بسم الله الرحمن الرحيم

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Faculty of Veterinary Medicine
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EFFECT OF HALOFUGINONE HYDROBROMIDE AND LASALOCID SODIUM ON IMMUNE RESPONSE OF BROILERS VACCINATED WITH THE NEWCASTLE DISEASE VACCINE

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بسم الله الرحمن الرحيم

"نرفع درجات من نشاء وفوق كل ذى علم عليم"

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To My Family

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INTRUDUCTION

INTRODUCTION

Newcastle disease is a viral disease affecting domestic and wild birds and causes great losses in poultry production and economy of poultry farms. Therefore it is highly indicated to control Newcastle disease and this can be afforded by vaccination with Newcastle disease vaccines.

Outbreaks of the disease may occur in non vaccinated and vaccinated flocks. Several groups of drugs such as anticoccidials, antibiotics, antibacterials and anthelmintics are given to poultry before, during or after vaccination. Some of these drugs can enhance or suppress the immune response to certain vaccines.

Immunopotention may occur either by increase in the rate and intensity or level of the response develop. Immunopotentiation may be general or specific. The former refers to substances which may enhance both cellular and humoral immune responses to wide variety of antigens. Specific potentiation deals with a special class of molecules which enhance specific responses to certain antigens only.

Immunosuppressive agents such as cytotoxics and corticosteroids, anticoccidials and antimicrobials. Most of these drugs if used either immediately before the antigen or during the induction phase but they are much less active once the reaction has entered the established phase.

The present study was conducted to reveal the effect of two commonly used anticoccidial drugs on the immune response to Newcastle disease vaccine in broiler chickens. Moreover to select the most reliable drug and time to be used safely.

REVIEW OF LITERATURE

REVIEW OF LITERATURE

Many drugs can influence the immune response to Newcastle disease vaccine in poultry.

Effect of Some Anticoccidial Drugs on Immunity :

McDougald and McQuistion (1978) investigated innate and acquired immunity in managing coccidiosis in turkeys. They found that some degree on innate resistance associated with age, although not enough to protect against heavy challenge. The resistance of birds reard in floor pens was due largely to acquired immunity resulting from infection with coccidia. Amprolium (125 ppm), monensin (100 ppm), or polystat (250 ppm), protected the turkeys against experimental infections in floor pens, as measured by weight gains, feed efficiency, death due to coccidiosis, and lesion scores.

Boyadzhieva *et al.* (1984) investigated the effect of some anticoccidials on the immune response of fowls to Newcastle disease vaccine. They found that no evidence of immunosuppression in chicks fed monensin at a concentration of 1g/kg in feed or amprolium at a concentration of 0.5 g/kg in feed and immunized with aerosol of Hitcher B1 Strain of Newcastle disease virus.

Azeez and Paily (1985) evaluated the effect of anticoccidial (codrinal) on the immune response to Newcastle disease vaccination under controlled conditions. They found that reduction in the erythrocyte count, haemoglobin content and serum protein values. Low haemagglutination inhibiting titres in the treated groups indicated an immunosuppressive effect of codrinal. Degenerative changes of the bursa. Challenge resulted in a mild form of the disease in the treated group; all withstood the challenge and recovered.

Shalaby *et al.* (1993) investigated the effect of salinomycin drug on the immune system of chickens using the recommended dose of 60 mg/kg feed continuously for 49 days. They found that no noticeable significant effect on the humoral and cell mediated immune response to Newcastle disease virus vaccine. A drastic immunosuppressive effect was manifested by using a dose of 120 mg/kg and characterized by lowered titres of antibodies, decreased in the relative weight of lymphoid organs, lowered mitogenic response of peripheral blood lymphocytes to phytohaemagglutinin with reduction of heterophils percentage, as well as reduced protection rate to intramuscular challenge with the velogenic viscerotropic strain of Newcastle disease virus.

The selected anticoccidial drugs are commonly used for prophylaxis and treatment of coccidiosis in Poultry.

1. Halofuginone Hydrobromide.

Halofuginone is derived from an alkaloid originally isolated from the Asiatic plant, *Dichroa febrifuga Lour*, which has been long included in the chinese pharmacopia for treatment of malaria (Fairbairn and Lou, 1950). The potent anticoccidial activity of this compound in poultry was discovered in 1960 and developed for prevention of coccidiosis in chickens in the 1970.

No literature was obtained on the effect of halofuginone on the immunity of vaccines in broilers and the obtain literatures were foccused on its anticoccidial activity.

Morrison *et al.* (1979) tested the efficacy of salinomycin and halofuginone against infection with various Eimeria species in cage reared broiler chicks. 60 ppm salinomycin in the ration alone or in combination with 50 ppm 3-nitro, 4 hydroxyphenylarsonic acid significantly prevented coccidial lesions over basal treatments or when 3-nitro 4-hydroxyphenylarsonic acid used alone. No differences occured between monensin and salinomycin in preventing coccidial lesions. Halofuginone significantly improved the prevention of coccidial lesions and appeared to be most effective anticoccidial product.