Chicken amyloid arthropathy: serum amyloid A, interleukin-1β, interleukin-6, tumour necrosis factor-α and nitric oxide profile in acute phase (12th hour)

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Abstract

Acute phase response (APR) is part of the early defense system, which is triggered by different stimuli including, infection, trauma, stress, inflammation and neoplasia. The APR complex is a reaction which induces homeostasis and recovery. In this research, serum amyloid A (SAA), interleukin (IL)-1β, IL-6, tumour necrosis factor alpha (TNF-α) and nitric oxide (NO) levels were measured 12 hours following injection. For this purpose, Thirty-two 5 weeks old laying chicken were allocated into four groups and intra-articular injections of Freund’s adjuvant were used to induce amyloid arthropathy in Groups II, III and IV. Vitamin A in group II, and methylprednisolone in group IV were added to enhance and to reduce the severity of amyloidosis, respectively. At the end of the research, it was observed that TNF-α and NO increased significantly (P<0.05) in vitamin A and methylprednisolone groups whereas SAA decreased significantly (P<0.05) in all groups. It was also observed that IL-6 increased (P<0.05) in vitamin A group and decreased in all other groups however, IL-1β decreased in vitamin A and methylprednisolone groups, while it was increased in the control group.

The results of this study suggest that there is a positive correlation between serum TNF-α levels in acute and chronic phase in chickens with amyloid arthropathy.

Key words: chicken, amyloid arthropathy, vitamin A, SAA, cytokines

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