PATHOLOGICAL AND BACTERIOLOGICAL STUDIES ON DIARRHEA IN NEWLY BORN RABBITS AT SHARKIA PROVINCE

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ABSTRACT

In this work a total 150 rabbits (100 dead, 30 diseased and 20 apparently healthy) were obtained from private farms in Sharkia province. The clinical signs of diseased rabbits were emaciation watery mucoid diarrhea and respiratory signs with mortality reached 70% in natural infection P.M. examination revealed congestion and edema of the intestine beside congestion in all internal organs.

The bacteriological examination showed 97(64.71%) positive bacterial isolation of which 49 single isolate and 48 mixed infection which were tabulated in table 1.2.3.4.5 the predomnart isolates were E.coli 26 (26.81%) and P.multocida 19.52%. The Pathogenicity test was done for rabbits infected with E.coli as showed in table (6). The most isolated bacteria were highly sensitive to enroflaxocine and gentamycin.

Histopathological examination in infected animals with E.coli The intestine revealed congestion of submucosal blood vessels, mucinous degeneration with leukocytic infiltration of intestinal epi-thelium. The lung showed congestion and thrombus in pulmonary blood vessels beside serofibrinous exudates with leukocytic infiltration. Moreover vacuolation of hepatocyts and congestion of hepatic blood vessels were observed. In Pasteurella multocida infected animals revealed haemorrhages, broncho pneumonia, and interstitial pneumonia containing neutrophils. Vacuolation of hepatocyts, sub epithelial edema of glomerular epithelium; cystic dilatation, and hyaline cast in renal tubules were observed. Intestine showed leukocytes of the villus epithelium. congestion and haemorrhages in heart were observed

It could be concluded that good management, hygienic measure, balanced ration and antibiotics for prevention and control of diarrhea in newly born rabbits must be done.
INTRODUCTION

Rabbits meet contain a high percentage of protein which increase the value of rabbits. The rabbits have a better feed conversion rate and have productivity of meat and fur. Tylor (1980) Heavy loss among rabbits in Sharkia Province has been recorded in the last decade which reached 100% and may be threaten the rabbits industry Amal et al., (2006). Bacterial agents were recorded accompanying by sudden death in rabbits or an outbreak of bloody diarrhea and sudden death Garcia et al., (2002). E.coli was isolated from acute death syndrome among neonatal and weaning rabbits with mortalities Fetaih (1985) and Okerman (1994). Mortality rate reach up to 70%-78% with sudden death by Pasteurella multocida was isolated from those effected rabbits as reported by Mahmoud and El-Mashad (1991). Peracute Salmonellosis with mortalities reached to 40% recorded by David and Patrick (1994). The septicemic form of Staphylococcus aureus infecation resulted in peracute in young rabbits and death is so rapid that few lesion are observed Patton et al., (2000). Other bacterial agents as Streptococcus species and Pseudomoneus species were also isolated in mixed infections from rabbits suffering from septicemic syndrome Hagen (1963).

This work was carried out to identify the etiological agents of diarrhea and death in newly born rabbits, susceptibility of bacterial isolates to chemotherapeutic agents beside to recording the pathological changes associated with these agents.

MATERIALS & METHODS

Animals: a total 150 rabbits (100 freshly dead, 30 diseased and 20 apparently healthy rabbits) of different breads at age ranged from 1 day up to 3 weeks, were collected from different private farms during July to October 2007 in Sharkia province. Specimens were liver, heart, blood, kidney, intestine and collected from diseased and freshly dead rabbits with gross lesions e.g. congestion and edematous intestine with watery mucoid contents beside congestion of all internal organs while cecal swabs were taken from apparently healthy

Bacteriological examination:

All samples were inoculated into tubes of nutrient broth, Selenite F broth and incubated aerobically at 370c over night followed by sub culturing on nutrient agar and MacConkey, agar plates for 24-48 hours at 370c. The suspected colonies were identified according to Cruickshank et al., (1975) and
Finegold and Martin (1982), the pure colonies were identified biochemicals according to Koneman et al., (1994). Pathogenicity and virulence of some isolated strains of Pasteurella (p) to mice were determined according to Wilson and Milies (1975).

