD in field flocks, the levels of anti-HVT and anti-MDV IgG ELISA antibodies in tumor bearing chickens tended to be lower than those in tumor lacking chickens.