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THE EFFICACY OF FASINEX* (TRICLABENDZOLE) AGAINST NATURAL INFECTION OF CATTLE BY FASCIOLIASIS IN KAFER EL-SHEIKH GOVERNORATE

(With 2 Tables)

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تقييم كفاءة الفازينكس على الأصابه الطبيعيه بالديدان الكبديه فى الأبقار بمحافظة كفر الشيخ

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أجرى هذا البحث على عدد ١٨ بقره تراوحت أعمارها ما بين ٢ – ٨ سنوات تابعه لاحدى القرى بمحافظة كفر الشيخ والتى ثبت بالفحص الاكلينيكى والمعملى انها تعانى من الاصابه بالديدان الكبديه.

هذا وقد تم علاج الأبقار المصابه بعقار الفازينكس وتم أخذ عينات من مصل الدم قبل اعطاء العقار وبعد العلاج أسبوعيًا حتى الأسبوع السابع وكذلك تم أخذ عينات من مصل الدم لتحليل البروتينات الكليه ، الألبيومين ، الجلوبيولين وأنزيمى الترانس أفينر والبيلروبين والجلوكوز والكلسترول بالاضافه إلى ذلك تم عمل دراسه لتأثير العقار على العدد الكلى لبويضات الفاشيولا فى البراز قبل وبعد تناول العقار .

SUMMARY

A total number of 18 cows their age ranged from 2-8 years were subjected to clinical and laboratory examination. The animals were proved to be naturally infested with *Fasciola gigantica*. Injection of fasinex as a treatment for fascialiasis, total fasciola egg count per gram faeces and Biochemical constitutuents of blood serum parameters including total protein, albumin, globulin, cholestrol , glucose, transaminasis, bilirubin, sodium, potassium and chloride levels pre and post application of the drug were carried out.

Keywords: Efficact, fasinex, cattle, fascioliasis, Kafr El-Sheikh, Egypt.

INTRODUCTION

Fascioliasis caused by *Fasciola hepatica* or *Fasciola gigantica*. is considered one of the most serious diseases affecting cattle. There is no need to emphasize the adverse effect of liver fluke as it is responsible for heavy financial losses in cattle production through the world. The losses are due to deaths, decline in meat and milk production, in addition to lowering in infertility of the cattle *(ECKERT et al., 1984)*.

Regarding the effect of heavy infestation with liver fluke on blood biochemical constituents which was partly investigated by *SINCLAIR (1962); TALAAT, et al. (1965); ABOA-EL-ENEAN (1982) and AFAF et al. (1991)*. There was a decrease in blood serum total protein and albumin and an increase in blood serum globulins in cattle.

The infested cattle with fasciola was accompanied by hyperbilirubinaemia in (*EHRLICH et al., 1960; DEWIVEDI et al., 1972; EL-BELBESY, 1980 and ISMAIL (1984). MAGDA (1990)* found an elevation in the levels of both glutamic oxalacetic and glutamic pyruvic transaminases, while, *ROSSOW et al. (1966)* observed low values of both enzymes in the blood serum of cattle affected by bovine fascioliasis.

The aim of the present work is to investigate the influence of fasinex upon naturally infested cattle and its effect on blood serum biochemical constituents pre and post treatment with the drug.

MATERIAL and METHODS

This work was carried on a total number of 18 cows which were proved to be naturally infested with fasciola by both clinical and laboratory methods of examination. These animals belonged to Kafer el-Shiekh Governorate and their age ranged from 2-8 years old. Blood and faecal samples were collected weekly before and after injection of Fasinex in a dose 12 mg/Kg B.wt.S/C. Laboratory examination of fresh faecal samples using the sedimentation technique after *KRUSE and PRITCHED (1982).* Blood samples were collected through jugular vien puncture allowed to clot at room temperature and then refregirated for two hours then centrifuged in clean dry sterile centrifuge tube at 3000 r.p.m. for 20 min. to obrain clear blood serum which was stored in the refrigerator at -20°C. The obtained clear non-haemolysed sera were analysed biochemically. total protein, albumin, cholestrol, glucose, bilirubin and transaminasis were estimated according to standard methods of test-kits supplied from Biomerieux *(BAINS and FRANCE).* Blood serum sodium and potassium concentrations were determined using flame photometer (Corning 400). Blood serum chloride level was estimated using chloride analyser model 925. Statistical analysis of data was performed according to the method of *SNEDECOR and COCHRAN (1974).* Parasitological examination and total egg count of faecal samples were performed according to *GORGI (1985).*

RESULTS

Concerning liver- fluke, table 1 showed that treatment with Fasinex 12 mg/Kg B.wt. was 100% effective as the egg counts were high in all animals before treatment and then were lowered 3-5 weeks untill it reached to zero by 5-7 weeks post treatment. Mean values of blood serum biochemical constituents are shown in table 2.

