

## HAEMATOLOGICAL AND BIOCHEMICAL ALTERATIONS IN NATURAL OUTBREAKS OF HYDROPERICARDIUM SYNDROME IN BROILER CHICKEN\*

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In this paper the haematological and biochemical alterations observed in spontaneous cases of Hydropericardium syndrome (HPS) in broilers are reported.

### Materials and Methods

Two hundred broiler chicks spontaneously affected with HPS and 50 apparently healthy chicks of 2 to 3 weeks of age were collected randomly from 11 poultry farms in Namakkal and Coimbatore districts of Tamil Nadu. Although, signs of HPS are non-specific, the history of attacked flocks, sudden mortality among healthy chicks, typical posture and yellowish mixed diarrhoea were some times helpful in identifying broiler chicks. However, the disease was confirmed by both gross lesions and histological demonstration of intra nuclear inclusion bodies. From each chick 1-2 ml of blood was collected in glass tube containing EDTA to determine the total erythrocyte count, haemoglobin level and packed cell volume (Microhaematocrit). From each bird 2 ml of blood was collected in a glass tube for serum separation to determine the level of total protein, albumin, serum alkaline phosphatase, lactic dehydrogenase and creatinine phosphokinase.

### Results and Discussion

The mean haematological and biochemical values obtained in spontaneous cases of HPS and apparently healthy birds shown in the table.

The values of haemoglobin, packed cell volume and total erythrocyte count showed highly significant ( $P < 0.01$ ) reduction indicating anaemia. Niazi *et al.*, (1989); Sreenivas Gowda (1994) and Asrani (1997) have also recorded marked anaemia among HPS affected birds. Chandra *et al.* (2000) opined that the decrease in haematological values and anaemia might be due to concurrent infection with chicken infectious anaemia.

Biochemical changes such as total serum protein and albumin levels showed highly significant reduction in the affected birds, while the level of globulin was not reduced significantly. The SAP and CPK levels were increased nearly two folds in affected birds, when compared to the normal birds. The LDH values also showed more than two fold increase in the affected birds than the normal chicks.

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Table - Mean haematological and biochemical values of chicken

S.No.	Parameters	Apparently healthy birds	Spontaneous cases**
1	Haemoglobin (gm%)	13.24 ± 1.12	8.32 ± 1.04
2	Packed Cell Volume (%)	38.68 ± 2.74	26.42 ± 1.98
3	Total RBC Count (m/cmm)	3.54 ± 0.68	1.86 ± 0.34
4	Total Serum Protein (g/dL)	4.72 ± 0.26	3.52 ± 0.09
5	Albumin (g/dL)	2.28 ± 0.09	1.41 ± 0.18
6	Globulin (g/dL)	2.44 ± 0.13	2.20 ± 0.23 <sup>NS</sup>
7	Serum Alkaline Phosphatase (IU/L)	128 ± 8.96	247 ± 12.62
8	Lactic Dehydrogenase (IU/L)	253 ± 13.45	584 ± 20.18
9	Creatinine Phosphokinase (IU/L)	178 ± 11.23	296 ± 13.71

\*\* Highly significant, NS - Non significant.

Iqbal *et al.* (1994) and Zaman and Khan (1991) recorded similar observations. The increase in serum values of SAP and LDH in the HPS affected birds might well be correlated to the hepatic and renal damage. Damage to hepatic cells and renal tubular epithelial cells could result in release of SAP and LDH into the circulation (Frankle *et al.*, 1970; Benjamin 1985). Similarly the serum CPK values were found to be increased which could be attributed to degenerative and necrotic changes in the cardiac muscle fibres (Frankle *et al.*, *loc. cit.*)

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