SOME STUDIES ON CLINICAL, HAEMATOLOGICAL AND BIOCHEMICAL CHANGES IN PNEUMONIC LAMBS WITH TRIALS OF TREATMENT

Hussein, E. M.; Alam,T. and Masoud, S.

Animal Health Res. Institute, Zagazig University

SUMMARY

A total of 29 lambs (1-1.5 years old) with average body weight 30-40 kg (5 clinically healthy lamb and 24 pneumonic lambs) were used in this investigation these lamb were belonged to a private farm in sharkia Governorate this study aimed to investigate some hematological an biochemical changes associating it in lambs were divided into three groups the first group (5 lambs) was apparently healthy and served as a control group the pneumonic lambs were divided into two equal groups 12 lambs in each second group 12 lamb in each second group received therapeutic does of florfenicol two (IM) with 48h interval between third group received therapeutic dose of gentamycin (IM) for 5 successive days blood samples were collected from each lamb by jugular vein puncture before treatment and 5, 10 and 20 days post treatment for hematological and some biochemical parameters determination.

The main clinical signs in pneumonic lambs were fever bilateral nasal discharge moist cough dyspnea fever congested mucous memberane lacrimation abnormal respiratory sound inpapetence weakness and ended by recumbency .

Bacteriological examination of the culture swabs revealed that the isolated bacterial pathogens were pasteurlla multocide (29.17%) E'coli (16.67%) staph. aureus 12.50 strept pyogen kelbsiella pneumonae 8.34% and mixed infections including (pasteurella multocida and E coli) 20.82% .

Antibiogram studies revealed that florfenicl , gentamycin and enrofloxacin were the most effective antibacterial against most bacteria isolted from pneumonic lambs

Hematological investigations revealed microcytic hypochromic anaemia represented by a significant decrease of total erythrocytic counts haemoglobin content and packed cell volume % lymphocyte and platelets copulate with leucocytosis associated with neutrophilia, eosinophilia and monocytosis .

Biochemically ,there were elevation in liver enzymatic activities of (AST-ALT) Gamma glutamyl Itransferase (GGT) Glucose ,urea nitrogen creatinine and phosphorus and in significant increased in alkaine phosphatase , lactic dehydrogenase (LDH)significant decrease in total protein ,albumin , globulin , calcium,sodium and insignificant decrease potassium but magnesium insignificantly increased in pneumonic lambs in compared . to healthy one were also recorded .

It could concluded that pneumonia induce some adverse effect on haematological biochemical parameters which returned to the normal levels post treatment by florfenical or gentamycin, but florfenicol has a better efficacy in treatroenia in lambs than gentamycin .

INTRODUCTION

Despite many years of intensive research efforts infectious respiratory disease continue to be major cause of economic loss and adverse effects on animal welfare ,the syndrome arise from a number of factors including those involving the animal, e.g bacteria, **virus El seidy, et al. (2003)**

Respiratory infections represent one of the most diseases of sheep especially lambs which cause serious economic losses **(hamdy 1959)**.

In several previous investigations Pasteurella multocida was incriminated as the causative agent responsible for respiratory disorders in sheep **(Morad , et . al., 1980 and callan , et. Al. 1991)**. Althuogh many efforts were done for controlling the disease through medication and vaccination, a continuous research for new drugs for controlling the disease is a necessity . **(Gilmour and Angus 1993)**. Respiratory affections particularly pneumonia is a major problem of the calves, so it is considered as a major source of economic losses to all domestic animals **(Wilson et al., 1985 and Ibrahim, et.al. 1988)**. The causes and forms of pneumonia are bacteria , viruses fungi , parasite or mixed infection while poor hygienic measures climatic disorders and stress environmental pollution were the most predisposing factors to such infection **(Yousef et al. 1992 and Sharma and Woldehiwet , (1995)** . The inflammatory Lung diseases were generally accompanied by marked drop of erythrocytic counts and marked elevation of total leucocytic counts in pneumonic calves **(El-Hamamy , et.al. 1999 and El-bealawy , 2003)** . Furthermore in advanced cases febrile disease usually associated with hyperpyrexia and metastatic infection of lungs , liver and kidneys which may lead to hepatic and renal dysfunctions **(Kaneko , 1997 ; Selim , et.al.,1997 ; Soroor , 1999 and Radostitis , et.al., 2002)** . Gentamicin is an aminoglycoside antibiotic isolated from micromonospora purpurea . It is effective against both G+ve

and G- ve organisms **(Tobin 1979)**. The mechanism of action of gentamicin involves irreversible inhibition of bacterial ribosomes and therefore impairs protein synthesis (Bryan and Van **1983)** This aminoglycoside is widely used in veterinary and human medicine but suffers from efficacy in treating drug resistant G+ve and G-ve bacteria infections **(Karlowsky , et. al 1986)** Unfortunately , it has a narrow therapeutic index **(Swartz 1997)** , and high potential for nephrotoxicity and ototoxicity **(Choudhury and Ahmed 1997)** found that toxicity develop as a result of marked accumulation and retention of the aminoglycoside in the proximal tubular cells Florfenicol is a synthetic antibiotic possessing a wide spectrum of activity against many gram negative bacteria **(Syriopolou , et.al. 1981)** . Although florfenicol is a structural analogue of thiamphenicol , it has a superior spectrumeop activity and its more potent component **(Verma et.al., 1986 and Marshall , et.al., 1996)** . Florfenicol different from thiamphenicol in substitution of florin atom for a hydroxylgroug that making its superior that thiamphenicol (Verma **et.al., 1996).**

The aim of this study was to evaluate the efect of pneumonia on the haematological and some biochemical values as well as to evaluate the efficacy of florfenicol and gentamycin for treating pneumonia in lambs .

