Comparative efficacy of herbal anti-diarrheal products for treatment of diarrhea in calves

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ABSTRACT

Objective: The present study was undertaken to compare the efficacy of herbal drugs, Diaroak® and Salcochek® (M/s Ayurvet Limited), against antibiotic drugs in the treatment of calf diarrhea.

Methods: 15 calves suffering from diarrhea were divided into 3 groups: T₀, receiving ciprofloxacin (250 mg) and tinidazole (300 mg) twice daily for three days, T₁, receiving 15 gm Diaroak twice daily till recovery, and T₃, receiving 15 gm Salcochek twice daily till recovery. The parameters evaluated included average number of doses required for complete recovery, total number of animals completely recovered per group, number of animals in morbid state per group, mortality recorded per group, frequency of defecation per group, presence or absence of mucus in feces along with appetite of animals, and incidence of diarrhea and mortality during post-treatment period.

Results: Complete recovery was seen in all the treated animals with no recurrence. After recovery, animals treated with herbals had better consistency of feces than those treated with antibiotics.

Conclusions: Herbal anti-diarrheals Diaroak and Salcocheck can be used for treating non-specific diarrhea in calves.

Keywords: Calf diarrhea, Salcocheck, Diaroak, Antibiotics, Herbal

Introduction

Calf diarrhea results from a complex interaction of the environment and infectious agents whose impact could be direct and indirect through decreased lifetime productivity, increased treatment expenses, and survivorship.¹ Diarrhea is one of the most common diseases of calves up to three months of age.² It is a major cause of loss to cattle producers and of high morbidity and mortality in the cattle industry worldwide.³ Calf diarrhea may be caused by a variety of infectious agents such as viruses, bacteria, and protozoa.⁴ Non-infectious factors leading to diarrhea are insufficient uptake of colostrum, poor sanitation, stress, and cold weather. Vulnerability of the newborn calf to infection is due to weak immunity.⁵ The utility of antibiotics in calves suffering from diarrhea has been questionable due to further disruption of gut flora and the
development of antimicrobial resistance factors in the enteric flora. Although very sick calves with salmonellosis may benefit from antimicrobial therapy, most studies have also failed to show any beneficial effect of antimicrobial treatment. Some studies indicate a limited efficacy of antibiotics in reducing the mortality and morbidity in an outbreak of diarrhea. The present study was undertaken to evaluate the efficacy of herbal preparations Diaroak and Salcochek in calf diarrhea against the anti-microbial drugs being used.

Materials and Methods

15 weaned calves of about four months of age of either sex with history and clinical signs of diarrhea were randomly divided into 3 equal groups as follows: Control group T0 was treated with 250 mg ciprofloxacin HCL and 300 mg tinidazole orally twice daily for three days, Treatment Group (T1) Diaroak @ 15 gm twice daily till recovery, Treatment (T2) Salcochek @ 15 gm twice daily till recovery. The calves were housed individually in separate pens for the treatment. The calves positive for endoparasites were treated with an endoparasiticide along with the above treatment. The parameters evaluated were: average number of doses required for complete recovery, total number of animals completely recovered per group, number of animals in morbid state per group, mortality recorded per group, frequency of defecation per group, presence or absence of mucus in feces along with appetite of animals, and incidence of diarrhea and mortality during post treatment period, if any.

Results and Discussion

The calves observed were depressed, weak, off feed with copious amount of diarrheic feces. Mucus and melena were not observed in the feces. The frequency of defecation reduced from an average ten times a day to five to six times a day in all the groups after treatment or during recovery phase. Complete recovery was observed in all the animals and no morbidity or mortality was observed during treatment or post treatment. The results of the present study are shown in Table 1. Diaroak, an anti-diarrhoeal dry suspension, has a palliative action wherein it reduces peristalsis, adsorption of enterotoxins, provides protective coating over mucosa, and has anti-secretory and antibacterial action in the gut. In the present trial, all the calves treated with Diaroak underwent complete and uneventful recovery. Diaroak has been previously reported to be highly effective in controlling calf scours and non-specific enteritis in adult ruminants. The diverse effects of Diaroak are due to its constituent herbs. The key herbs present are Acacia catechu (Khadira), Holarrhoena antidysenerrica (Kutaj) and Aegle marmelos (Bael). Acacia catechu has antibacterial anti-diarrheal, astringent, and cooling properties. Holarrhoena antidysenerrica has amoebicidal, anti-inflammatory, and analgesic properties.

Table 1: Parameters observed in treatment groups.

| Groups (n=5) | No. of doses required for complete recovery | Average number of doses per animal required for treatment | Animals completely recovered | Post-treatment morbidity | Post-treatment mortality |
|-------------|-------------------------------------------|-------------------------------------------------------|------------------------------|--------------------------|--------------------------|
| T0          | 6                                         | 4.2                                                   | 5                            | 0                        | 0                        |
| T1          | 6                                         | 5.6                                                   | 5                            | 0                        | 0                        |
| T2          | 6                                         | 5.4                                                   | 5                            | 0                        | 0                        |
whereas *Aegle marmelos* has anti-microbial, anti-inflammatory, antipyretic, and analgesic properties.\textsuperscript{12-16}

Salcocheck treated calves also showed complete recovery in the present trial. Salcocheck has been found efficacious in the control of post-weaning diarrhea in piglets.\textsuperscript{17} Beneficial effects of Salcocheck in broilers were observed on gut ecosystem and in reducing the impact of Clostridial induced enteritis and in control of enteritis due to *Salmonella enteritidis*.\textsuperscript{18,19} Salcocheck arrests episodes of diarrhea and modulates gut function. The key ingredients are *Aegle marmelos* (Bael) *Punica granatum* (Anar), *Plantago ovate* (Isabagol) and energy source and electrolytes. *Punica granatum* is helpful in stomach disorders and diarrheal cases.\textsuperscript{20} It also has anti-bacterial, healing and anti-inflammatory properties.\textsuperscript{21-23} Electrolytes in Salcocheck help to overcome the electrolyte imbalance which occurs due to diarrhea.

Though the average number of treatments required for recovery was lesser numerically in Control group (4.2) treated with anti-bacterial drugs as compared to Diaroak (5.6) and Salcocheck (5.4), the recovery seen in animals treated with herbal anti-diarrheal was comparable. As herbal anti-diarrheals are a blend of different herbs and they lead to complete recovery from diarrhea besides exerting anti-inflammatory and protective action in the gut. Further, there was no recurrence in the control and treatment groups. The fecal consistency was better in herbal treated groups in the present trial.

To conclude, the herbal anti-diarrheals Diaroak and Salcocheck can be used for treating non-specific diarrhea in calves instead of anti-bacterial drugs for boosting the gut microflora and fauna and reducing the growing incidences of antimicrobial drug resistance.

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