دراسات مقارنة على ثلاثة من مضادات الديدان الكبدية المعدة للحقن في مصر وتأثيرها على وظائف الكبد والكلى

عبد الرؤف محمد، فاروق البلطي، حسن مهران، محمد صلاح الدين

يفضل الأطباء البيطريون في مصر الآن استعمال الأدوية الضادة للديدان الكبدية حديثة لتسهيل أعاداتها وتسريع الأفعال المترتبة على ذلك. لذلك، اختبرت ثلاثة أنواع من مضادات الديدان الكبدية المستعملة بطرق الحقن في مصر: وهى بيليغون، ودوفينكس، وفلكاين. هذه الدراسة بادرت تقييم تأثيرها على الجاموس المصاب طبيعيًا، وكما تم تقييم تأثيرها على وظائف الكبد والكلى. 

وقد وجد أن المستحضرات الثلاثة ذات فاعلية وكفاءة عالية على الديدان الكبدية، كما أظهرت أنها آثار جانبية ضارة على وظائف الكبد والكلى للحيوانات السليمة، وبالتالي على الصحة العامة للحيوانات عند استخدامها.
GONIOMETERS ON THREE INJECTABLE FASCIOLICIDE DRUGS
IN CURRENT USE IN EGYPT
(With 2 Tables)

By
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and M.S. IBRAHIM
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SUMMARY

Three injectable fasciolicide drugs Bilevon 4%, Dovenix 25% and Flukanide 7.5% solutions were used in this study to evaluate their efficiency on Fasciola infested buffaloes. The same drugs were also tried on three groups apparently healthy, parasitic free buffaloes-calfes in order to throw some light on their effects on liver and kidney functions.

The three remedies used proved to be equally efficient on mature liver fluke.

Biochemical analysis of blood components showed insignificant changes between these drugs after one, 2, 7 and 14 days from injection in healthy non infected buffaloes-calfes.

It could be concluded that Bilevon 4%, Dovenix 25% and Flukanide 7.5% could be safely used as fasciolicides without any harmful effect on parenchymatous organs as liver and kidney.

INTRODUCTION

Fascioliasis is one of the most dangerous problems among cattle and sheep in Egypt. The disease causes substantial economic losses in animal husbandry. The incidence of this disease in cattle and buffaloes ranged from 10-50% in different localities of the country (EL-SHERIF et al. 1959; EZZAT et al. 1963 and ABDEL RAHMAN et al. 1977). There is no need to emphasize the adverse effect of liver fluke on the general health condition of affected animals and consequently their production.

There are many fasciolicide drugs currently in use orally for control of liver fluke, their efficacy were extensively evaluated (SYMONS and BORAY, 1967; ABD EL HADY, 1972; ABDEL RAHMAN et al. 1977 and RATH and TRIPATHY, 1977).

Nowadays veterinarians in Egypt prefer the parenteral use of fasciolicide drugs owing to their easier administration and the treated animals actually receive their recommended dose. Thus this work was directed to:

1- evaluate the efficacy of three injectable fasciolicide drugs on naturally fasciola infested buffaloes (Bilevon* 4%, Dovenix** 25% and Flukanide*** 7.5%).

* Niclofolan manufactured by Bayer (Iever Kusen) W. Germany.
** Nitroxyxin manufactured by Specia, Paris.
*** Rafoxanide manufactured by Merck Sharp and Dohme (U.S.A).

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2- Comparing their effect on liver and kidney functions when given to apparently healthy buffaloes to select the most efficient and safest drug.

MATERIAL and METHODS

Thirty buffaloes, 5-8 years old naturally infested with liver fluke, as revealed by their faecal examination, were selected in this study from the animals admitted to the clinic of Fac. of Vet. Med. Zagazig University. These animals were divided into three groups, each of 10 animals.

Group I: Received Bilevon 4% solution at dose rate of 1 ml/50 kg. B.W.
Group II: Inoculated with Dovenix 25% solution at dose rate 1 ml/25 kg. B.W.
Group III: Injected with Flukanide 7.5% at dose rate of 1 ml/25 kg. B.W.

All remedies were inoculated once subcutaneously.

Faecal samples were collected from all animals of the three groups and examined microscopically at regular intervals for presence of fasciola eggs for a period of three months post-treatment by using sedimentation technique after ECKERT (1963).

Another thirty apparently healthy buffalo-calves, 6-9 months old, belonging to El-Marg Calf Rearing Unit, General Meat and Milk Company were selected. These calves proved to be free from internal and external parasites. They were also divided into 3 groups (1,2 and 3) each of 10 animals. Each group was subcutaneously inoculated once with one of the three previously mentioned fascioli- cides. Blood samples for biochemical analysis were collected from these calves just before and one, 2,7 and 14 days post-injection. Serum bilirubin, total serum protein and serum albumin were determined according to the methods described by MALLOY and EVELYN (1937); KING and WOOTTON (1959) and DOUMAS et al. (1971), respectively, while serum transaminases, urea nitrogen and serum creatinine were determined according to the methods described by MALLOY and EVELYN (1937); KING and WOOTTON (1959) and DOUMAS et al. (1971), respectively, while serum transaminases, urea nitrogen and serum creatinine were determined according to the technique of REITMAN'S and FRANKEL (1957); MARSCH et al. (1965) and HUDSAN and RAPOPORT (1968), respectively.