Serological identification of E.coli:

This carried out according Hallmønn and Barkhardt (1974); slide agglutination was done for the demonstration of surface antigen, first using polyvalent antisera then for further identification monospecific antisera

Serological identification of Pasteurella organisms:

was carried out after Carter (1963) for capsular typing with indirect haemagglutination test and somatic typing was carried out after Hewedleston et al., (1972) using gel defension precipitation test

Pathogenicity test: A total number of 10 Newzeland rabbits one month age, body weight 300-500 gm were obtained from private farms these rabbits were examined bacteriological and parasitological and were provid to be free. The rabbits were given chloramphenicol and erythromycin in drinking water at dose of 1 gm/liter for 3 days to inhibit the natural E.coli infection. The rabbits were divided into 2 equal groups. The first group was inoculated Intraperitoneum with isolated E.coli at dose of 0.5ml (1ml containing (12x108 ml) according to Read and muench (1938). The second group was kept as control. All rabbits were kept under observation for recording the clinical signs, mortalities and postmortem lesions; moreover the specimens from fecal and internal organs were collected for reisolation of microorganisms and histopathological examination.

Antibiotic sensitivity test:

The susceptibility of the most predominant pathogenic isolates to different chemotherapeutic agents was tested by the disc diffusion methods described by Finegold and Martin (1982).

Histopathological examination:

Specimens from intestine, liver, lung, kidney, heart, and brain were collected from diseased and freshly dead rabbits, and then fixed in 10% neutral buffered formalin solution, paraffin sections at 5 microns thickness were prepared and stained with haematoxilin and eosin (H&E). Bancroft et al., (1990) and examined microscopically.

RESULTS

The Bacteriological studies: were tabulated in tables 1,2,3,4 and 5

The Pathogenicity test: The groups, number of rabbits, route of infection dose of microorganisms inoculation
per rabbit and mortalities as shown in table (6).

The Antibiotic sensitivity test: The isolated *E.coli* and other m.o. were tested for sensitivity to antibiotics as shown in table (7).

The Pathological studies: The clinical signs revealed, depression, off food, emaciation profuse watery mucoid diarrhea and sudden death, respiratory signs mainly sneezing and nasal discharges were observed. The mortality rate reached to 70% in natural infection.

The postmortem lesions: were congested and edematous intestine with watery contents, beside congestion in all internal organs.

The Histopathological results: The most predominant lesions were seen in the cases from which *E.coli* and *Pasteurella multosida* were isolated.

*E.coli infection:*

Intestine showed congestion of submucosal blood vessels and mucinous degeneration with leukocytic infiltration in the submucosa Fig (1&2). Mucinous degeneration and infiltration of the submucosa with leukocytes were seen Fig. (3), aggregation and infiltration of the leukocytes mainly lymphocytes and macrophages in the intestinal epithelium were observed Fig (4). Lung revealed congestion of pulmonary blood vessels, infiltration with serofibrinous exudates and leukocytes Fig (5). Hypertrophy of tunica media of pulmonary blood vessel, with recent thrombus and haemorrhages, were observed Fig (6). Liver showed congestion of hepatic blood vessels, portal leukocytic infiltration and vacuolation of hepatocytes Fig (7). The pathological lesions were similar in natural and experimental infection with *E.coli*.

*Pasteurella multocida infection:*

Lung showed congestion of pulmonary blood vessels, interstitial haemorrhages and leukocytic infiltration mainly lymphocytes, and macrophages Fig (8). Degeneration and desquamation of the bronchial epithelium with leukocytic infiltration were seen Fig (9). Pneumonia containing neutrophils and few lymphocytes and macrophages were seen Fig (10). Moreover complet replacement of the pulmonary tissue with broncho pneumonia containing neutrophils and interstitial haemorrhages were seen Fig (11). Liver revealed congestion of hepatic blood vessels, perivascular infiltration and aggregation of leukocytes and vacuolation of hepatocytes Fig (12). Kidney showed subepithelial edema of glomeruli, degenerative change of some renal tubules and hyaline cast in others Fig (13). Interstitial edema and cystic
dilatation with hyaline cast in some renal tubules were seen Fig (14). Intestine Showed inveded of the villus epithelium with leukocytic cells mainly lymphocytes, macrophages and neutrophils Fig (15). Heart Showed congestion of cardiac blood vessels accompanied with intermuscular haemorrhages Fig (16).