MATERIALS AND METHODS

Drugs :-

1st- gentamycin (Garavet) Egypt

2nd- Florfenicol (Nuflor) from (Schering - Plough Animals Health).

Animals :-

This study was carried out in a private farm at Blebis city (Sharkia - Governorate) during the period from September 2005 to November 2005 A total of 29 Lambs (1-1.5 years old) with average age body weight 30-40 kg were studied lambs were used in this investigation Lambs were divided into three group first group (5) was clinically healthy frec from internal and external parasite and saved as control group (24) lambs suffering from sight of respiratory trouble including lateral nasal discharge moist cough dyspnea fever congested mucous membrane Laboured and abnormal respiratory sounds inappetence morcover, the rectal temperature was elevated to 41C° weakness and later on recumbency Pneumonic lambs divided into two equal groups 12 lamb in each Second group pneumonic lambs and treated with therapeutic dose (20 mg/kg b.wt.) of florfenicol two doses in between 2 days (I.m) **Madelnat (1982)** . The third group placed

monic lambs were treated with therapeutic dose of gentamycin (5 mg/kg b. wt.) for 5 successive days (I.M) .

Rectal Temperature :

Rectal temperature was recorded daily for the diseased lambs up to for 10 days post treatment .

Bacterial Examination :

Sterilized swabs were taken from Nasopharyngeal of apparently healthy and diseased lambs for bacteriological examination . The collected samples were incubated on nutrient broth at 370 C for 24 h ., then subcltured into selective media according to **(Woidehiwet , et.al. 1990)** . All bacterial isolutes were identified **Holt , et.al. (1994)**.

Antibiotic sensitivity :

In vitro antibiotic sensitivity test of different isolated microorganism against antibacterial agents was carried out using disc method described by **Plair et.al. (1970)** The antibiotic used Florfenicol (30 ug) gentamycin (10 ug) Ceftoiful sodium (10 ug) Kanamy (30 ug) Lincospectin (15 ug) Spectinomycin (10 ug) Erythromycin (15 ug) and Flumequine (30 ug) .

Blood Samples :

Two blood samples were collected from each lambs by Jugular vien puncture before treatment at 5 , 10 and 20 days post treatment . The first sample (5ml) was collected from each lambs on hepranized tube for hematological study . The second blood sample (10ml) were collected in clean dry centrifuge tube without anticoagulant , left at room termperature and then centrifuged at 3000 r.p.m. for 5 minutes . The separated sera were used for some biochemical parameters determination

Haematological studies :

Blood picture (Total erythrocytic count , packed cell volume percent , hemoglobin and total leukocyte count were performed according techniques described by **Jan. (1986)** .

Biochemical studies :

Obtain clear serum were used for measuring the activities of serumtransaminesis (AST.- ALT.) according to **Reitman and Frankel (1957)** , alkaline phosphatase according to **(John 1982)** gamma glutamy l trasferase (GGT) **Szasz (1969)** lactic dehydrogenase (LDH) **(Mequeen, 1972)** total protein , albumin and globulin **(Grant , et.al. (1987) , glucose , Trinder (1969)** , urea **Fawcet and Scott (1960)** , creatinine (Husdan and Raporpot (1968) calcium Gindler and King (1972) inorganic phosphorus **Goldenberg (1966)** magnesium **Gindler and Heath (1971)** and sodium **(Henry , et.al. 1974)** .

Treatment trials :

Two groups of infected lambs with pneumonia were treated with either florfenicol (20mg/kg b.wt.) two doses inbetween 2 days (I.M) or gentamycin (5mg/kg b.wt) intramuscular route from the respective drug for 5 consecutive days .

Statistical analysis :-

The obtained data were tabulated and statistically analyzed according to **Petrie and Watson (1999)**

RESULTS

The main clinical signs observed including bilateral nasal discharge moist cougth dyspnea fever, congested mucous membranes lacrimation, abnormal respiratory sounds inappetence weakness and later on recumbency .

1) Rectal temperature

It is clear from Table (1) that the recorded rectal temperature in pneumonic lambs ranged between 32 to 41c. The rectal temperature of lambs treated with florfenicol or gentamycin returned to the nearly normal levels post three days of treatments . while the rectal temperature of lambs treated to the nearly normal levels post three days of treatment while the rectal temperature of lambs treated with gentamycin returned to normal level after 3-6 days post drug administration.

2) Bacteriological isolation

Bacteriological examination of the culture swabs from 20 pneumonic animals revealed that the isolated bacterial pathogens were pasteurlla spp. (7 cases) 29.17% E.coli (4cases) 16.67% staph. aureus (3cases) 12.50% strept pyogen (3cases) 12.50% ,Kelbsiella pneumonae (2 cases) 8.33% and mixed infections including (pasteurlla multocide and E.coli) 5 cases 20.83% table (2).

3) Antibacterial sensivity tests

Table (3) revealed that the isolated strains showed a highest sensitivity to Florfenicol followed by gentamycin Enrofloxacine, Ceftoifur sodium spectinomycin Lincospectin and Kanamycin respectively and the least sensitivity was found against Flumequine and erythromycin .

4) Hematological Values

The data obtained in the table (4) showed that a significant decrease in erythrocytic count hemoglobin content , packed cell volume percent Lymphocyte and platelets coupled with leukocytosis , associated with neutrophilia eosinophilia and monocytosis of lambs suffering from pneumonia Hematological parameters were returned to the normal levels at 20 days post treatment .