DISCUSSION

A trial for detmination of the efficacy of fasinex at a dose rate of 12 mg/Kg body weight in naturally infested cows and buffaloe was carried out in this study and the result revealed that it is 100% effective. The obtained results agreed with those previously obtained by *WOLFF* et al.*(1983). ESSENWEIN (1984)* and *FAYEK* et al. *(1989).* They found that the drug was highly effective against ovine fasciolasis (early-immature, immature and adult liver-flukes). Similar results were also observed in fascioliasis of cattle by *(BORAY* et al., *1981 a,b*O>

Regarding to blood biochemical constituents, table 2 there is a highly significant decrease in blood serum total protein in infected cattle if compared with the treated ones, this decrease in the total protein values were due to the hypoalbuminaemia. such hypoalbuminaemia might be either due to the liver damage or the lost from circulation in the exudate from the injured lining of the bile ducts *(SINCLAIR, 1962 and ISMAIL et al., 1990).* While hyperglobulinaemia was a result of compensatory reaction to restor osmotic pressure in the serum which was reduced as a result of low albumin level *(ISMAIL et al., 1990).*

The significant elevation of bilirubin levels may be attributed to the interference with the excretion of bilirubin and/or increased production of bilirubin as a results of hemolytic toxins produced by liver flukes *(WIRTH, 1950 and LITCHMAN, 1953).*

The elevated activities of Aspartate amino transferase and Alanine amino transferase in infested animals could be attributed to the hepatocellular damage caused by the migration of liver fluke *(COLES, 1974; EL-BELBESI, 1980 and KARRAM et al., 1985).* The treatment of the infested animals resulted in decreased activities of both enzymes. Which return to their normal activities after treatment . The obtained blood serum electrohytes levels showed a nonsignificant variation between pre and post injection of fasinex. The obtained values coincided with the normal values of cattle previously obtained by *COLES, 1986.*

Finally the study declared that the efficacy of Fasinex as a drug upon fascioliasis and their progressive effect upon the biochemical conotituents after their injection when compared with the infested animal.

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TABLE 1: FASCIOLA EGG COUNT IN NATURALLY INFECTED COWS FOLLOWING FASINEX INJECTION.

ANIMALS NUMBER	TREATMENT	FASCIOLA EGG COUNTS PER GRAM					
		BEFORE TREAT.	WEEKS 1	2 WEEKS	3 WEEKS 5	W 7	W 9
1	TRICABEND	350	300	45	-	-	-
2	-DAZOLE	400	350	80	5	-	-
3	5MG/KG	25	10	-	-	-	-
4		200	200	50	5	-	-
5		50	10	•	•	•	•
6		50	25	-	-	-	-
7		380	250	50	8	5	-
8		50	75	25	-	-	-
9		250	230	30	35	-	-
10		50	50	10	-	-	-
11		50	5	-	-	-	-
12		300	250	80	40	-	-
13		200	200	100	25	-	-
14		80	80	20	-	-	-
15		50	5	-	-	-	-
16		40	40	5	-	-	-
17		100	100	20	-	-	-
18		80	60	5	-	-	-

TABLE 2: MEAN VALUE OF SERUM ORGANIC AND INORGANIC CONSTITUENTS OF COWS INFECTED WITH FASCIOLA BEFOR AND AFTER TREATMENT WITH FASINX.

ITEM	BEFOR TREATMENT	AFTER TREAMENT	
		3 WEEKS	6 WEEKS
TOTAL PROTIENS GM/DL	4.31 + 0.16	6.33 + 0.21 XXXX	6.66 + 0.19 XXXX
ALBUMIN GM/DL	2.50 + 0.14	3.57 + 0.32 XXX	4.02 + 0.18 XXXX
S.GLOBULINS GM/DL	1.81 + 0.16	2.76 + 0.25 XXX	2.64 + 0.31 X
A/G RATIO	1.52 + 0.19	1.42 + 0.16	1.83 + 0.30
GLUCOSE MG/DL	65.02+ 3.07	87.66 + 2.76 XXXX	106.79+ 2.48 XXXX
CHOESTEROL MG/DL	145.28+ 5.78	114.45+ 9.37 XX	117.28+ 3.86
BILIRUBIN MG/DL	0.52 + 0.02	0.41 + 0.02 XXX	0.35 + 0.02 XXXX
ASAT I.U/I	43.40 + 2.13	40.70 + 2.22	21.20+ 2.81 XXXX
ALAT I.U/I	11.60 + 1.07	6.70 + 0.56 XXXX	6.10 + 0.53 XXXX
SODIUM mEqu/L	136.30+ 2.67	134.96+ 1.49	132.16+ 0.66
POTASSIUM mEqu/L	6.36 + 0.15	5.98 + 0.19	4.43 + 0.13
CHLORID mEqu/L	107.5+ 4.12	97.20 + 1.91	100.4 +1.60

X P < 0.05
XX P < 0.02
XXX P < 0.01
XXXX P < 0.001