

Field survey of poultry diseases in Al- Anbar province

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Abstract

The study have been done to know the most popular poultry diseases that have been received by the consultant bureau, College of Veterinary Medicine/ University of Anbar during the period from 2/1/2008 to 31/12/2008.

Diagnosis of the cases have been done according to clinical signs, post- mortem examination, laboratory investigation and the response to various therapeutic agent.

The result showed that bacterial diseases are the most prevalent one 45.57%, then the viral diseases 37.29%, this is followed by nutritional diseases 7.59% then parasitic diseases 6.74% and finally other miscellaneous diseases 2.7% as aflatoxicosis, fatty liver, urate deposition and flip over (sudden death syndrom).

Also it have been shown that Enrosol and ciprofloxacin gave the best result in treating bacterial diseases, where as toltrazuril gave the best result in treating coccidiosis.

The study recommends to re-evaluate the efficient doses and strains for various viral diseases due to failure in the application of vaccination programmes.

مسح ميداني لأمراض الدواجن في محافظة الأنبار

زياد خلف جلوب

فرع الأمراض وأمراض الدواجن/ كلية الطب البيطري/ جامعة الأنبار

الخلاصة

أجريت هذه الدراسة لمعرفة معظم أمراض الدواجن الشائعة والمستلمة بواسطة المكتب الاستشاري، كلية الطب البيطري/ جامعة الأنبار خلال الفترة من 2008/1/1 ولغاية 2008/12/31.

تم تشخيص الحالات وفقاً للعلامات السريرية، إجراء الصفة التشريحية، التحقق المختبري والاستجابة لمختلف المواد العلاجية.

أظهرت الدراسة أن الأمراض البكتيرية تمثل أعلى النسب شيوياً 45.57% ثم الأمراض الفيروسية 37.29%، يتبعها أمراض النقص الغذائي 7.59% فالأمراض الطفيلية 6.75% وأخيراً أمراض متنوعة الأشكال 2.7% مثل السموم الفطرية، تشمع الكبد، ترسب اليورات وظاهرة الموت المفاجئ.

كما أظهرت الدراسة أن مركبات الـ Ciprofloxacin و Enrofloxacin هي أفضل العلاجات المستخدمة في علاج الأمراض البكتيرية في حين أعطى الـ Toltrazuril أفضل النتائج في علاج الكوكسيديا.

توصي هذه الدراسة بإعادة تقويم كفاءة الجرعة والعتل لمختلف الأمراض الفيروسية بسبب فشل برامج اللقاحات المطبقة.

Introduction

Poultry industry is regarded as the main part of animal resources all over the developmental countries. Poultry rearing is characterized by high feed conversion ratio. Short rearing period (1) and the acceptance from all religions.

It is well known that the problems are the shade of intensive rearing and such high intensive rearing creat so many uncontrolled diseases with sever economic losses, such disease are classified to bacterial, viral, nutritional, parasitic (2, 3) other are due to environmental and managmental causes (4).

The main problem of such diseases are the absence of official record or information's (2, 3) explaining their epidemiology and etiology.

The study is regarded as a preliminary study in Al- Anbar province, through which may support the concerned offices to take the correct scientific procedure to deal with them.