5) Biochemical

Pneumonic calves show elevation in liver enzymatic activities of aspartate aminortansferase (S.AST) , alanine aminortansferase (AL.T) Gamma glutamy 1 transferase (GGT) gulcose urea nitrogen creatinine and phosphorus and insignificant increased in alkaline phpsphatase , Lactic dehydrogenase (LDH) with significant decrease in total protein albumin ,globulin

Calcium , sodium and insignificant decrease potassium but magnesium insignificantly increased in pneumonic lambs in compared to health one This parameters returned to the normal levels 15 days following treatment tables (5-7)

6) Anti - bacterial in vivo "Efficacy"

Improvement of clinical symptoms was observed following administration of either florfmicol or gentamycin . It was found that treatment with florfenicol was the best than treatment with gentaamycin because the total cure rate of florfenicol was 100% at 4 days post treatment while

that of gentamycin was 100% at 6 days post treatment table (8).

DISCUSSION

Respiratory diseases are often considered as the most significant causes of economic losses in feedlot cattle in addition great economic losses occurred due to the deaths of animals from respiratory diseases cost of treatment , weight loss prolonged feeding period and prevention programs **(Leukeux ,et.al.1985)** . The clinical sign of pneumonia in lambs in this study were congested mucous membranes lever bilateral nasal discharge moist cough abnormal respire-tory sounds dyspnea and recombency were observed previously by **Novert (2004)** and **Abdalla** and **Emam (2005)** in calves and lambs respectively

Rectal temperature of diseased lambs were 41.32°c and 41.40oc and returned nearly to the normal levels at 4 and 6 days post treatment with florfenicol or gentamycin respectively our results regarding florfenicol were reinforced by the study carried by **Hanafy** and **Eisa (2004)** the auther reported that florfenicol had better results in reducing rectal temperature and improving clinical signs in calves infected with respiratory disease .

Bacteriological examination of the culture swabs from diseased animals revealed that the isolated bacterial pathogen were pasteulla spp., Ecoli staph aureus strept pyogens kellbsiella pneumonae and mixed infection (pasteurlla spp., + E.coli) in percentage of 29.17%, 16.67%, 12.50%, 12.50% , 8.33% and 20.83% respectively were the main causative organism that responsible for pneumonia in tested lambs These finding were similar to that reported by **El-Rawy** and **Gorgi (2001)** and **Hanafy** and **Eisa (2004)** in sheep and cow-calves respectively Disc diffusion testin widely used for antimicrobial sensitivity test for reasons of time simplicity and cost **(Green Wood 1978)** In present study by using the disc-diffusion test showed that the most effective tested drugs act on all isolated organisms were florfenicol gentamycin enrofloxacin flumoquine erythromycin and oxytertacycline but isolated **El-Sayed (1992)** who mentioned that gentamycin had high inhibitory effect on E-coli Strept uberis and Klebseilla (**Hanafy** and **Eisa (2004) Abdalla** and **Emam (2005)** concluded that the florfenicol highly active against pasteurlla spp. In cow-calves and lambs respectively .

The present work revealed that pneumonic lambs show microcytic hypochromic anaemia represented by significant reduction in erythrocytic counts haemoglobin content packed cell volume percent , lymphocyte and platelets associated with significant increase in leukocytic count and neutrophil similar findings were reported by **El-Sayed, et.al. (1992), Kodary and Abdalla (2001)** and **Abdalla** and **Emam (2005)** in fattaloc calves and lambs respectively who recorded a significant decrease in the erythrocytic counts haemoglobin content packed cell volume percent ,

lymphocyte and platelets and increase in total leukocytic count and neutrophils in pneumonic animal . The change in erythrogram may be attributed to the failure of bone marrow cells and hepatocytes for utilization and hemoglobin synthesis resulting in inhibition of erythropoisis during bacterial infection **(Kaneko, 1997)** and the change in leukogram observed in this study may be due to bacterial infections and inflammatory lesions in lung **(Coles 1986)** . The hematological parameters in diseases lambs were improved towards the normal level at 20 days post treatment with florofenicol and gentamicin . The reversible increase of hematological parameters post treatment with both drugs were supported by **Hanafy** and **Eisa (2004)** they reported that treatment pneumonic cow-calve with florfenicol induce improvement of erythrogram and leukogram 2-3 week post treatment but Omran et.al.(2005) found that blood parameters of pneumonic calves were returned towards the values of the control group after 15 days post treatment with inthecurrentstudy : pneumonia gentamycin .

Caused changes in some biochemical parameters in serum of diseased lambs showed a significant increase in transaminases (AST and ALT) , GGT significantly increased but serum alkaline phosphates and lactic dehydragenase (LDH) did not show any change in lambs suffering from pneumonia . This results could be due to the degenerative and necrotic changes accompanied the damage of pulmonary tissue due to bacterial infection and its toxins **(Keneko , 1989)** . Our results agree with **Kodary** and **Abdalla (2001)** buffalo calves and sheep respectively **El-Sherbini, et.al.(1996)** reported that pneumonia induce non any change in alkaline phosphates in pneumonic buffalo-calves **Abdou , et.al. (1989)** , **Mokhbatly** and **Selim (1999)** , and **Hanafy** and **Eissa (2004)**.

Recorded that pneumonia induced insignificant change of lactic dehydrogenase (LHD) . Serum GGT show significant increase in the activity in lambs suffered from pneumonia . Same results were reported by , **Gharib (1989)** and **Mokhbatly** and **Selim (1999)** in buffalo and cow-calves . This enzyme is widely distrbuted allover the body cells and tissues Furthermore its increase reflects an active pathological process without referring to the site of affection .

