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6. Summary

Immune response of chicks to Marek's disease virus vaccine

This study was done to focus the light on the immune suppressive effect of Marek's disease virus vaccine generally on chicks and especially on other vaccination programs, New Castle disease virus vaccine was taken as example, especial concern to use a natural, applicable & economic potent immunostimulants is considered an aid for overcoming the immunosuppressive potentialities offered by MDV. Therefore the selection of some natural immunostimulants mixed with ration as feed additives or injected S/C for enhancing the immune response of chicks nonspecifically and/or impairing the immunosuppressive effect of MDV is considered an important goal of this study.

In this work The chicks are firstly divided into five major groups the first group is kept as negative control (not vaccinated with Marek's disease virus vaccine-Rispen strain) while the other four groups are vaccinated at one day old by S/C route, the second group not treated with any immunostimulants, while the third group was treated with thymus extract (0.5 ml S/C for one week), the fourth group was treated with N. sativa (1% of ration along the experiment) and the fifth group was treated with Curcuma (1% of ration along the experiment). At 7^{th} day of age each group of these five groups was then sub-divided into two subgroups; one of them was vaccinated with Newcastle disease virus vaccine (Hitchner strain then boosted with La Sota strain at 21^{st} day of age) while the other subgroup was not vaccinated.

Blood samples were collected for cell mediated immunity (phagocytic activity) at 10^{th}, 14^{th}, 17^{th}, 21^{st} days of age. And serum samples were collected for humoral immunity (HI test)at 10^{th}, 14^{th}, 17^{th},

21st, 28th, 35th and 42nd days of age. Challenge test against ND was done at 30th day of age.

The obtained results showed that, after boosting at 21st day of age with La Sota strain of NDV vaccine, group 10 (that treated with Curcuma) showing higher Ab. Titers (819.2) than those vaccinated with the same vaccines and treated with N. sativa (460.8) or thymus extract (358.4).

Group 1 (not vaccinated with MDV vaccine) showed higher percentage of phagocytosis (34 & 24%) than group 3 (that vaccinated with MDV vaccine only) (24 & 17%) at 10th & 14th day of age. While, group 3 (vaccinated with MDV vaccine only) showed lower percentage of phagocytosis (24, 17, 55& 49) other than group 5 (Vaccinated with MDV vaccine & treated with thymus extract) (29, 46, 64& 68); group 7 (Vaccinated with MDV vaccine & treated with N. sativa) (36, 62, 64& 62) and group 9 (Vaccinated with MDV vaccine & treated with Curcuma) (44, 58, 75& 71) at 10, 14, 17 & 21 days post vaccination.

Phagocytic index in vaccinated & treated groups with immunostimulants were higher than group 4, which is vaccinated but not treated with any immunostimulant. Group 1 (not vaccinated with MDV) and group 3 (vaccinated with MDV vaccine) showed lower phagocytic index (0.324 and 0.333 respectively) than group 5, 7 & 9 (Vaccinated with MDV vaccine and treated with thymus extract, N.sativa & Curcuma respectively) (0.448, 0.444 & 0.523 respectively) at 10th day of age. The same picture was found at 14th, 17th and 21st day of age.

Group 10 (vaccinated with MDV & NDV vaccines and treated with Curcuma) showed higher phagocytic index (0.567 & 0.544) at 17th and 21st day of age than the other two groups (group 6 and 8) which vaccinated with MDV & NDV vaccines and treated with thymus extract

and N. sativa receptively, that showed phagocytic index (0.5 & 0.5) and (0.5 & 0.507) at the same days of age respectively.

Groups (5, 7 &9) treated with immunostimulants (Thymus extract, N. sativa & Curcuma) & vaccinated with MDV vaccine but not with NDV vaccine and challenged with vvNDV showed (20, 40 & 80%) protection, respectively.

Groups (6, 8 &10) vaccinated with both MDV & NDV vaccines, treated with immunostimulants (Thymus extract, N. sativa & Curcuma) and challenged with vvNDV showed 100 % protection. While group 2 (vaccinated with NDV vaccine) and group 4 (vaccinated with MDV & NDV vaccine) showed 80 % protection, but some birds showed severe symptoms of ND in group (4) then survived.

It is concluded that, MDV vaccine has immunosuppressive effect in vaccinated chicks. Using of some immunostimulants like Thymus extract, Nigella sativa crushed seeds or Curcuma powder counteract against the immunosuppressive effect of MDV vaccine. Curcuma is considered the best immunostimulant followed by Nigella sativa in their immunostimulatory effect according to the obtained results. The surprising immunostimulatory effect of Curcuma in induction of protection level (in group treated but not vaccinated) equivalent to group vaccinated NDV vaccine only (but not treated) needs further studies for confirming this obtained results.

We recommend the use of Curcuma powder or Nigella sativa crushed seeds in poultry ration for enhancing the immune response against either field infection or vaccination.