RESULTS

Results concerned with serum proteins, serum transaminases, serum bilirubin, creatinine and urea nitrogen before injection of the fascioliocide-drugs used and at different periods post-injection in apparently healthy buffalo-calves were recorded in Tables (1 & 2).

DISCUSSION

All faecal samples collected from all groups of infested buffaloes after treatment by the used fascioliocides were proved to be free from fasciola eggs up to 3 months post-treatment. These results revealed the high efficacy of the three injectable remedies on mature liver fluke. CORBA (1978) reported similar results when used Bilevon 4% solution against Fasciola hepatica in cattle. ZIEGLER (1979) proved that both Dovenix 25% and Bilevon 4% were highly effective against mature liver fluke and their developmental forms when given parenterally to infested cattle.
THREE FASCIOLICIDE DRUGS

Table (1) indicated that in apparently healthy animals of all groups under study, the recorded values for total serum protein, serum albumin and globulin after one, two, seven and fourteen days from injection of Bilevon, Dovenix and Flukanide does not show any significant changes than before injection.

From table (2) the levels of serum transaminases (SGOT & SGPT), serum bilirubin, creatinine and urea nitrogen show slight decrease in the first two days after injection of the used drugs which returned quickly to their normal levels as before injection within two weeks.

The disappearance of fasciola eggs from faeces of naturally infested buffaloes after administration of the three fasciolicides, in addition to the absence of the deleterious effects on liver and kidney functions of apparently healthy non-infected buffaloe-calves, indicated that these drugs are reliable, safe and nearly equally efficient.

REFERENCES


Table (1): Shows the mean values of total serum protein, albumin, globulin and AG ratio in apparently healthy buffalo-cow injected with three fasciicidies.

<table>
<thead>
<tr>
<th>Group Drug used</th>
<th>Time of sampling</th>
<th>Blood constituents</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Total protein gm/100 ml</td>
</tr>
<tr>
<td>Bilevon 4%</td>
<td>Before injection</td>
<td>7.46±0.18</td>
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<tr>
<td></td>
<td>1 ml /5 kg.</td>
<td>1 day post inj.</td>
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<td></td>
<td></td>
<td>2 days post inj.</td>
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<tr>
<td></td>
<td></td>
<td>7 days post inj.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>14 days post inj.</td>
</tr>
<tr>
<td>Devonix 25%</td>
<td>Before injection</td>
<td>7.32±0.28</td>
</tr>
<tr>
<td></td>
<td>1 ml /25 kg.</td>
<td>1 day post inj.</td>
</tr>
<tr>
<td></td>
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<td>2 days post inj.</td>
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<td></td>
<td></td>
<td>7 days post inj.</td>
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<tr>
<td></td>
<td></td>
<td>14 days post inj.</td>
</tr>
<tr>
<td>Flukanide 7.5%</td>
<td>Before injection</td>
<td>7.24±0.37</td>
</tr>
<tr>
<td></td>
<td>1 ml /25 kg.</td>
<td>1 day post inj.</td>
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<td></td>
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<td>2 days post inj.</td>
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<td>7 days post inj.</td>
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<td>14 days post inj.</td>
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</table>

Table (2): Shows the mean values of some blood parameters refering to liver and kidney function tests in 30 apparently healthy buffalo calves before and after injection of the three fasciicidies.

<table>
<thead>
<tr>
<th>Group Drug used</th>
<th>Time of sampling</th>
<th>Blood constituents</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td>S.O.T. 2.0.P.T. Bilirubin Creatinine Urea-N</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Units/ml Units/ml mg% mg% mg%</td>
</tr>
<tr>
<td>Bilevon 4%</td>
<td>Before injection</td>
<td>45.50±1.90</td>
</tr>
<tr>
<td></td>
<td>1 ml /5 kg.</td>
<td>1 day post inj.</td>
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<td>2 days post inj.</td>
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<td>7 days post inj.</td>
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<tr>
<td></td>
<td></td>
<td>14 days post inj.</td>
</tr>
<tr>
<td>Devonix 25%</td>
<td>Before injection</td>
<td>52.0±2.65</td>
</tr>
<tr>
<td></td>
<td>1 ml /25 kg.</td>
<td>1 day post inj.</td>
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<td></td>
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<td>2 days post inj.</td>
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<td>7 days post inj.</td>
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<tr>
<td></td>
<td></td>
<td>14 days post inj.</td>
</tr>
<tr>
<td>Flukanide 7.5%</td>
<td>Before injection</td>
<td>46.0±2.31</td>
</tr>
<tr>
<td></td>
<td>1 ml /25 kg.</td>
<td>1 day post inj.</td>
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<td>14 days post inj.</td>
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(2) Standard error