Diseased lambs showed a significant decrease in totalproteins albumin globulin and non significant alteration in A/G ratio The above mentioned results were supported by previous studies **Kodary** and **Abdalla (2001) El-Seidy et.al.(2003)** in lamb and rabbit respectivcly The decrease in total protein albumin and globulin was described by **Selim et.al. (1997)** who recorded that the reduction in the proteinogram may be attributed to the state of anorexia and inability of the liver to synthesis protiens Moreover , bacterial toxins increased the capillsry permeability and permitted escape of plasma proteins into tissue resulting in hypoproteinemia **(Doxey 1971and Naser and El-Saed 1997)** . These results seem to agree with those reported Cornelius (1960) Who considered febrile diseases to be the most common reasons for hypoprotcinamia and hypo-

albumina Proteinogram returned to the normal level at 21 days post treatment with florfenicol or gentamycin . Our finding was in greement with those obtained by **Hanafy** and **Eissa (2004)** .

Concentrations of glucose level in the lambs suffering from pneumonia in our gained results were evident to show highly significant increase in comparison with apparentlyhealthy lambs . These results coincided with those obtained by **Mokhbatly** and **Selim (1999)** and **Abdalla** and **Emam (2005)** in calves and lambs respectively . **Coles (1986)** attributed the cause of hyperglycemia to aneroxia liver glcogen is unstable in the presence of deficient oxygen supply in preumonic calves.

Analysis of blood serum constituents of pneumonic lambs in this study revealed a significant increase in urea and creatinine. This increase in urea and creatinine may be attributed to increase protein catabolism and febrile respiratory disease impaired cardiac function and decrease renal blood flow which might occur in cases of pneumonia which tend to increase urea and creatinine levels **(Radostitis , et.al.1995)** . This finding fitted closely with those of **(Mokhbatly and Selim (1999)** and **El-Seidy , et.al.(2003)** in calves and rabbit respectively . Serum electolytes levels including calcium and sodium were (significant decrease in pneumonic lambs Decreased calcium was coupled with significant increase in phosphorous level in the pneumonic lambs the decreased calcuim level in serum may be due to the decreased of calcuim from damaged renal tubules **(Coles 1986)** and may be associated with hypoprotein aemia **(Kaneko 1997)**. Our results was inagreement with those obrained by **Osama et.al.(2000)** . Comparing the recovery rate from pneumonia by treating with florfenicol or gentamycin and with previously mentioned doses revealed that the cure rate was 100% at 4 and 6 days post treatment respectively . These finding were similar to that reported by **Hanafy and Eissa (2004)**.

Recovery from the disease was confirmed through the recorded after treatment with florfenicol, gentamycin and measured parameters .

It could be conculuded that florfenicol has a good efficacy in treatment of pneumonia in lambs than gentamycin .

Table (1) : Mean rectal temperature of diseased lambs before and after 10 days post treatment by with florfenicol (20 mg/kg. B.wt.) or gentmycin (5 mg/kg b,wt)

Temperature of diseased lambs											
Drugs	Pretreat ment	Days post traetment									
		1	2	3	4	5	6	7	8	9	10
Florfenicol	41.84±0.48	41.04±0.54	40.13±0 71	39.24±0.51	39 39±0 71	39.18±0 79	38.84±0 61	38.67±0.51	38.60±0.39	38.56±0.27	38.43±0.41
Gentamycin	41.53±0.56	41.17±0.52	41.93±0.45	39.84±0.47	39.73±0.06	39.37±0.53	38.98±0.73	38.75±0.19	38.93±0.78	38.60±0.51	38.63±0.39

Table (2) Bacteriological isolation causing pneumonia in lambs at Sharkia Governorate (N. = 24)

No.of tested Lambs	Pasteurlla multocida		E-coli		Staph. Aureus		Strept pyogen		Kelbsella pneumonae		p. multocida + E. col	
	a	b	a	b	a	b	a	b	a	b	a	b
24	7	29.17%	4	16.67%	3	12.50%	3	12.50%	2	8.34%	5	20.82%

A = No. of isolates b =Percentage of isolates

Table (3): Sensitivity tests of isolated organisms against different antimicrobial agent.

Antibiotic Discs	Disc concentration	pasteurlla multoicda	E. Coli	Staph. Aureus	Strep. Pyogen	Kelbsiella Pneumonae	Mixed infection
Florfenicol	30ug	—	—	-	—	-	—
Gentamycin	10ug	—	—	-	—	-	-
Ceftoifur sod.	10ug	- -	—	—	—	.	—
kanamycin	30ug	—	-	—	—	—	—
Erythromycin	15ug	-	.	—	—	-	-
Spectinomycin	10ug	—	.	—	-	.	-
Flumequine	30ug	-	-	-	-	-	-
Enrofloxacine	10ug	—	—	-	-	-	—

Table (4):- Effect of marbofloxacin (5mg/kg. b.wt.) or marbofloxacin (5mg/kg.b.wt) with isoflupredone acetate (0.2mg) kgb.wt.) on Haemogram of healthy and pneumonic lambs after I.M. injection for 5 consecutive days at 7, 14, and 21 days post injection

