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**EFFECT OF SOME DRUGS ON EGG COUNT
AND BLOOD CHEMISTRY OF FASCIOLA INFESTED
ANIMALS IN MID-EGYPT**
(With 2 Tables & 2 Figs.)

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تأثير بعض أدوية نديدان الكبد على كل من أعداد البيضات والتحليل الكيماوي
لدم الحيوانات المصابة

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أجريت هذه الدراسة في محافظة بني سيف على ٤٤ حيوان ، منهم ١٨ عجل بقري ،
١٨ عجل جاموسي ، ١٨ إناث أغنام وذلك باستخدام ثلاث أدوية هي الرانيد ، الدوفينكس
والبيلفون - حقن وأظهرت النتائج عدم وجود بيضات النديدان الكبدية في براز الحيوانات
التي تم علاجها بعد ٢،١،٧ إسبوع من العلاج بهذه العقاقير بالترتيب في الأبقار أما في
الجاموس فقد إختفت تلك البييضات بعد إسبوع واحد في جميع العقاقير ولكنها في الأغنام
إختفت بعد إسبوعين عند استعمال الرانيد والدوفينكس وبعد ٢ أسابيع عند استعمال البيلفون
- حقن - وأوضحت نتائج الدراسات عن وظائف الكبد في الحيوانات المعالجة وثبت أن إصابة
الحيوانات بالنديدان الكبدية ينتج عنها إنخفاض في نسبة زلال الدم وزيادة في نسبة
الجلوبولينات مما ينتج عنه إنخفاض في النسبة بين الزلال إلى الجلوبيولينات وكذلك أظهرت
النتائج زيادة في المجموع الكلي بالأصبغ المرارية - كما نتج من استخدام العقاقير الثلاثة
تحسنا واضحا على الحيوانات المربضة وكذلك تحسنا في مكونات سيرم الدم في هذه
الحيوانات بعد ٢٠ يوما من العلاج .

SUMMARY

The present investigation was carried out to clarify the efficacy of Ranide; Dovenix and Bilevon in treatment of Fascioliasis. The results revealed no eggs in faeces of infested animals after 2-3 weeks post-treatment. The results of biochemical studies revealed hypoalbuminaemia, hyperglobulinaemia, decrease in A/G ratio and an increase in total bilirubin of blood serum of fasciola infested animals. All parameters were progressed to normal levels with the progress towards recovery.

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A.A. SALEM, *et al.***INTRODUCTION**

Concerning the effect of some fasciolicidal drug on the rate of faecal egg count of fasciola, AMIN (1972); AYOUB, *et al.* (1973); ABDEL-RAHMAN, *et al.* (1977) and AZIZ (1980) used Bilevon-R and Nilofolan 4% in the treatment of fasciola infestation among cattle and sheep, while EL-SHERIF and FAHMY (1981) used Bilevon-injection for the same aim.

The studies of biochemical analysis of serum of infested cattle; buffaloes and sheep which carried out by HAIBA and SELIM (1960); TALLAT, *et al.* (1965); AMIN (1972); ABDU (1976); EL-DISSOUKY (1977); ABDEL-RAHMAN, *et al.* (1977) and EL-SHERIF and FAHMY (1981) revealed that the fasciola infestation lead to reduction in total serum protein and bilirubin but an increase in globulin and albumin. According to RIBBECK and WITZEL (1979), in fasciola infested animals, the economic losses due to metabolic disorders were 30 times higher than loss due to mortalities or condemned parts in abattoirs, therefore, it was of great importance to study the problem of fascioliasis in Beni-Suef to clarify the most effective drugs for treatment of those animals, then to clarify the liver function parameters in infested animals before and after treatment.

MATERIAL and METHODS

The present study was performed in Beni-Suef district on 54 animals naturally infested with fasciola. Out of them 18 were cattle calves (2-3 years old); 18 were buffalo calves (1.5-2.5 years) and 18 ewes. Each species was subdivided into 4 groups as following:

- Group (1):** Contained 5 cattle calves, 5 buffalo calves and 5 ewes; and treated by Ranid (Rafoxnide/MSD) Orally at a dose rate of 7.5 mg/Kgm. b.w.
- Group (2):** Consisted of 5 from each species and treated by Dovenix (Nitroxynil / S.P.E.I. A. France) at a dose rate of 1 ml/25 Kgm b.w. Subcutaneously inoculation.
- Group (3):** Also consisted of 5 animals from each species and dosed by Bilevon-injection (Niclofolon/Bayer, W. Germany) Subcutaneously by a rate of 1 ml/50 Kgm. b.w.
- Group (4):** Consisted of 3 infested non-treated control animals from each species.

