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SUMMARY

This study was carried out to study the efficacy of metronidazole as anticoccidial drug at two levels of doses 25 and 50 mg / kg bodyweight for 5 consecutive days via drinking water. Double the recommended dose (50g /kg) was tried to predict if there were any improvemets in the control of coccidiosis and the possible adverse effects.

In the present work one hundred and fifty mixed sex one day old Arbor Acres F.s. chicks were divided into six equal main groups. All were fed on ordinary ration free from any anticoccidial agents allover the experiment (41 days).

-The first group was kept non infected and non treated to serve as the negative control group.

-The second group was treated without infection with 25mg /kg of body weight of metronidazole for 5 consecutive days.

-The third group was treated without infection with 50 mg /kg body wieght of metronidazole for 5 consecutive days.

-The fourth group was infected with *E .tenella* (50.000 oocyst / bird) at 18 days of age and considered as positive non treated control group.

-The fifth group was infected with *E. tenella* (50.000 oocysts / bird) at 18 days of age and treated with 25mg /kg body weight of metronidazole.The drug was given after symptomes appeared for 5 consecutive days (day 23 today 27).

-The sixth group was infected with *E.tenella* (50.000 oocysts /bird) at 18 days and treated with 50 mg/ kg body weight of metronidazole after symptomes appeared for 5 consecutive days (day 23 to day 27).

The efficacy of metronidazole in chicken experimently infected with *E.tenella* was based on clinical signs, lesion scores, oocyst counts, bird performance, liver and kidney functions and histopathological finidings of treated and infected non treated group.

The results of that experiment are summerised as follows:-

1- Clinical signs

The infected non treated group showed the typical signs of coccidiosis including depression, loss of appetite and bloody droppings one week post infection. Variable degrees of illness were recorded until the end of experiment.

Medication of metronidazole after infection at both dose levels improved the clinical signs.

No differences of significance were recorded between the non infected metronidazole treated groups and negative control (non infected and non treated group).

2- Lesion scoring .

The infected non treated group showed the highest lesion score (3+).

The Lesion scores declined to 2+, even not statistatically significant by all dose levels of metronidazole treatement (25 and 50 mg/ kg body weight)

3- Oocyst count.

The infected non treated group showed the highest oocyst count (502.4 × 1000) / gram of feaces at the 9th day of infection.

Metronidazole at both dose levels induced significant decrease in oocyst counts (211. 2 × 1000)/ gram of feaces at the 9th day of infection

4- Mortality rate.

The infected non treated group showed the highest mortality rate (24%). While metronidazole at both dose levels (25 and 50 mg/ kg BW) induced a sigificantly lower mortaliy rate (4%)

5- Chickens performance.

The infected non treated group showed a significant decrease in body weight, weight gain, feed consumption and increased feed conversion ratio througout the experiment.

Chickens given metronidazole at two dose levels (25 and 50 mg/kg BW) after infection showed a significant increase in body weight, weight gain, feed consumption and improved feed conversion ratio.

No differences of sigificance were recorded between the two groups administered metronidazole without infection in performance in comparison with the infected non treated control group.

6- Biochemical findings

The infected- non treated group elicited an increased activity of serum AST, ALT, ALP, uric acid and creatinine levels.

The activity of serum AST, ALT, ALP, uric acid and creatinine was decreased by both treatement levels (25 and 50mg/kg body-weight).

No differences of significance were recorded in biochemical parameters in the two groups given metronidazole without infection in comparison with the non infected non treated control group.

7- Histopathological findings :-

Pathological examination of the infected non treated group revealed the presence of different stages of E.tenella in the wall of ceacum. These stages were minimal or even not recorded in ceacal sections derived from chickens given metronidazole at both dose levels (25 and 50 mg / kg BW).

Liver sections showed congestion, pyknossis , hemorrhage and degnerative changes of hepatocytes in the infected non treated group, with a lesser degree in groups given therapeutic dose levels

of the test drug (metronidazole 25 and 50 mg / kg body weight). after infection

No significant pathological lesions in the liver were recorded in metronidazole treated non infected chickens in comparison with non infected non treated control group denoting the absence of any hepatotoxic effects of metronidazole at both dose levels of 25 or 50mg / kg body weigh for 5 consecutive days.

Kidney tissue examination revealed congestion, hemorrhage, degenerative changes and destruction of basment membrane of the renal tubules in the infected non treated group, with a lesser degree in groups given metronidazole as a treatment post infection and at both dose levels of 25 or 50 mg / kg body weight for 5 consecutive days.

No pathological lesions of significance were recorded in the two groups given metronidazole without infection in comparison with the non infected non treated control group.

CONCLUSION

From the present study it could be concluded that :-

* Metronidazole has anticoccidial efficacy at 25mg / kg body weight
* It is recommended to use metronidazole at a dose level of 25 mg / kg body weight for 5 consecutive days as there was no significant differences from 50mg/ kg body weight treated group of chickens.
* Metronidazole at a dose level of 25 mg/kg body weight, improved the overall performance of chickens without any significant adverse effect.
*Metronidazole constitutes a drug of a high safety margin even at 50 mg / kg body weight.
* Progressively improved studies are recommended to elucidate the mechanism of genotoxicity and carcingenic potential of metronidazole .
* Metronidazole proved to be effective in controlling coccidiosis, being previously proved to be effective on anerobies especially (Clostridia) which is always associated with coccidiosis in poultry. So, metronidazole would be of importance in poultry production.