Parameter	Healthy lambs "control" (n=5)	Pretreatment (n=24)	Pneumonic lambs Post treatment (days Florfenicol (n=12)			Gentamycin (n=12)		
			5 days	10 days	20 days	5 days	10 days	20 days
RBcS (106/cm.m)	8 96±0 46	6 34±0 64**	6.73±0.35**	7 31±0 42*	8 51±0 52	6 43±0 52*	7 18±0 43*	8 49±0.32
Hb (gm/dls)	12 67±0.89	8 59±0 85**	9 45±0.82*	10 58±1.03	11.84±1.16	9 20±0 89*	10 38±0.92	11.62±0 69
P.C.V. %	37 95±1 37	29 78±1 95**	32 67±1 93*	34 83±1.73	36 35±1.34	31 87±1 93*	33 62±1 37*	35 89±1 87
W.B.Cs (103/cm.m)	10 95±0 37	12.47±0 34**	12 05±0 27*	11 87±0 57	10 45±0 62	12 24±0 13**	11 45±0 31	10 36±0 61
Lymphocyte (103/ cm.m)	4 12±0 47	2 46±0 34**	2 90±0 16*	3 52±0 19	3 96±0 32	2 74±0 25*	3 39±0 23	3 88±0 32
Neutrophils ((103/cm.m)	3.1±0 28	4 62±0 54*	4 39±0 24*	3 62±0 32	3 41±0 31	4 44±0 41*	3 75±0 11*	3.51±0 32
Monocyte (103/cm.m))	1 4±0 19	2 67±0 29**	2 10±0 34*	2 16±0 42	1 95±0 24	2 37±0 21**	2 21±0 23*	1 64±0 31
Eosinophils (103/ cm.m)	1 23±0 25	2 72±0 37**	2.66±0 21**	2 57±0 42*	1 11±0 12	2.69±0 36**	2 10±0 24*	1 33±0 23
Platelets (103/ cm.m)	379 94±14 73	318 94±12.65**	338 13±12 95*	359 41±19 34	371 98±13 65	331.12±13 54*	355 72±16 75*	368 76±17 84

**P < 0.01 *P < 0.05

Table (5) : Effect of florfenicol (20 mg/kg. b.wt.) or gentamycin (5 mg/kg b.wt.) on live enzyme of healthy and pneumonic lambs before and at 5.10 , and 20 days post treatment .

Parameter (n = 24)	Healthy lambs "Control" (n = 5)	Pretreatment Florfenicol (n = 12)			Pneumonic lambs post treatment (days) Gentamycin (n = 12)		
		5 days	10 days	20 days	5 days	10 days	20 days
Ast (U/L)	43.73±4.12	64.43±5.94**	57.89±3.43*	51.64±3.89	46.47±3.95	55.83±2.94*	49.84±2.32	45.92±2.83
ALT(U/L)	26.93±3.89	42.73±4.83*	38.94±4.73*	34.51±2.64	32.81±2.03	40.12±2.45*	37.93±2.41*	33.94±2.54
AlK.ph.(I.U/ml)	26.93±3.25	31.36±2.86	30.73±1.38	28.62±2.76	26.89±1.89	31.84±2.84	29.78±2.65	27.92±1.98
L.D.H.(U/L)	374.64±25.49	391.42±29.14	385.89±5.79	380.92±6.82	376.62±5.93	389.32±4.81	384.27±7.83	376.32±4.98
GGT(U/L)	12.56±1.43	18.65±1.47**	16.98±1.46*	15.73±1.95	14.94±1.63	18.94±1.06**	17.46±1.64*	14.89±1.79

* P< 0.05 ** P< 0.01

Table (6) : Effect of florfencol (20 mg/kg. b.wt.) or gentamycin (5 mg/kg b.wt) on some biochemcal parmeters of healthy and pneumonic lambs before and at 5 , 10 , and 20 days post treatment .

Parameter		Healthy lambs "Control" (n = 5) (n = 24)		Pretreatment Florfenicol (n = 12)			Pneumonic lambs post treatment (days) Gentamycin (n = 12)		
				5 days	10 days	20 days	5 days	10 days	20 days
Glucos	(mg/dl)	88.90±3.29	101.34±2.01**	97.32±2.11*	90.31±2.13	87.43±2.62	98.42±2.14*	95.21±3.16	90.32±2.76
Urea	(mg/dL)	20.72±2.30	32.9±2.91**	30.12±1.56**	25.61±1.82	21.98±1.82	29.61±1.52**	26.78±1.12*	23.96±1.59
Creatinine	(mg/dL)	2.06±0.31	4.02±0.61**	3.73±0.56*	3.09±0.52	2.30±0.36	3.91±0.44**	3.23±0.34*	2.42±0.42
Calcuim	(mg/dl)	10.24±0.65	7.34±0.52**	8.38±0.32*	9.45±0.72	10.21±0.52	8.12±0.51*	9.38±0.43	10.13±0.369
Phosphorus	(mg/dl)	6.32±0.52	9.34±0.83**	8.45±0.61*	7.52±0.42	6.40±0.52	8.66±0.46**	7.55±0.43	6.32±0.56
Sodium	(mEq/l)	146.14±6.03	116.84±6.67**	125.94±5.09*	134.72±4.92	143.63±5.97	121.59±4.91**	130.46±4.58*	141.73±6.38
Potassium	(mEq/l)	5.48±0.72	4.21±0.24	4.53±0.42	7.93±0.41	5.32±0.36	4.43±0.51	4.87±0.57	5.25±0.39

* P< 0.05 ** P< 0.01

Table (7) : Effect of florfenicol (20 mg/kg. b.wt.) or gentamycin (5 mg/kg b.wt.) on protienogram of healthy and pneumonic lambs before and at 5.10 , and 20 days post treatment .