STUDIES ON EFFECT OF TREATMENT ON FASCIOLA EGG COUNT:

The faecal samples collected 3 times (in 3 successive days) from all experimental animal groups before application of the drug and in the 1st, 2nd, 3rd, 5th, 7th, 9th and 12th week post-treatment.

The number of eggs per gramm was calculated according to method described by PARFIT and BANKS (1970).

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STUDIES ON EFFECT OF SOME DRUGS ON SOME BIOCHEMICAL PARAMETERS OF BLOOD SERUM:

The blood samples were collected 3 times, one before and 2 after 10 and 20 days post-treatment.

The serum separated from the blood samples and kept in deep freeze until use.

Determination of blood serum bilirubin by using spectrophotometer on wave length 578 nm (560-600) according to the method described by JENDRASSIK (1938).

Determination of blood serum total protein by using the same spectrophotometer on wave length 546 nm (530-570) according to the method of WEICHEL BAUM (1946).

Determination of blood serum albumin also using the same apparatus on wave length 578 according to DOUMAS (1971).

Determination of serum globulin by subtracting the value of serum albumin from the value of serum total protein.

Determination of Albumin/Globulin Ratio by using the values of serum albumin and globulin.

RESULTS

The results of the present study are shown in Table(1) and revealed that Dovenix is more effective drug as proved by complete disappearance of fasciola eggs from the faeces of cattle and buffaloes in the 2nd week post-treatment and in 3rd one in case of sheep. Bilevon-injection resulted in disappearance of the eggs from faeces at the end of the 3rd and 2nd week in cattle and buffaloes respectively, on the other hand the eggs disappeared from sheep faeces in between the 3rd and 5th weeks. while in case of Ranide treatment among cattle, buffaloes and sheep, resulted complete recovery in buffaloes in the 2nd week and 3rd one in sheep, but in cattle from the 9th week post-treatment.

Studying the effect of these fasciolicidal drugs on the liver functions revealed an increase in total protein after treatment in both cattle and buffaloes, while no changes in sheep could be detected.

Blood serum albumin was decreased in cattle treated by Ranide and Dovenix, but increased after using Bilevon-injection. In buffaloes, albumin increased as a result of treatment by Ranide and Dovenix only. On the other hand in sheep albumin was temporarily decreased during the first 10 days when treated by the same drug.

Concerning the globulin (gm/100 ml) the results indicated that the treatment of both cattle and buffaloes leading to an increase in values of globulin in serum, in sheep this level was increased then decreased within 20 days post-treatment. Moreover, results of biochemical studies indicated variations in total bilirubin before and after treatment.

Table (1) Number of egg per gram of fasciola infested Cattle, Buffaloes and Sheep before & after treatment by different fasciolicidal drugs.

The mean number of eggs per gram of faeces.

Drugs used	Animal species	Days before treatment			Weeks post-treatment							
		1 st	2 nd	3 rd	1 st	2 nd	3 rd	5 th	7 th	9 th	12 th	
Ranide	Cattle	37	19	27	17	8	8	8	8	8	-ve	-ve
	Buffaloes	8	8	8	8	-ve	-ve	-ve	-ve	-ve	-ve	-ve
	Sheep	9	16	7	7	4	-ve	-ve	-ve	-ve	-ve	-ve
Dovanix	Cattle	18	26	11	9	-ve	-ve	-ve	-ve	-ve	-ve	-ve
	Buffaloes	19	13	9	8	-ve	-ve	-ve	-ve	-ve	-ve	-ve
	Sheep	11	6	21	6	3	-ve	-ve	-ve	-ve	-ve	-ve
Bilvovon Injection	Cattle	32	20	23	14	9	-ve	-ve	-ve	-ve	-ve	-ve
	Buffaloes	11	23	37	13	-ve	-ve	-ve	-ve	-ve	-ve	-ve
	Sheep	9	11	9	9	2	2	-ve	-ve	-ve	-ve	-ve
untreated control	Cattle	15	31	16	14	32	9	21	54	104	18	
	Buffaloes	17	9	9	9	8	12	9	22	18	32	
	Sheep	9	9	8	9	9	8	13	22	9	23	

Table (2) The mean values of biochemical parameters of fasciola infested cattle, buffaloes & sheep before and after treatment.