Table (1): Bacteriogical examination of rabbit.

<table>
<thead>
<tr>
<th>Source of samples</th>
<th>Total No. of sample</th>
<th>Positive samples</th>
<th>Single isolates</th>
<th>Mixed isolates</th>
<th>Total No. of isolates</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>Apparently Healthy</td>
<td>20</td>
<td>9</td>
<td>45</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>Diseased rabbits</td>
<td>30</td>
<td>20</td>
<td>66.6</td>
<td>8</td>
<td>26.6</td>
</tr>
<tr>
<td>Dead rabbits</td>
<td>100</td>
<td>68</td>
<td>68</td>
<td>32</td>
<td>32</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td>97</td>
<td>64.71</td>
<td>49</td>
<td>50.52</td>
</tr>
</tbody>
</table>

No. = number  % = Percentage

Table (2): Incidence of bacteria isolated from examined rabbits.

<table>
<thead>
<tr>
<th></th>
<th>Apparently Healthy 9</th>
<th>Diseased rabbits 20</th>
<th>Freshly dead rabbits 68</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td><em>E. coli</em></td>
<td>2</td>
<td>22.22</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>O119</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td><em>P. multocida TypeD1</em></td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td><em>Salmonella</em></td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td><em>Streptococcus pyogen</em></td>
<td>2</td>
<td>22.22</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td><em>Staphylococcus aureus</em></td>
<td>4</td>
<td>44.44</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td><em>Pseudomonus aeruginosa</em></td>
<td>1</td>
<td>11.12</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>9</td>
<td>100.0</td>
<td>20</td>
<td>100</td>
</tr>
</tbody>
</table>

No. = number  %=percentage
Table (3): Frequency distribution of isolated bacteria from examined diseased rabbits

<table>
<thead>
<tr>
<th>Bacteria isolates</th>
<th>Single infection (8)</th>
<th>Mixed infection (12)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>E.coli 32119+10125</td>
<td>3</td>
<td>37.5</td>
</tr>
<tr>
<td>P.multocida TypeD1</td>
<td>2</td>
<td>25</td>
</tr>
<tr>
<td>Salmonella</td>
<td>2</td>
<td>25</td>
</tr>
<tr>
<td>Strept. pyogen</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Staph. Aureus</td>
<td>1</td>
<td>12.5</td>
</tr>
<tr>
<td>Ps.aeruginosa</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>8</td>
<td>100</td>
</tr>
</tbody>
</table>

No. = number  
Ps = pseudomonus  
Strept. = streptococcus  
Staph. = staphylococcus  
P = Pasteurella

Table (4): Frequency distribution of isolated bacteria from freshly dead rabbits.

<table>
<thead>
<tr>
<th>Bacteria isolates</th>
<th>Single infection (32)</th>
<th>Mixed infection (36)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>E.coli</td>
<td>10</td>
<td>31.3</td>
</tr>
<tr>
<td>P.multocida TypeD1</td>
<td>8</td>
<td>25</td>
</tr>
<tr>
<td>Salmonella</td>
<td>6</td>
<td>18.7</td>
</tr>
<tr>
<td>Strept. pyogen</td>
<td>2</td>
<td>6.3</td>
</tr>
<tr>
<td>Staph. aureus</td>
<td>5</td>
<td>15.6</td>
</tr>
<tr>
<td>Ps.auregenousa</td>
<td>1</td>
<td>3.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>32</td>
<td>100</td>
</tr>
</tbody>
</table>

No. = number  
% = percentage  
P = Pasteurella  
Strept. = streptococcus  
Staph. = staphylococcus  
Ps = pseudomonus
Table (5): Serotypes of E. coli isolated.

<table>
<thead>
<tr>
<th>Serotypes</th>
<th>O119</th>
<th>O124</th>
<th>O125</th>
<th>O126</th>
<th>O128</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>4</td>
<td>6</td>
<td>5</td>
<td>5</td>
<td>6</td>
<td>26</td>
</tr>
</tbody>
</table>

Table (6): The Pathogenicity test: showing rabbit groups, number of rabbits, route of infection dose of m.o. (E.coli) inoculated per rabbits and period of their surviving before death or sacrificing after infection.

