DETECTION THE PREVALENCE OF SOME GASTRO-INTESTINAL PROTOZOA IN BUFFALOES OF BABYLON GOVERNORATE.

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ABSTRACT

The study carried out in order to investigation the prevalence of gastro-intestinal protozoa in feces of buffaloes in Babylon governorate (Iraq) during the period between November 2014 to May 2015. A total of 200 fecal samples of buffaloes (50 calves, 60 males and 90 females), the highest prevalence rate with Eimeria spp. was in calves (36%), males (8.3%) females (10%) followed by closed rate with Cryptosporidium spp. which was recorded (16%) in calves, (13.3%) in males, and (4.4%) in females, the prevalence rate was reported with Giaridia duodenalis in calves (20%) and (11.6%, 8.8%) in males and females respectively. According to the age and sex, calves and males were showed highly infection rates with protozoa.
INTRODUCTION

Buffaloes are the most important species of domestic livestock as a source of dairy, meat, manure and drought power in Iraq, the parasitic diseases are not less important in buffaloes than other infectious diseases. These mainly include gastro-intestinal helminthiasis, coccidiosis, fascioliosis and mange(1).

Parasitism of gastro-intestinal tract (GIT) is one of the major afflictions responsible for enormous economic losses in terms of calf mortality in buffaloes(2,3).

Protozoan diseases are major constraint in progress of dairy farming all over the world, particularly in developing countries (4, 5).

Coccidiosis is one of the most pathogenic intestinal diseases caused by different Eimeria species belonging to phylum Apicomplexa. Eimeria infections are responsible for huge economic losses to for livestock industry in terms of mortality and morbidity particularly in young calves (6). Bloody diarrhea, dehydration, rough hair coat, reduced growth rate, anemia, weakness and weight loss are the signs of coccidiosis in water buffaloes (7). The disease is present in acute, sub acute and chronic forms.

Cryptosporidium and Giardia are two parasitic protists that mainly infect the intestinal tract and cause enteric disease in humans and various other animals ,it causes significant morbidity and mortality, particularly among young animals (8, 9,10).

Economic losses are caused by gastrointestinal parasitism are in a variety of ways: they cause losses through lowered fertility, reduced work capacity, involuntary ling, a reduction in gains food intake and lower weight, lower milk production, treatment costs, and mortality in heavily parasitized cattle and buffaloes (2,3).

Among the predisposing factors of internal parasites infection are climates, nutritional deficiency, grazing habits, immunological status, pasture management, presence of intermediate host and vector and the number of infective larvae and eggs in the environment. Damages inflicted to the health and productivity includes loss in body
weight, poor reproductive performance, digestive disturbance, and emaciation for longer period (11).

The aims of the present work were include detection the prevalence of gastrointestinal protozoa in feces of local breed buffaloes in Babylon governorate.

MATERIAL AND METHODS

Area of the study:-

The study included 200 animal of buffaloes (50 calves, 60 males and 90 females) during the period of November 2014 to May 2015 at Babylon governorate.

Samples collection:-

Fecal samples were collected in clean containers.

Samples examination:-

Samples were examined by using direct smears (wet and lugol) and concentrated flotation method (shethera’s solution) (12, 13). Moreover staining method was employed in this study (modified Ziehl – Neelsen) as described by (14).

Statistical analysis:

Data was analyzed using Chi-square statistical design.

RESULTS

Infection rate :-

The overall prevalence of gastro-intestinal protozoa of buffaloes of Babylon is shown in table (1). Out of 200 examined animals, the infection rates of Eimeria spp., Cryptosporidium spp. and Giaridia duodenalis were 16%, 10% and 12.5% respectively with a significant (p < 0.01) difference.
Table (1) Prevalence of different gastrointestinal species of protozoa in buffaloes of Babylon.

<table>
<thead>
<tr>
<th>species of protozoa</th>
<th>No. of fecal samples examined</th>
<th>positive</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Eimeria spp.</em></td>
<td>200</td>
<td>32</td>
<td>16</td>
</tr>
<tr>
<td><em>Cryptosporidium spp.</em></td>
<td>200</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td><em>Giardia duodenalis</em></td>
<td>200</td>
<td>25</td>
<td>12.5</td>
</tr>
<tr>
<td>Total</td>
<td>200</td>
<td>77</td>
<td>38.5</td>
</tr>
</tbody>
</table>

*p < 0.01

**Effect of age in the infection rate:**

In buffalo calves *Eimeria spp.* was identified in (36%) of fecal samples, while *Cryptosporidium spp.* (16%) and *Giardia duodenalis* was (20%) while in adults the infection rates of these parasites were 9.3%, 8% and 10% respectively with a significant (p < 0.01) between calves and adults; also between parasites in both calves and adults.

Table (2) Percentage of infection with gastro-intestinal protozoa in calves and adult buffaloes of Babylon.