Parameter		Healthy lambs "Control" (n = 24) (n = 5)		Pretreatment Florfenicol (n = 12)			Pneumonic lambs post treatment (days) Gentamycin (n = 12)		
				5 days	10 days	20 days	5 days	10 days	20 days
T.P.	(gm/dl)	7.79±0.29	5.84±0.80*	6.68±0.42*	7.11±0.48	7.15±0.68	4.87±0.78**	5.64±0.90*	7.47±0.96
Aib.	(gm/di)	3.40±0.28	2.10±0.37**	3.15±0.15	3.32±0.27	3.30±0.28	2.49±0.25*	2.78±0.10*	3.48±0.17
T.GLOB	(GM/ Di)	4.39±0.24	3.74±0.15*	3.53±0.19*	3.79±0.57	3.85±0.31	2.38±0.55**	2.86±0.52*	3.99±0.89
A/G ratio		0.77±0.09	0.56±0.06	0.89±0.15	0.88±0.14	0.86±0.17	1.05±0.0.18	0.97±0.+0.14	0.89±0.16

* P< 0.05 ** P< 0.01

Table (8) : Effect of treatment with florfenicol (20 mg/kg. b.wt.) or gentamycin (5 mg/kg b.wt.) to Pneumonic lambs .

Drugs	Total number	3 days post treatment		4 days post treatment		6 days post treatment	
	Of lambs	Number of cured lambs	Percent	Number of cured lambs	Percent	Number of cured lambs	Percent
florfenicol	12	6	50%	12	100%	-	-
Gentamycin	12	5	41.67%	9	75%	12	100%

REFERENCES

Abdalla O. E. and Emam E. E. (2005) : Evaluation of marbofloxacin and isoprinosine acetate as a therapy of pneumonia associated with pasteurella multocida in lambs 4th Scentific Confer of Faculity of vet Med Mansoura university 283-301 .

Abdou,O.M.; Hussein , M,;Kamel F.M. and Deghedy , N.S.(1989) : studies of some enzymes changes in calves suffering from bronchopneuminia enteritis and omphalophelebitis Alex .. vet.Sci., 5 (2) 721-728 .

Callan R.J.; Gunch , T.D,; Workman , G.W.and Mock R.E. (1991) : development of pneumonia in desert bighorn sheep after exposure to a flock of exotic wild and domestic sheep J.Am Vet. Ned. Assoc ., 198(6) :1052-1055.

Choudhury D., and Ahmed Z. (1997) : Drug – induced nephrotoxicity . Med Clin North . Am. 81:705-717

Coles , E.H. (1986) : Veterinary Clinical Pathology . 4th Ed., W.B. Saunders Company philadelphia . London Teronto Mexicocity Sydney Tokyo , Hong Knog .

Cornelius, C.E. (1960) : Serum proteins in veterinary clinical diagnosis Western Vet (7) 77

Doxey , D. (1971) : Veterinary Clinical pathology . 1st .Ed. Bailliere tindal London

El-Bealawy , M.A. (2003) : Haematological and biochemical studies on pneumonia in new born calves Egypt .J.A. Agric . Res. , 81(1) : 2003.

El-Hamamy , M.M.; El-Boushy , E.M. and Fetaih , A.H. (1999) : Some studies on newly born calves problems with relationship to their immune status . Suez Canal Vet. Med. J. 11 (2) : 289-308 .

El-Rawy , Eman , M.and Gorgi , Suzan , F.(2001) : Comparison of different typing systems used for identification of pasteurella multocida isolated from sheep in Egypt Vet. Med. Assoc 61(2) : 209-217.

El-Sayed R.; Nafie , T.and El-Meligy , A. (1992) : Some investigation on an outbreak of enzootic bronchopneumonia among fattening buffalo-calves Assiut Vet. Med. J 27 (52) 175-187 .

El.Seidy , I.A.; Koratum , Kh M.and Rafaat , M. (2003) : Therapeutic effect of florfenicol against respiratory infection in sheep Egypt . J. Comp an d Clinic pati. 6(10) 30-42.

El-Sherbini , M.; Youssef , M., and Rizk L.G.(1996) : Respiratory affection in buffalo-calves : biochemical changes and treatment . 7th Sci. Cong. Fac. Vet. Med. Assiut Univ. 547-558 .

Fawcett ,. J.K. and Scott, J.E. (1960) : Determination of urea . J. Clin. Path. 13: 156 .

Gharib H.E. (1989) : Studies of enzymatic changes in blood of newly born calves and their relation to age and some common diseases M.V.Sc. Thesis , Fac. Vet. Med. Cairo Univ.

Gilmour N.T. and Angus , K.W. (1993) : Pasteurellosis In: Diseases of Sheep ; Black well Scientific Publications , Oxiford 3-8.

Gindler , E. and Health, D.(1971) : Determination of serum magnesium clin. Chem. (17)662.

Gindler E.M. and King , J.O. (1972) : Rapid colorimetric determination of calcium in biological fluids with methl-thymol blue . Am .J. Clin Path. (4)372-382.

Goldenberg. H. (1966) : Determination of scrum inorganic phosphorus clin Chent. (12)571 .

Grant G.H.; Sliverman , L.M. and Christenson R.H. (1987) : " Amino acide and proteins in: Fundamental of clinical Chemistry 3rd Ed ., Pp 291-345 N.W. Titez philadelphia . W.B. Saunders Company .

Green wood D.(1978) : Activity of flumquine against E.Coli in vitro comparson with nalidixic acid and oxalnic acid ant. Microb agent and cremoth (13) 479-483.

Hamdy , A.A.H. (1959) : Observation on respiratory diseases agents in lambs .Dissertation Ohio 124. Cited from Nagy (1976)

Hanafy Shahira M.H. and Eisa A.M.A. (2004) : Afield trial for traetment of pneumonia caused by pasteurella spp. In cow calves using new antibiotic florfenicol (Nuflor) Pro. The 1st Conf. Vet. Div. NRC Cairo Egypt . 60-73.