Parameters	Drugs	Animal Species	Before treatment	Ranide		Dovenix		Bilevon-injection		Untreated control group				
				After treatment by 10 days	20 days	After treatment by 10 days	20 days	Before treatment	After treatment by 10 days	20 days	Before treatment	After treatment by 10 days	20 days	
Total protein (gm/100 ml)	Cattle	Buffaloes	2.7+0.49	6.0+0.30	6.0+0.35	5.9+0.42	6.1+0.19	7.1+0.13	6.0+0.43	6.6+0.35	6.8+0.35	6.1+0.46	5.9+0.45	5.7+0.52
		Buffaloes	6.1+0.52	6.2+0.48	6.8+0.31	6.3+0.05	6.5+0.90	6.6+0.30	6.7+0.29	6.5+0.29	6.13+0.38	6.2+0.30	6.2+0.36	6.2+0.42
		Sheep	6.9+0.53	6.3+0.41	6.1+0.12	6.4+0.04	6.4+0.18	6.4+0.11	6.3+0.4	6.3+0.24	6.3+0.29	6.5+0.45	6.4+0.30	6.4+0.15
Albumin (gm/100 ml)	Cattle	Buffaloes	2.9+0.35	2.2+0.38	2.6+0.79	2.6+0.17	2.2+0.22	2.6+0.35	2.9+0.25	3.12+0.14	3.0+0.02	2.2+0.17	1.7+0.04	1.7+0.01
		Buffaloes	2.6+0.08	2.7+0.04	2.8+0.07	2.2+0.18	2.5+0.18	2.8+0.70	2.7+0.14	2.4+0.12	2.1+0.42	2.6+0.12	2.2+0.12	1.6+0.39
		Sheep	2.5+0.09	2.4+0.15	2.9+0.07	3.4+0.14	3.6+0.21	2.9+0.04	3.0+0.04	2.3+0.18	3.0+0.09	2.3+0.09	2.5+0.04	2.0+0.05
Globulin (gm/100 ml)	Cattle	Buffaloes	2.8+0.36	2.8+0.35	4.1+0.22	3.5+0.22	3.8+0.22	4.5+0.41	3.1+0.47	3.5+0.28	3.7+0.29	3.9+0.26	4.2+0.13	4.0+0.54
		Buffaloes	3.2+0.52	3.3+0.46	4.2+0.45	3.9+0.17	3.6+0.11	3.6+0.13	3.7+0.54	3.7+0.52	3.3+0.49	3.4+0.56	3.4+0.32	4.0+0.58
		Sheep	3.7+0.6	4.0+0.26	3.3+0.30	3.7+0.08	3.8+0.13	3.5+0.11	3.4+0.21	3.9+0.27	3.3+0.21	4.2+0.34	3.9+0.13	3.8+0.07
A / G Ratio	Buffaloes	Cattle	1.18+0.25	0.65+0.15	0.94+0.41	1.59+0.34	0.68+0.08	0.83+0.10	1.16+0.3	0.95+0.24	0.87+0.27	0.53+0.07	0.43+0.04	0.43+0.05
		Buffaloes	0.97+0.11	0.85+0.16	0.67+0.7	0.56+0.10	0.55+0.13	0.76+0.4	0.74+0.5	0.69+0.6	0.56+0.23	0.9+0.15	0.66+0.30	0.22+0.12
		Sheep	0.77+0.19	0.59+0.20	0.90+0.06	1.10+0.05	0.7+0.07	0.7+0.17	0.9+0.05	0.6+0.09	0.9+0.05	0.6+0.07	0.6+0.07	0.7+0.07
Total Bilirubin (Gm/100 ml)	Cattle	Buffaloes	0.8+0.06	0.6+0.11	0.6+0.14	1.5+0.11	0.9+0.30	1.7+0.14	2.3+0.59	1.8+0.39	1.2+0.38	1.0+0.13	1.5+0.23	1.5+0.16
		Buffaloes	1.6+0.33	1.8+0.23	1.8+0.75	1.3+0.29	0.8+0.10	1.2+0.23	2.2+0.50	1.4+0.30	1.0+0.40	2.4+0.37	2.4+0.29	2.6+0.31
		Sheep	2.2+0.23	1.0+0.01	1.1+0.35	2.3+0.36	1.1+0.10	1.4+0.20	2.9+0.29	1.9+0.08	1.9+0.08	1.6+0.31	1.1+0.34	1.1+0.02