Materials and Methods

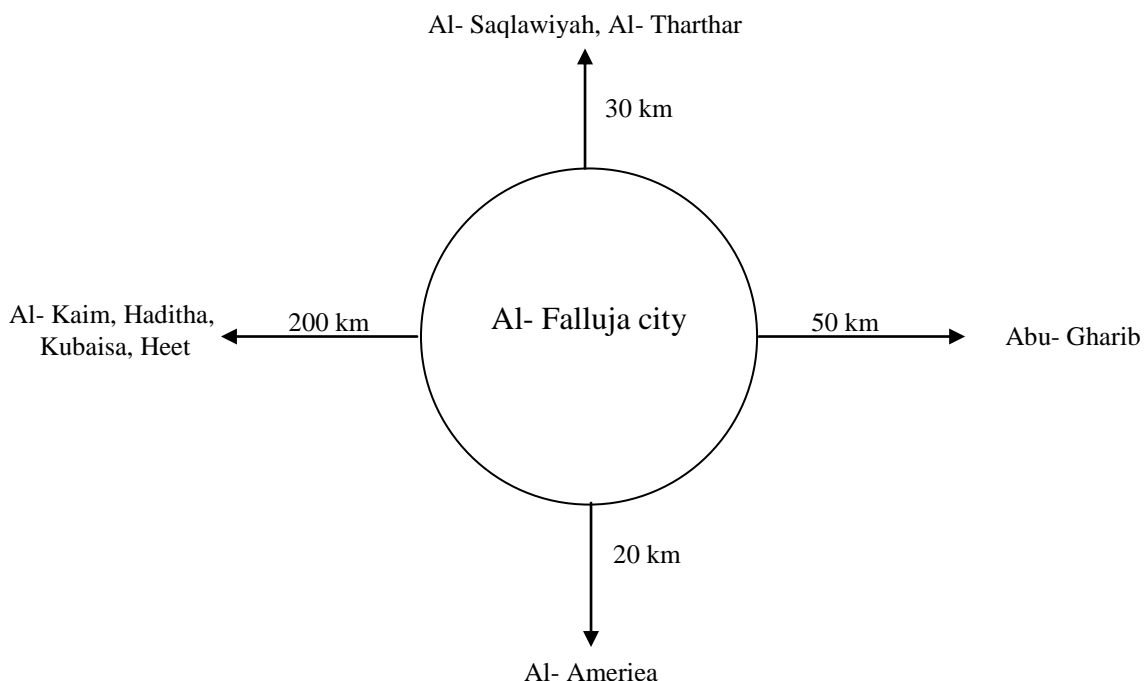
Diseased chicks received by the consultant bureau, College of Veterinary Medicine/ University of Anbar for the period from 2/1/2008 to 31/12/2008. The cases were fixed in an official record. They represent (592) farm from different area surrounding Al- Falluja city. These farm represented (23) pathological case.

The cases were classified into bacterial, viral, nutritional, and parasitic diseases depending upon clinical signs, and post- mortem examination.

Light microscope have been used to identify parasitic diseases.

Some antibiotic and antiparasitic drug have been used to evaluate their efficiency, through their effects in the treated animal.

The zone of this study is indicated by the following diagram.



Results

The study showed that bacterial diseases are the most prevalent diseases 45.57%, this is followed by viral diseases 37.29%.

Nutritional diseases represent 7.59% while parasitic diseases showed 6.74% of the cases in this study. Miscellaneous cases showed 2.7% (Table 1).

Among the bacterial diseases air sacculitis showed the highest percentage 21.95% with a good response to erythromycine 20% + Furaltadone after a full course (5 days) therapy.

CRD represents the second case in their prevalence 20.77% with a mortality more than 70% after treatment with different antibiotics.

Miscellaneous cases related to bacterial infection represented by Oophoritis 1.35% rope neck 0.16%, Ascites 0.84% and necrotic enteritis 0.5% showed a good response for antibiotic therapy with improvement more than 70% with exception of ascites there was no response that may be attributable to other agent rather than bacterial agents (Table 2).

The effect of vaccination against viral diseases showed different result according to the nature of the viral agent as well as according to the phase of disease. (Table 3) showed different result for different diseases, although all the birds have been vaccinated against the specific diseases (except those which have infected with SHS).

Marek's disease showed 0.84% with a mortality 20- 30%, the birds have been vaccinated with Rispens + HVT.

The result with Newcastle disease is quite different from other diseases, where it depends upon the phase of the disease, the peracute phase showed a good response with aerosol vaccination.

Hydropericardium hepatitis syndrome showed the highest incidence of the represented cases 11.65% with a mortality exceed more than 50%.

The reported case of pox virus was the lowest among the viral cases 0.16% and was the mildest form to be treated (cutaneous form).