Henry R.J; Harper R. and Hagerstein (1974) : Clinical Chemistry Principle and Techniques, 2nd Ed.

Holt , J.G. ; Krieg , N.R.; Smeadb P.H. ; Staley J.T. and Williams S.T. (1994) : Bergey's Manual of Determinative Bacteriology. 9th Ed Wilkins Co.; Baltimore

Husdan H. and Raporpot A. (1968) : Estimation of creatinine. Clin. Chem (14)222 .

Ibrahim , I.A. ; El-Ghannam M.A. ; Youssef S. M.; El-Magawry S. M. and Dowider M. F. (1988) : Some biochemical and bacteriological alterations associated with transported pneumonic ftiesian calves Alex. J. Vet. Med. Sci. 4 (1) : 523-532 .

John , D.B. (1982) : Clinical Lab . Method for Determination of Alkaline Phosphates 9th. Ed 580-581

Kaneko , J.J. : John , H.W. and Michael , B.L. (1997) : Clinical biochemistry of domestic animals 5th Ed . Academic press , San Digo . London . Tokyo and Toronto .

Karlowsky J.A., Zelenitsk Y.S.A and Zhanel , G.G. (1995) : Aminoglycoside adaptive resistance pharmacotherapy 17:549-55 .

Keneko,.J. (1989) : Clinical Biochemisty of Domestic Animal Academic Press Inc., New York , London .

Kodary , R.M. and Abdalla , O.E. (2001) : Evaluation of tilmicosin as a treatment for pneumonia caused by pasteurella mltocida in ewes . Beni - Suef Vet Med , J.11 (28) 453-463

Leukeux , P.J.: Vorhoeff , R.,: Hazer,R. and Bieukink,M.J.(1985) : " Respiratory syncytial virus pneumonia in Friesian calves physiological findings . " Ret.vet. Sci. , 39(3) : 324 .

Madelant , A.(1982) : Allotment and dose calculation from Schering Plaugh Animal Health clinical Research Study no . 1320C-20-V94-211

Marshall . S.A.,Jones , R.N.and Wagner , A. (1996) : Proposed MIC quality control guidelines for National Committee for clinical laboratory studards susceptible tet using severe veterinary antimicrobial agent Ceftoifur Enrofloxacine Florfenicol , permafloxacine and Spectinomycin .J.Clin Merobial , 34(8) 2027-2029

Mequeen , M.J. (1972) : Determination of serum lactate dehydrogenClin Chem 18:275.

Mokhbatly , A.A. and selim , G.A. (1999) : some hematological and bacteriological studies on pneumonic calves at Sharkia Province . Egypt Comp path & Clin path Vol. 12 No.2 (October)

Morad , M; El-Amrousi, S. ; Barakat , A.and El.Allawy , T. (1980) : Experimental studies of som strains of P. multocida from different animals Assiut Vet . Med . J . (7)342-350

Naser , M.H.and El-Sayed , R.F. (1997) : Clinical biochemical and bacteriologic studies on pneumonic buffalo - calves with trials for treatment J. Egypt Vet. Med. Ass. (57) 569-588.

Novert, M.H. (2004) : Bacteriological and mycoplasmal studies on lung infections in newly born calves . J. Egypt Vet . Med Ass . 62 , 4 : 189-194.

Omran , H.; Anwaar , M.A.and Kadry , M. (2005) : Some hematological and biochemical alterations associating clinical pneumonia in friesian calves with trials ol treatment 4th Scientific Confer . of Faculity of vet Med . mansoura university 1515-1525

Osama , A.A ; Mohamoud , M.El.and Ramadan , T.M. (2000) : Some hematological biochemical alterations on pneumonia and enteritis of neonatal calves . 5th Vet . Med. Zag. Conf. 6673 .

Petrie , A. and Watson , P. (1999) : Statistics for Veterinary and Animal Science 1st Ed 90-99 ,

The Blackwell Science LTd , United Kingdom.

Plain, J.E; Lennete , E.H. and Truand , T.P. (1970) : Manual of Clinical Microbiology Am Socicity for Microbiology Betechesda USA.

Radostitis , O.M.: Blood , K.C. and Day , C.C (1995) : Veterimary Medicine 9th Ed Baillierc Tindall

Radostits , O.M. ; Blood , D.C. and Gay , C.C. (2002) : Veterinary Medicine 10th Ed Bailliere Tindal .

Reitman , S. and Frankel ,S (1957) : Acolorimetric method for determination of serum glutamic oxalacetic and glutamic pyruvic transaminase Am J. Clin Path , (28)56-60 .

Selim , A.M.; Zaki M.; Abaza , F. and mouse , glutamic pyruvic transaminase Am J. Clin Path , (28)56-60 .

Selim , A.M.; Zaki M.; Abaza , F. and mouse , H. (1997) : Calf mortality , incidence rate causes clinical and laboratory investigation at 6 October Military Farm Nobaria . Zagazig Vet . J., 25-25-35.

Sharma , R. and Woldeh , Z. (1995) : Immune responses of lambs experimentally infected with bovine pasteurella haemoldytica . J.Comp . Path 105 : 157-166 .

Soroor , F.E. (1999) : Comparative histopathological studies on the lung affections of small ruminants at Sharkia Province . M.V. Sc. Fac. Vet. Med. Zag. Univ.

Swartz M.N.(1997) : Use of antimicrobial agents and drug resistance N.Engl. J. Med 337 :491-2 .

Syriopolou , V.P., Harding , A.L. and Goldman , A.D. (1981) : In viro antibacterial activity of florfenicol angalogs of chloramphenicol and thiomphenicol Antimicrob . Agent Chemother . 19:294-29 .

