Abstract

The purpose of this study was to investigate the effect of genetic and phenotypic grouping based on growth performance on humoral immune responses and intrinsic immune system function in wild and Italian speckled quail stain. For this purpose, information of growth traits (body weight and body weight gain) and immune of 4181 wild and 381 Italian speckled strains were used. Based on the phenotype of growth traits, quails were divided into three groups: high, medium and low, and 20% of birds in each group were used for comparison of T, Y, M and N immunoglobulins in three groups. According to the best model for each growth trait, the breeding value was calculated and the genetic grouping for birds based on the breeding value of the traits was performed similar to phenotypic grouping. ASReml software was used.The results showed that the only level of immunoglobulin Y between three phenotypic groups body weight at 25 and 35 days old in Italian speckled, the level of immunoglobulin N for the phenotypic groups body weight at hatching day in Italian speckled and the level of immunoglobulin M for the phenotypic groups body weight gain of 30-35 days of wild strain was significant ($P < 0.05$) and for other functional groups, no significant differences were observed. Levels of all immunoglobulins in early ages in lower phenotypic groups were better than the high and medium groups and showed an irregular trend in the latter ages. In most ages, the difference in levels of immunoglobulins between the genetic groups of the body weight and body weight gain traits was not significant (exception of Y immunoglobulin level for the body weight at 25 days old in wild strain, the level of immunoglobulin N for body weights at 1, 5, 35 and 40 days old in Wild strain and body weight at 5 days old in Italian speckled, the level of immunoglobulin T for body weight gain at 40-45 days in wild strain, the level of immunoglobulin N for body weight gain of 1-5 days in wild strain and immunoglobulin Y level for body weight gain of 20-15 days old in Italian speckled). The trend of changes in immunoglobulin levels in genetic groups showed similar trends with phenotypic grouping and, the low group had a better status in immunoglobulins at lower ages for most traits. The results of this study suggest that the levels of immunoglobulins should be taken into account in genetic selection for growth traits in early ages.
Key words: Immunoglobulin, Quail, Breeding value, Phenotypic grouping

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