Infectious bursal disease (IBD) showed high incidence with a mortality exceeding more than 25% in birds that have been given vaccine three times previously with various strains.

Swelling head syndrome (SHS) showed a prevalence of 1.18%. The birds that have been affected were treated with antibiotic therapy to prevent secondary bacterial infection and showed a good response 70%.

Infectious bronchitis (IB) showed an incidence of 3.37% among the total viral diseases with the highest mortality 70% due to secondary bacterial infection manifested by air sacculitis and CRD.

Malabsorption syndrome (Helicopter Disease) showed an incidence 2.87%, a good response was achieved by supportive therapy for two weeks (Table 3). (Table 4) indicates the most prevalent nutritional diseases which were represented by rickets 7.43% and vit. E deficiency 0.16%. The first case was treated with vit. D supplementation. Good response was obtained with 5% fish meal supplied to the ration. The second case was treated with a full course therapy of vit. E with selenium. (Table 5) showed the incidence of parasitic diseases in which coccidiosis was the most prevalent cases caused by *E. tenella* (in broilers) and *E. tenella* and *E. maxima* (in layers). The successful treatments were obtained with toltrazuril.

Tape worm 0.84% related to *Raillietina* and *Ascaris* infestation 0.16% were observed in layers. Treatment for the first case was with Niclosamide while the second case was with piperazine, both cases showed good response.

Miscellaneous cases (Table 6) showed an incidence 2.7% are represented by aflatoxicosis 1.18%, a good result was obtained with changing the ration. Fatty liver

0.67% due to high percent of corn over 70% showed no response to treatment. Urate deposition 0.5% due to hyperprotenemia also showed no response to treatment finally flip over 0.33% due to liberation of free oxygen radicals did not responded to treatment.

Table (1) The incidence of poultry disease during the period from 2/1/2008 to 31/12/2008

Cause	%	Diseases
Bacterial diseases	45.57	Air sacculitis, CRD, * Ascites, necrotic enteritis, rope neck, Oopheritis
Viral diseases	37.29	** HHS, IBD, ND, IB, SHS, MD, Pox, entero virus (malabsorption)
Nutritional diseases	7.59	Rickets, vit. E
Parasitic diseases	6.74	Coccidiosis, Tape worm, Ascaris
Miscellaneous diseases	2.7	Aflatoxicosis, *** Fatty liver, urate deposition, Flip over

* Ascites: may be caused by other agents.

** HHS: Hydropericardium syndrome.

IBD: Infectious bursal disease.

ND: Newcastle disease virus.

IB: Infectious bronchitis.

SHS: Swelling head syndrome.

*** Fatty liver: may be due to other agent rather than infectious agent.

NB: CRD: Air sacculitis complicated with mycoplasma infection.

Table (2) Incidence of bacterial infection and their treatments

Cause	%	Treatment	Response
CRD (Chronic Respiratory Disease)	20.77	Enrosol 20% Ciproflox 20% Erythromycine 20% + Furaltadone	*No. response No. response No. response
Air sacculitis	21.95	Erythromycine 20% + Furaltadone 30%	**Good response
Oopheritis	1.35	Ampicilline 20%	Very good
Rope neck	0.16	Furaltadone 30% + oxyvitamin 50%	Good
Ascites	0.84	Gentamycine 50%	No. response
Necrotic enteritis	0.5	Furaltadone 30% + oxyvitamin	***Very good response

* No. response: Mortality more than 70%.