<table>
<thead>
<tr>
<th>Period of surviving before death or sacrificing after infection</th>
<th>Dose of inoculation per rabbits</th>
<th>Route of infection</th>
<th>No. of rabbits</th>
<th>Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total 14 day 12 day 10 day 8 day 6 day 4 day 1 day</td>
<td>0.5ml (each 1ml containing (12x108)ml)</td>
<td>Intraperitoneum</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>L D L D L D L D L D L D L D L D</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 2 3 0 3 0 3 0 3 0 3 0 3 0 3 1 4 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- -----</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

D= Dead    L=live
Table (7): Sensitivity test for bacteria isolates from examined samples of newly born rabbits.

<table>
<thead>
<tr>
<th>Bacteria isolated</th>
<th>Antibiotic disc</th>
<th>E.coli</th>
<th>Salmonella</th>
<th>P.Multocida</th>
<th>Strept. pyogen</th>
<th>Staph. aureus</th>
<th>Ps. aurgenosa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enerofloxacine 5ug</td>
<td>+++</td>
<td>+++</td>
<td>+++</td>
<td>++</td>
<td>+++</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>Gentamycin 10ug</td>
<td>+++</td>
<td>+++</td>
<td>+++</td>
<td>++</td>
<td>+++</td>
<td>+++</td>
<td>+++</td>
</tr>
<tr>
<td>Oxytetracycline 10ug</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>+++</td>
<td>++</td>
<td>++</td>
<td>+++</td>
</tr>
<tr>
<td>Chloromphincol 5ug</td>
<td>++</td>
<td>+++</td>
<td>+</td>
<td>+++</td>
<td>++</td>
<td>++</td>
<td>+++</td>
</tr>
<tr>
<td>Trimethoprim sulphonemethaxazol</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td></td>
</tr>
<tr>
<td>Amoxycillin 20ug</td>
<td>-R</td>
<td>R</td>
<td>R</td>
<td>++</td>
<td>R</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>Penicillin</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td>R</td>
</tr>
</tbody>
</table>

+++ = high sensitive  ++ = sensitive  R = resistance

DISCUSSION

The rabbit production in recent years in Egypt is accompanied by several problems. The major causes of mortality in rabbits were gastroenteritis, respiratory infection and pneumatic enteritis *Rai, et al., (1985)* and *Okerman (1987)*. It was found that 150 cases of examined rabbits 97 (64.71%) revealed bacterial infection from which 49(50.52%) yielded a single pure isolate and 48 (49.48%) yielded a mixed bacterial isolates (Table1) these results are nearly similar with those reported by *Hatab and Moustafa (2007)*. Bacteriological examination of samples revealed that isolated bacterial pathogens were, *E.coli* 26(26.80%), *P.multocida* type D1 19(19.58%), *Salmonella* 14 (14.43%), *Streptococcus pyogen* 15 (15.47%), *Staphylococcus aureus* 19 (19.58%) and *Pseudomonus auregenosa* 4 (4.13%) These results nearly similar pathogens were isolated by *Marlier et al., (2003)*, and *Hatab & Moustafa (2007)* from table (2) the *E.coli* was the most frequent isolates (26.80%) which considered the main causes of diarrhea and mortality in newly born rabbits. From table (5) its clear that *E.coli* could be identified serologically into 5 serovars O126, O124, O125, O128 and O119 , most *E. coli* serovars isolated from apparently healthy, diseased and dead newly born rabbits were agreements with those recorded by *Pecters et al (1984)*, *Ibrahim , (1985)*, *Percy et al (1993)*, *Hatab and Moustafa(2007)*. *Pasteurellosis* is the one of the most important bacterial disease which effect rabbits as it cause severe economic losses in most parts of world through both high morbidity and mortality, the results achieved from diseased and dead rabbits with an incidence 25%, 20.59% respectively and could not be detected in apparently healthy rabbits nearly similar results were reported by *Okerman (1987)*, *Abd-El-Azeem (1995)* and *Hatab and Moustafa (2007)*.

The Pathogenicity test in this work revealed the same results that recorded by *El-Attar (1985)*, *Fahmy et al., (1985)*, *Ali (1995)* and *Rashed (2000)*. In vitro sensitivity testing of isolates revealed that in most isolates were highly sensitive to Enerofloxacine and Gentamycine, moderate sensitive to oxytetracycline, Chloromphinicol and Trimethoprim sulphamethaxazol and resistance to Amoxycilline and Penicillin in table (6) nearly similar results were reported by *Hatab and Abd El-Latif (2006).*

The clinical signs were depression, off food, emaciation, watery mucoid diarrhea and death. Moreover respiratory signs were observed.