Szasz , G. (1969) : Quqntitative determination of glutamyl trasferase (GGT) in serum or plasma . Clin. Chem . 22,124-139 .

Tobin T.(1979): Pharmacology review : Streptomycin , gentaminic , and the aminoglycoside antibiotics J. Equine Med . Sure 3 : 206-212

Trinder , P. (1969) : Enzymatic determination of glucose Ann Clin. Biochem 6 : 24-28 .

Verma , K.J., Adams , P.E.; Puser , T.E.; Puser , J.D. and Lamendoholas , J.F.(1686) : Pharmacokinitic of florfenicol in veal valves Annu .Rev . Pharmacol . Thera .,9:412-2976.

Willson , S.H.; Chruch , T.L. and Acres , A.A. (1985) : The influence of feedlot management on

an outbreak of bovine respiratory disease Canadian , Vet . J.26,335-341.

Woldehiwet , Z.; Mamache . B.and Rowan , T. G. (1995) : The effects of age , enviromental temperture and relative humidity on the bacterial flora of the upper respiratory tract in calvesBr. Vet. J.(146)211-218.

Youssef , M.A. ; Wafaa , M.; aaaaaaael-Sadawy , H.A, and Selim , A.M. (1992) : Clinical and laboratory studies on an outbreak of bacterial respiratory troubles in buffalo – calves Egypt Proc . 5th Sci. Cong. Fac. Vet. Med. Assiut University , 92-103.

الملخص العربى

دراســة على بعض المشاهـدات الإكلينيكية الدمويـة والبيوكيميائيــة لحـالات الالتهابــات الرئويــة فى الحمــلان مع محاولـة العـلاج

إيهاب محمد حسين طـــارق عـــلام السـيد مسعود

معهـــد بحـــوث صحـــة الحيـــوان (معمـــل الزقازيـــق)

تم إجراء هذا البحث على ٢٩ حمل (٣٠-٤٠ كجم) بمزرعة خاصة بمحافظة الشرقية ، اشتملت على عدد ٥ حملان سليمة إكلينكياً وكذلك ٢٤ حمل تعانى من التهابات رئوية مصحوبة بارتفاع درجة حرارتها أعلى من ٤٠,٥م ، قسمت الحملان التى تعانى من الالتهاب الرئوى الى مجموعتين الثانية والثالثة مصابة وتعالج بالجرعة العلاجية من الفلوروفينكول (٢٠ ملجم/كجم من وزن الجسم) بجرعتين الفرق بينها ٤٨ ساعة ، والجنتاميسين٥ ملجم/ كجم من وزن الجسم) لمدة خمس أيام على التوالى .

تم اخذ عينتين دم من كل حيوان الأولى على هيبارين وذلك لدارسة التأثير على صورة الدم والأخرى لفصل المصل وذلك لدارسة التأثير على بعض الوظائف البيوكيميائية .

وقد تم عزل الميكروبات باستريلاملتوسيدا بنسبة ٢٩,١٧ ، الميكروبات القولونى العصوى بنسبة ١٦,٦٧ استربتوكوكس بيوجين بنسبة ١٢,٥٠ استافيلوكوكس اريس بنسبة ١٢,٥٠ ، كليسيلا نونى بنسبة ٨,٣٧ وعدوى مشتركة (الميكروب العصوى مع باستريلاملتوسيدا) بنسبة ٢٠,٨٢ .

ويعمل اختبار الحساسية لهذه المعزولات وجد ان الفلورفينكول والجنتاميسين الانروفلوكساكين اكثر المضادات الحيوية تأثيراً على هذه المعزولات وقد أدى استخدام الفلوروفينكول والجنتاميسين الى السيطرة بنجاح على هذه المشاكل المرضية

بعد أسبوع من العلاج لم يتم عزل اى ميكروب من الدم واختفت أعراض الالتهابات الرئوية من الحملان المريضة وعادت درجة حرارتها لوضعها الطبيعى واستعادت علامات الصحة وكان لعقار الفلوروفينكول الافضلية عن عقار الجنتاميسين .

يتبين لنا من تلك الدراسة ان الالتهابات الرئوية أحدثت بعض التغيرات فى صورة الدم وبعض الوظائف البيوكيميائية وتشير النتائج ان الالتهابات الرئوية أدت إلى حدوث نقص معنوى فى عدد كرات الدم الحمراء ، تركيز الهيموجلوبين ، حجم الخلايا المضغوطة ، الخلايا الليمفاوية والصفائح الدموية وزيادة معنوية فى كرات الدم البيضاء ، الخلايا المتعادلة ، الخلايا الحمضية و الخلايا الملتهمة الكبيرة .

كذلك تشير النتائج ان الالتهابات الرئوية ادت الى حدوث زيادة معنوية فى الترانيس امينيزسس (**AST-Alt**) جاما امينو ترانس امينيز (**ggt**) مستوى الجليكوز فى السيرم ، اليوريا ، الكرياتينين الفوسفور وزيادة غير معنوية فى مستوى انزيمى الفوسفاتيز القاعدى والكتك ديهيدروجينيز (**LDH**) والماغنيسوم كما ان الالتهابات الرئوية ادت الى نقص معنوى فى البروتين الكلى ، الزلال ، الجلوبيولين الكلى ، الصوديوم والبوتاسيوم وهذا النقص استمر لمدة اسبوعين بعد ايقاف .

مما تقدم يتضح ان استخدام الفلوروفينكول والجنتاميسين ادى الى السيطرة على مشاكل الالتهابات الرئوية وادت الى عودة وظائف الكبد والكلى وصورة الدم لوضعها الطبيعى .