<table>
<thead>
<tr>
<th>species of protozoa</th>
<th>Calves</th>
<th>Adults</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Positive</td>
<td>%</td>
</tr>
<tr>
<td><em>Eimeria spp.</em></td>
<td>18/50</td>
<td>36</td>
</tr>
<tr>
<td><em>Cryptosporidium spp.</em></td>
<td>8/50</td>
<td>16</td>
</tr>
<tr>
<td><em>Giardia duodenalis</em></td>
<td>10/50</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>36/50</td>
<td>72</td>
</tr>
</tbody>
</table>

*p < 0.01
Effect of sex in the infection rate:-
Table (3) was show a high infection rates were recorded in adult males in Cryptosporidium spp. (13.3%) and Giardia duodenalis (11.6%) than adult females (4.4%, 8.8%) respectively, while a low infection rate (8.3%) was recorded in Eimeria spp. in males than females (10%), with significant (p < 0.01) between both sexes and between parasites in each males and females.

Table (3) infection rates of (males and females) by gastro-intestinal protozoa in Buffaloes of Babylon.

<table>
<thead>
<tr>
<th>species of parasite</th>
<th>Males Positive</th>
<th>%</th>
<th>Females Positive</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eimeria spp.</td>
<td>5/60</td>
<td>8.3</td>
<td>9/90</td>
<td>10</td>
</tr>
<tr>
<td>Cryptosporidium spp.</td>
<td>8/60</td>
<td>13.3</td>
<td>4/90</td>
<td>4.4</td>
</tr>
<tr>
<td>Giardia duodenalis</td>
<td>7/60</td>
<td>11.6</td>
<td>8/90</td>
<td>8.8</td>
</tr>
<tr>
<td>Total</td>
<td>20/60</td>
<td>33.3</td>
<td>21/90</td>
<td>25.5</td>
</tr>
</tbody>
</table>

DISCUSSION
The prevalence rate of Eimeria in calves was 36%, that result was different from those reported in Buffalo calves of Haryana (15), who recorded low infection rate with Eimeria spp. (16.10%).(16) suggested that inadequate feeding of colostrums, exposure to contaminated environment, under feeding and poor sanitation are some predisposing factors for higher occurrence of coccidiosis in calves. High and low levels of prevalence have been confirmed in various studies concerning these protozoa in buffaloes like (49.6%) in Pakistan (17); (3.39%) in Bangladesh (18), while (6) reported 75% of water buffaloes are suffered from different Eimeria spp. In Turkey 1.19% in India (19).

It have been observed that, the prevalence of Eimeria spp. was slightly higher in females (10%) than in males (8.3%) was shown in table (3). In previous study of (18)
had a similar findings, who recorded infection rate in females (7.14%) and males (2.58%) of buffaloes.

Prevalence of Cryptosporidium spp. infection in present study was the highest in calves (16%) than adults buffaloes (8%). Studies carried out in calves have recorded prevalence of (24.2%) and (3.52%) in India (20, 15). In Egypt (21) have confirmed that 14.19% of the examined calves were positive for Cryptosporidium spp.

In this study, the prevalence of Cryptosporidium spp. in males and females were 13.3%, 4.4% respectively, these findings were different from the values which recorded by (22) in males (45.28%) and females (45.94%) in buffaloes of Iran.

In present study Giaridia duodenalis was identified in calves (20%) and adults (10%), while infection rate in males (11.6%) was slightly higher than females (8.8%). In recent study (23) can detected Giaridia duodenalis in buffaloes of Australia (13.1%), while (24) recorded (26.3%) infection rate in water buffaloes of Italy.

The higher infection rate in young animals than that in adults indicated resistance, because of lesser exposure to different species of protozoa compared with the adults animals. It was, however, interesting to note that prevalence was higher in males compared with females. Normally, females are assumed to be more infected due to stress of pregnancy and parturition. This may be due to the practice of stall feeding females around pregnancy and thus lesser exposure to pasture contamination or males are more action than females which more exposure to the infectious forms of these parasites (oocysts and cysts).
التحري عن مدى انتشار أوالي المعدة والأمعاء في براز الجاموس في محافظة بابل

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الخلاصة

أجريت هذه الدراسة من أجل التحري عن مدى انتشار أوالي المعدة والأمعاء في براز الجاموس في محافظة بابل بدءاً من شهر تشرين الثاني 2014 ونهاية شهر آذار 2015. من مجموع 200 عينة من برازات الجاموس (50 عجل، 60 ذكر، 90 أنثى)، سجلت اعلى نسبة اصابة ب Eimeria spp. الذكور (36%)، الذكور (3.8%) و الاناث (10%); تلاها Cryptosporidium spp. الذكور في الاناث (4.4%) وكانت نسبة الاصابة المسجلة للفئل في Giardia duodenalis الذكور في العجل (20%) و (11.6%) في الذكور والاناث على التوالي. اعتماداً على العمر والجنس اظهرت النتائج نسبة اصابة عالية بالأوالي في العجل والذكور.

REFERENCES