The postmortem lesions in this study revealed congestion and edematous of the intestine with watery content beside congestion in all internal organs. The similar results were recorded by El.Attar (1985), Fahmy et al (1985), Rashed (2000), Moursi et al (2002), Fathy (2004) and Hatab and Moustafa (2007).

The Histopathological examination: in E.coli infection in this work. The Intestine showed congestion of submucosal blood vessels, mucinous degeneration of intestinal epithelium with leukocytic infiltration mainly lymphocytes and macrophages. The Lung revealed congestion of pulmonary blood vessels, thrombus. Haemorrhages and serofibrinous exudates with leukocytic infiltration were observed. The Liver revealed congestion of hepatic blood vessels with portal leukocytic infiltration and vacuolation of hepatocytes. The Kidney revealed subepithelial edema of glomeruli, degenerative changes of some renal tubules, cystic dilatation and hyaline cast in others. The intestine showed invaded of villus epithelium with leukocytes. The Heart revealed congestion of cardiac blood vessels and intermuscular haemorrhages.


Severe diarrhea in rabbits accompanied the E.coli infection could be attributed to the effect of enterotoxin of E.coli on enzyme (adenylcyctase of enterocyts) which responsible for fluid uptake. Moreover necrosis of intestinal epithelial cells could be attributed to the attachment of coli form bacilli to this epithelium.

Pasteurella multocida infection in this work The lung revealed congestion of pulmonary blood vessels, interstitial haemorrhages, leukocytic infiltration, bronchopneumonia containing neutrophils and interstitial pneumonia. The Liver showed congestion of hepatic blood vessels, perivascular leukocytic infiltration and aggregation beside vacuolation of hepatocytes. The Kidney revealed subepithelial edema of glomeruli, degenerative changes of some renal tubules, cystic dilatation and hyaline cast in others. The intestine showed invaded of villus epithelium with leukocytes. The Heart revealed congestion of cardiac blood vessels and intermuscular haemorrhages.

The pathological alteration in internal organs in this work could be attributed to the septicemic effects of microorganism. It could be concluded that the diarrhea with death in newly born rabbits due to bacterial pathogens which cause severe economic losses, so the good management with complete hygiene measure, balanced ration and antibiotics must be done for prevention and control of their cases.

Fig. (1): Intestine of the (Colibacillosis) Showing congestion of submucosal blood vessels and mucinous degeneration of the Intestinal epithelium. H&E X 120.

Fig. (2): Intestine of the High power of fig. (3) to illustrate the mucinous degeneration of intestinal epithelium with leukocytic infiltration in the submucosa. H&E X 300.

Fig. (3): Intestine of the (Colibacillosis) showing congestion of intestinal blood vessels and mucinous degeneration H&E X 120.

Fig. (4): Intestine of the (Colibacillosis) showing aggregation and infiltration of leukocytes mainly lymphocytes and macrophages in the intestinal epithelium H&E X 300.
Fig. (5): Lung of the (Colibacillosis) showing congestion of pulmonary blood vessels, and infiltration of pulmonary tissue with serofibrinous exudates and leukocytes. H&E X 300.

Fig. (6): Lung of the (Colibacillosis) showing hypertrophy of tunica media of pulmonary blood vessel, with recent thrombus and haemorrhages. H&E X 300.

Fig. (7): Liver of the (Colibacillosis) showing congestion of hepatic blood vessels, portal leukocytic infiltration and vacuolation of hepatocytes H&E X 300.

Fig. (8): Lung of the (Pasteurellosis) showing congestion of pulmonary blood vessels, interstitial haemorrhages and leukocytic infiltration mainly lymphocytes and macrophages H&E X 300.
Fig. (9): Lung of the (Pasteurellosis) showing severe congestion of pulmonary blood vessels, degeneration and desquamation of the bronchial epithelium and leukocytic infiltration. H&E X 300.

Fig. (10): Lung of the (Pasteurellosis) showing pneumonia containing neutrophils and few lymphocytes and macrophages. H&E X 300.