** Good response: Improvement more than 70%.

*** Very good response: Improvement more than 90%.

Table (3) Incidence of viral infection

Cause	%	Notes
MD (Marek's Disease)	0.84	20- 30% mortality
ND (Newcastle Disease)	7.26	Mortalities varies according to phase of disease (peracute, acute, subacute)
HHS (Hydropericardim Hepatitis Syndrom)	11.65	Mortality exceed 50% inspite of vaccination
Pox	0.16	Cutenous form. Good response
IBD (Infectious Bursal Disease)	9.96	All the poultry have been vaccinated previously. Mortality 10- 30%
SHS (Swelling Head Syndrom)	1.18	Poultry were not vaccinated. Good response to antibiotic therapy
IB (Infectious Bronchitis)	3.37	High mortality (up to 80%) due to secondary bacterial infection
Malabsorption (Enterovirus, Helicopter disease)	2.87	Good response for supportive therapy and antibiotic

Table (4) Incidence of nutritional disease and their treatment

Cause	%	Notes
Rickets	7.43	Different result with vit. D supplementation. Good result with 5% fish meal
Vit. E def.	0.16	Good response after a full coarse therapy of Vit. E with selenium

Table (5) Incidence of parasitic diseases and the drug used

Cause	%	Notes
Coccidiosis	5.74	Mainly <i>E. tenella</i> (in broilers) and <i>E. tenella</i> and <i>E. maxima</i> (in layers). The best result of medication was with toltrazuril
Tape worm	0.84	Segmented tape worm (<i>Raillietina</i>). Niclosamide therapy gave the best result
Ascaris	0.16	Good response with piperazine therapy

Table (6) Incidence of Miscellaneous cases

Cause	%	The way of treatment
Aflatoxicosis	1.18	Change of the ration with good response
Fatty liver	0.67	Change of the ration, with no response
Urate deposition	0.5	No. response, even after changing the ration
Flip over	0.33	Restricted food supply, No. response

Discussion

This type of study is regarded as a preliminary survey in Al- Anbar province, although several previous studies have been done in other governorates (2, 3).

The value of this study reside to the absence of central record that fix the most prevalent diseases in each region (3) and this will lead to serious economic losses due the lack of scientific planning to withstand the endemic diseases as well as the way of behavior to face the newly imported diseases.

The study showed that bacterial diseases are the most prevalent one 45.57% and this agreed with other observations (2, 3).

The percentage of air sacculitis and CRD constitute the highest level 21.95%, 20.77% respectively.

Such types of diseases are termed colibacillosis in which *Escherichia Coli* (*E. Coli*) is the main causative agent include in addition to CRD and air sacculitis other forms of the disease like oophoritis, coliform panophthalmitis, coliform egg peritonitis, coliform salpingitis, coli granuloma and yolk sac infection (5).

The most serious effect on poultry diseases of such type of infection, after the clinical signs have subside, is that the effected group are left uneven and commercially unsatisfactory and give rise to a high proportion of carcasses downgraded after slaughter(6).

The most important problem seen with CRD is their higher resistant to antibiotic in vivo, although they are sensitive in vitro. All the drugs that have been used in (Table 2) gave no response and the affected birds showed high mortality rate. If a drug can contact *E. Coli* in damaged tissue, it will kill the organism. Many times this is not possible due to tissue surrounding the pathogen, also vaccines have not been used to control avian colibacillosis for 3 reasons. First, *E. coli* infections are usually considered to be secondary to a primary infection with a more specific respiratory tract disease agent. Second, colibacillosis epornitics are considered to be effectively controlled by antibiotics or other chemotherapeutic substances. Third, the variation in antigenic types found in disease epornitics precludes, corresponding hens sera (7).

The response of antibiotic therapy to air sacculitis (Table 2) gave a good result with improvement more than 70%, this is because of the absence of the barrier that inhibit the contact of the drug with the organism (8, 9) in addition to the use of high dose therapy.

The same can be explained for oophoritis, rope neck, necrotic enteritis.

Ascites showed no response this might be due to other agents rather than bacterial (as viral, NaCl toxicity, or hypoxia).

The study have been concluded that viral diseases constitute the second main line in problems that threading poultry industry. (Table 3) showed that HHS is the most prevalent one in spite that most of the birds have been received the vaccine in a correct way at a correct time. It is meanwhile to mention that poultry which have received the vaccine produced by Merial company have survived the infection. This may be explained that the vaccine may be closely related to the serotype that endemic the area, since it is well known that some isolates (FADV- 4) can reproduce the condition by themselves, and other strain appear to require the assistance of an immunosuppressive agent such as chicken infectious anemia virus (CIAV) (10), this variation in the virulence and responsiveness will lead us to conclude that there are various serotypes.