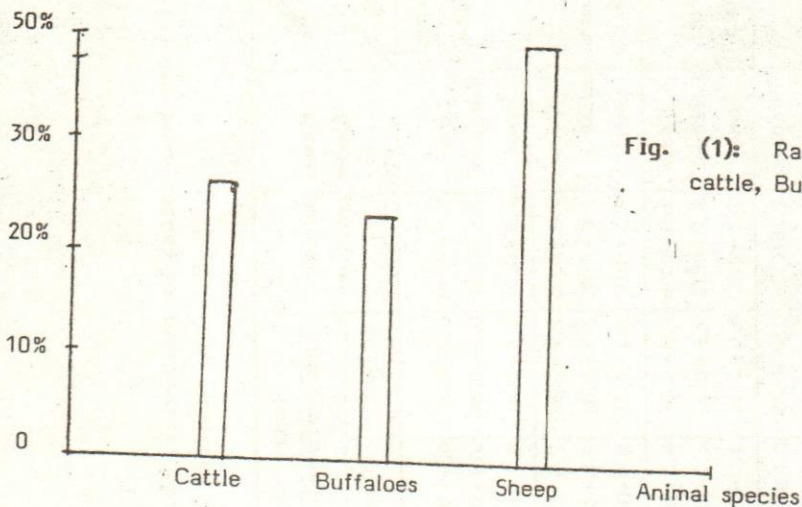
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Fig. (1): Rate of infestation among cattle, Buffaloes & Sheep

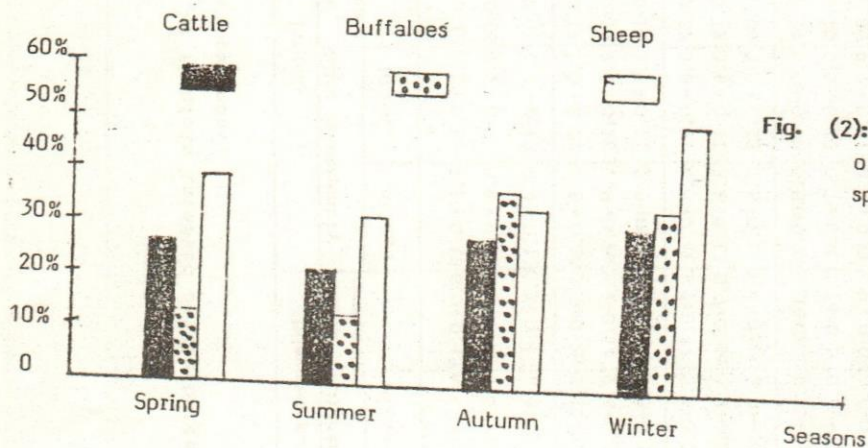


Fig. (2): Seasonal infestation of different animal species.

DISCUSSION

The present investigation was done to study the efficiency of some fasciolicidal drugs including Ranide, Dovenix and Bilevon-injection on infested cattle, buffaloes and sheep. The results revealed that Dovenix is more effective in treatment of cattle & buffaloes; while in sheep Bilevon-injection was more effective after 2 weeks post-treatment as proved by faecal egg count. These results agree with those of AYOUB, *et al.* (1973) and MARU, *et al.* (1983).

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It is of importance to record that no side effects, were recorded among animals treated by Dovenix and their was no species variations in response for treatment by Bilevon-injection, these findings are previously reported by AZIZ (1980) and EL-SHERIF and FAHMY (1981).

The results of biochemical analysis revealed evidence of hypoalbuminia, hyperglobulinoemia and reduction of A/G ratio in treated animals by using Ranide, Dovenix and Bilevon-injection after 10-20 days post-treatment. The results indicated a significant decrease in blood serum albumin of non-treated animals. In animals treated by these 3 drugs non significant increase in albumin could be detected. While in buffaloes treated by Dovenix and Bilevon-injection a significant increase in albumin was detected. The total protein was significantly increased after treatment by Ranide, Dovenix and Bilevon injection. Our results agree with these obtained by HAIBA and SELIM (1960); TALAT, *et al.* (1965); AMIN (1972); ABDYOU (1976); ABDEL RAHMAN, *et al.* (1977); EL-DISSOUKY (1977); EL-SHERIF and FAHMY (1981) and KARRAM, *et al.* (1988). The authors suggested that the decrease in total protein and the albumin levels in non-treated animals or in others before treatment attributed to the damage in the livers of infested animals, therefore after treatment the progressive recovery lead to decreasing hepatitis and increasing in forementioned parameter levels. Also the results of biochemical studies showed that Bilevon-injection is the best drug for treatment of fasciola infested cattle, buffaloes and sheep as revealed by recovery and divation of different blood serum parameters to normal, and this is followed by Dovenix and Ranide.

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