Fig. (11): Lung of the (Pasteurellosis) showing complete replacement of the pulmonary tissue with broncho pneumonia containing neutrophils and interstitial haemorrhages. H&E X 300.

Fig. (12): Liver of the (Pasteurellosis) showing congestion of hepatic blood vessels, perivascular infiltration and aggregation of leukocytes and vacuolation of hepatocytes. H&E X 300.
Fig. (13): Kidney of the (Pasteurellosis) Showing subepithelial edema of glomeruli, degenerative change of some renal tubules and hyaline cast in others Fig (13).

Fig. (14): Kidney of the (Pasteurellosis) showing interstitial edema and cystic dilatation with hyaline cast of some renal tubules. H&E X 300.

Fig. (15): Intestine of the (Pasteurellosis) showing infiltration of the villi with leukocytic cells mainly lymphocytes, macrophages and neutrophils H&E X 300.

Fig. (16): Heart of the (Pasteurellosis) showing congestion of the cardiac blood vessels accompanied with intermuscular haemorrhages. H&E X 300.
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attaching effecting enteropathogenic E.coli isolated from diarrhea suckling and weaning for new born rabbits. Infection immune.(46) 690-696.


الملخص العربي

دراسات باثولوجية وبكتيريولوجية على الإسهال في الأرانب المولودة حديثا في محافظة الشرقية

د /حسن موسى محمد موسى* د/ مختار عبد الحكيم عبد العزيز سليم **د/شاكرب عابدين حسنين ***

معهد بحوث صحة الحيوان فرع ( الزقازيق، المنصورة)**

في هذه الدراسة تم فحص عدد (150 مائة وخمسون أرنب) (001نافق ، 30 مريض ، 20 سليماً ظاهريا) تم جمعها من مزارع خاصة بمحافظة الشرقية وقد تبين من الفحص الظاهري للأرانب المريضة وجود ضعف عام مع إسهال مخاطي وأعراض تنفسية ونسبة النفوق وصلت إلى 70% وبأجراءات الصفة التشريحية وجد احتقان وتضخم في الأمعاء واحتقان بالأعضاء الداخلية المختلفة وبالفحص البكتيريولوجي وجد (64,71%) 97 حالة إيجابية للعزل البكتيري ووجد أن 49 حالة
(50.52%) عددى فردية 48 حالة (49.48%) عددى مختلطة ومن أهم المعزولات كان ميكروب القولون العصوي 26 حالة (26.80%) والباستيريلا مالتوسيدا 19 حالة (19.52%) وعمل العدوى الاصطناعية بالميكروب القولوني العصوي واخذ العينات للفحص البكتيرى والباثولوجي وجد تطابق مع العدوى الطبيعية.

وبالفحص الباثولوجي وجد إن أهم التغيرات مرتبطة بالعدوى بالميكروب القولون العصوي والباستيريلا مالتوسيدا، في حالة الميكروب القولوني العصوي وجد بالأمعاء احترقان بالأوعية الدموية مع انتشار للخلايا الالتهابية وتثقيح بالخلايا الظهارية المبطنة للأمعاء ووجد احترقان وختوات بالأوعية الدموية الرئوية وإحلال النسيج الرئوي بسوائل فيزيوائية وخلايا التهابية بالرئتين واحترقان بالأوعية الدموية الرئوية مع تثقيح للخلايا الكبدية. في حالة ميكروب والباستيريلا مالتوسيدا وجد احترقان بالأوعية الدموية الرئوية والتهابات رئوية مختلفة مع انتشار للخلايا الالتهابية وتمتص لها خاصة خلايا النينتروفل واحترقان بالأوعية الدموية الكبدية وتثقيح بالخلايا الكبدية. وفي الكلى وجد اوديما في النبيبات الكلوية مع تمدد في بعض الأنبوبات الكلوية، وفي الأمعاء وجد انتشار للخلايا الالتهابية المختلفة ووجد احترقان وأنزفة بالأوعية الدموية بالقلب وتم تقدم يجب إتباع وسائل الأمان الحيوي والصحي بمزارع الأرانب مع التركيز على العلامة المتزنة وتجنب الاستخدام الخاطئ للمضادات الحيوية لتقليل الخسائر الاقتصادية الناجمة عن الإسهال في الأرانب حديثة الولادة.