Research Paper

Potential Biomarker for Fatty Liver Hemorrhagic Syndrome in Laying Hens.


DOI: [https://dx.doi.org/10.36380/jwpr.2020.62](https://dx.doi.org/10.36380/jwpr.2020.62)
ABSTRACT: Fatty liver hemorrhagic syndrome is more common in laying hens with excess body weight (BW) and in the middle and late phase of egg production. However, no specific biomarkers in chickens can be used to diagnose liver steatosis or liver injury. The present study aimed to assess whether BW can be used to predict fatty liver in aged laying hens. This study also searched for potential plasma FLHS biomarkers. For these purposes, correlation among BW, relative weight of liver and abdominal fat, and plasma markers were analyzed in Hy-line brown laying hens. Furthermore, plasma levels of potential biomarkers were analyzed during the formation of fatty liver. Concentrations of triglycerides and total cholesterol were positively associated with BW in aged laying hens, while liver fat deposition was similar among chickens with different BW, indicating that BW cannot be used as the only criterion to discriminate aged laying hens with liver steatosis. A trend of increasing triglyceride, total cholesterol, fatty acid-binding protein 4 (FABP4), and lipoprotein lipase levels was found as age increased, and they were positively associated with BW indicating that they might be risk markers for FLHS in laying hens. The findings indicated that the plasma level of FABP4 was positively associated with the severity of fatty liver in aged laying hens. All the above results suggested that FABP4 might be a potential diagnostic indicator for FLHS. 

Key words: Biomarker, Egg production, Fatty liver, Laying hens, Poultry

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Research Paper

Immune-Complex Infectious Bursal Disease Virus versus Live Attenuated Vaccines to Protect SPF Chicken against Very Virulent Virus Challenge.
ABSTRACT: In this study infectious bursal disease (IBD) vaccinations were evaluated against very virulent IBD (vvIBDV) challenge and were compared. A total of 120-day-old white Leghorn SPF chickens were divided into 6 groups (each was 20 birds). Two groups were vaccinated on either day 1 with an immune-complex vaccine. The second groups were vaccinated at days 9 and 14 of age using intermediate and intermediate plus IBD vaccines, respectively the balance groups are controls. All vaccines were administered according to the manufacturer's instructions. The challenge was conducted on the 16 days of age using 105 EID50 /0.1 ml of a vvIBDV strain via the oculonasal route. The antibody immune response was monitored in all groups at 14, 21, 28, and 35 days of age. The performance, bursal gross lesions, challenge virus detection, and bursal histopathology were evaluated in vaccinated non challenged and vaccinated challenged birds at days 21 and 28 of age. All vaccinated groups were protected against the vvIBDV challenge compared to 40% mortality in the challenge control group. Both the immune-complex and live attenuated IBD vaccine groups showed similar bursa body weight (BB) ratios compared to the negative control group. The immune-complex vaccinated groups antibody titers were significantly higher except on 28th day of age. Upon challenge, the intermediate/intermediate plus vaccinated challenged group showed higher antibody titers at 21 and 35th with the challenge virus detection and quantification on day 28. The immune-complex vaccinated challenged group developed milder bursal histopathology signs but no differences between the 2 vaccine programs were seen. It can be understandable, the use of either immune-complex vaccine at day-old or early vaccination with intermediate followed by intermediate plus live attenuated IBD vaccines induced protective antibody titers and protect chickens against an early vvIBDV challenge. The suggested schedules need further evaluation in commercial broilers with maternal derived IBD antibodies to simulate field conditions.

Keywords: Immune-Complex vaccine, Infectious Bursal Disease, Live Attenuated Vaccine, SPF Chicken
ABSTRACT: The objective of the present study was to determine the impact of the feeding levels on the reproductive characteristics of Koekoek chickens. A total of 270 Koekoek chickens were randomly assigned to 4 feeding level treatments in a completely randomized design. The four feeding level treatments were fully fed during the rearing and laying phase (AA), fully fed during the rearing phase and restricted feeding during the laying phase (AR), restricted feeding during the rearing phase and fully fed during the laying phase (RA), and restricted both during
the rearing and laying phase (RR). The General Linear Model procedure (SPSS software, version 17) was used to analyze the data set. The pubic bone measurements were 23.6, 25.1, 16.1, and 15.1 mm for chickens that received AA, AR, RA, and RR treatments, respectively, at 18 weeks of age. At 32 weeks of age, chickens given AA and RA treatments had wider pubic bones than chickens given AR and RR treatments. Combined ova and oviduct weights were higher in the fully fed chickens at 18 weeks of age. Koekoek chickens in AA treatment had the highest average egg production. Chickens given AR treatment had lower average egg weights than those given AA, AR, and RR treatments. Chickens treated with AA and AR reached puberty earlier than those that were treated with the RA and RR treatments. The eggs produced by chickens given RR treatment had a higher average hatching percentage. The lowest percentage of hatches was observed in chickens that were fed ad libitum during the rearing phase. In conclusion, the feed restriction only during the rearing phase improved the reproduction performance of Koekoek chickens.

**Keywords:** Egg weight, Fully fed, Hatchability, Koekoek, Laying percentage, Oviduct, Pubic bone, Restricted
ABSTRACT: Due to the hazardous use of antimicrobials in poultry production sector, development of drug resistance have become a worldwide problem. Therefore, using biotic or natural products, such as phytobiotics (phytogenics or botanicals) have received a great attention as antibiotic substitutes. The use of phytobiotics or their constituents have been considered as a relatively new class of natural herbs that gained popularity and acceptability among poultry farmers. The incorporation of several types of phytobiotic additives in poultry feed have proved their ability to enhance the productive performance of broilers as well as layers. Moreover, phytbiotics presented great efficacy in counteracting intestinal pathogenic microorganism while maintaining the population of normal inhabitant beneficial microflora. Immunostimulatory effect on both humoral and cellular immunity as well as antioxidant properties were recorded as characters of phytobiotics. Therefore, this review article aimed to give a spotlight on the uses of different types of phytobiotics as poultry dietary additives to improve the productive parameters, reduce the pathogenic intestinal bacteria, and potentiate the immune response, especially after vaccination processes.

Keywords: Antimicrobial, Immunity, Performance, Plants, Poultry
**ABSTRACT:**

Dietary supplementation of anchovy fish (Sarda) in laying hen’s diet could increase the level of total EPA and DHA in egg yolk.


**Keywords:** Anchovy, DHA, Egg yolk, Enrichment, EPA

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**Keywords:**

- Crossref Metadata
- Duck, Genetic polymorphism, Genotyping, Prolactin gene
- Anchovy fish, Pekin, Campbell, Moulard, Muscovy, Pekin
- Gene exon 1 and 5, Polymorphism
- DHA, EPA, PUFA, Diet

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