Newcastle disease is other major problem among viral diseases (Table 3). Some birds have got the infection, although they were vaccinated two or three times in different routes with high mortality reaching up to 90%. This necessitate to re-evaluate the dose and to pay a special attention for the local strain (11- 13).

IBD is other serious problem in poultry disease. It's incidence was 9.96% (Table 3) with a mortality rate of 10- 30%. The importance of this disease is it's effect on the immune system, where immunosuppression has been recognized as a significant sequel to the disease (14). Also another important point of this disease is the antigenic variation in the serotypes that is the main cause of vaccine failure because of absence of cross immunity (15).

IB creates a terrible sense for the poultry industry, because of the mortality that are attributed to secondary bacterial infection that will accompany the real cause creating more complication for the course of disease giving high mortality that may exceed 80%. The disease can not be over come by vaccination processes owing to the presence of several serotypes which lack the cross protection or cross- neutralization (16).

In addition, outbreaks of IB occur even in vaccinated flock. The virus strains isolated from those outbreaks are often found to be a serotype distinct from the vaccine type (17). The outbreaks which invade our country may be due to the importation of vaccinal strain like 4/91 in the absence of animal resources supervision.

SHS got his chance in this study where it approach 1.18% taking along course for spreading, this support the diagnostician to choose the effective drug.

Pox virus have been noticed as a sporadic cases 0.16% and was shown in it's simplest form (cutaneous form or dry form). Good response was obtained by the use of 2% iodine locally.

Enterovirus or malabsorption syndrome have been observed with 2.87%. It seems that the best term used is infectious stunting syndrome because of the poor growth of the affected chicks. No available vaccine at a time, since the real causative agent is not confirmed, it may be caused by calicivirus, enterovirus, parvovirus, reovirus or togovirus (18). The main problem with the disease that stunted chicks are given adequate feed and extra time, but feed conversion rate are poor (18). The stunted chickens may be uneconomic to process and will create problems with the abattoir machinery as they are too small, in such cases it may be best to kill them as they are caught.

(Table 4) showed that the main nutritional problems were rickets 7.43% and Vit. E deficiency 0.16%. the first case was treated with Vit. D supplementation, the best result was obtained with 5% supply of fish meal to the diet. This gives an explanation that natural supply is better than the synthetic additive because of cheating industry. Deficiency of Vit. E is indicative for bad storage.

(Table 5) showed that the most parasitic diseases infested broiler and layer was coccidiosis. The best result was obtained with toltrazuril manufactured by Bayer. Amprolium and other anticoccidial agents gave unsatisfactory result because of the well known phenomena of coccidia to drug resistance (19). Most cases of coccidiosis encountered in this study were seen in layers, because such farms were suffering from Marck's disease, since the later may interfere with development of immunity to coccidiosis (20). Tape worm infestation with an incident 0.84% also is another problem affecting layer flock represented by the genus *raillietina*, the problem mainly due to failure of controlling the intermediate host because of unhygienic measures of stores used to keep the raw material of ration. Niclosamide at a dose of 50 mg/kg gave the best result in treating such type of parasite and this agreed with (21). Round worm infestation also create other problem in poultry industry, because of reduced egg production for layer, in addition to reduce body weight of broiler. The case was treated according to (21).

(Table 6) explains the miscellaneous cases mainly due to management causes. Aflatoxicosis constitute 1.18% of such cases. A good result obtained with changing the ration. Fatty liver 0.67% due to high percent of corn (over 70%) showed no response to treatment because of liver damage. Urate deposition 0.5% due to hyperprotenemia also showed no response because of destructive kidney tubules (22). Flip over (sudden death syndrom) 0.33% due to liberation of free radicals of oxygen did not respond to treatment.

Finally such type of study should be applied regionally at least every three year in order to get a good information about the poultry diseases.

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