THERAPEUTIC MANAGEMENT OF RUMINAL ACIDOSIS IN GOATS

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ABSTRACT

The present investigation was undertaken with a view to observe changes in clinical signs and symptoms in goats suffering from different degrees of rumen acidosis (mild , moderate and severe) and their response to different therapeutic approaches. The study was conducted in 27 clinical cases of acidotic goats and compared with 6 healthy control goats. Mild acidotic goats got only oral therapy of a combination of Anigest powder, Rumbion bolus, Soda bi-carb and Ambiplex syrup, moderate acidotic goats were treated with the above combination along with parenteral administration of Soda bi-carb, Anistamin and Dexona, whereas severe acidotic goats were given Steclin bolus, Yea-Sacc bolus, ruminal cud and normal saline in addition to the above therapeutic measures. Two out of five goats of severe acidotic group died on 3rd day during treatment whereas rest 25 goats responded well to the therapeutic measures and recovered. Various drugs are having their particular properties, which are used for treating this disease in field conditions.

KEY WORDS : **acidosis, goats, symptoms, treatment**

INTRODUCTION

Ruminal acidosis, which constitutes 18% of indigestion cases in India (Prasad *et al.*, 1976), is a major managemental disease of ruminants often encountered by field veterinarians. Goats, which are known as poor man's cow in India, mostly suffer from this disease because they consume excessive amount of readily fermentable carbohydrate rich diet due to their greedy nature. This becomes very fatal and thus causes significant economic losses if proper diagnosis and treatment is not provided in time. Hence, there is need to search for efficacious therapeutic regimens to save the life of these poor creatures immediately on the basis of clinical signs and symptoms rather than trying various lines of treatment. The present investigation envisages to study the alterations in clinical signs and symptoms of goats suffering from different degrees (mild, moderate and severe) of ruminal acidosis and the effect of certain therapeutic regimens on them, which might be of immense help in timely diagnosis and proper treatment of this disease in field conditions, where modern diagnostic laboratories are not available.

MATERIALS AND METHODS

Six clinically healthy goats of either sex (>1 year of age), maintained on balanced diet, were used as control group. Twenty seven ailing goats showing 'acidotic syndrome' brought to Bihar Veterinary College Hospital, Patna, were included in this study. On the basis of severity of clinical signs, these twenty seven acidotic goats were divided into mild, moderate and severe acidotic groups consisting of twelve, ten and five goats, respectively.

Therapeutic regimens

The therapy given to goats of different acidotic groups is mentioned below:

(a) Mild acidotic goats:

(i) Soda bi-carb (Product of Medikem Pvt. Ltd., Patna-7 @ 3-5 gm (g) once daily (o.d.) for 2-3 days in 50 ml of fresh water orally, (ii) Rumbion bolus (Indian Herbs, Saharanpur) @ 1 bolus twice a day (b.i.d.) orally for 3 days, (iii) Anigest powder (Sarabhai Chemicals, Baroda) @ 5g b.i.d. orally for 3 days, (iv) Ambiplex syrup (Brihans Laboratories, Mumbai) @ 5ml b.i.d. orally for 5 days.

(b) Moderate acidotic goats:

(i)Injection Anistamin (Intas Pharmaceuticals Ltd., Ahmadabad) @ 2 ml. intramuscular (i.m.) daily for 3 days, (ii) Inj. Dexona (Cadila Agrovet, Ahmadabad) 1ml on 1st day, 0.75 ml on 2nd day and 0.5 ml on 3rd day by

i.m. route, (iii)Combination mixture of Soda bi-carb @ 3-5 g, Rumbion bolus @1 bolus and Anigest powder @ 5 g b.i.d. orally besides Ambiplex syrup @ 5 ml b.i.d. orally, (iv) Inj. Soda bi-carb (7.5%), a product of M/S Bengal Chemicals and Pharmaceuticals Ltd., Kolkata @ 25 ml by intravenous (i.v.) route in single dose, (v) inj. Belamyl (Sarabhai Chemicals, Baroda)@ 2 ml i.m. alternate day (3 injections).

(c) Severe acidotic goats:

(i)Injection Anistamin @ 2 ml. i.m. b.i.d. for 3 days followed by 2ml i.m. o.d. for next 4 days, (ii) Inj. Dexona @ 1ml on day 1 and 2, 0.75 ml on 3rd & 4th day and 0.5 ml on 5th day by i.m. route, (iii) Inj. Soda bi-carb (7.5%) @ 50 ml i.v. o.d. for two days followed by 5 g Soda bi-carb in 50 ml fresh water orally b.i.d. for next two days, (iv) Combination of Rumbion (1 bolus), Yea-Sacc (M/S Vetcare, Bangalore) @ 1 bolus and Anigest powder (5 g) orally b.i.d. for a week. Besides, Steclin bolus (M/S Sarabhai Chemicals, Baroda) @ ½ bolus orally b.i.d. for 3 days, (v) Normal saline solution (M/S Albert David Ltd., Kolkata) 100 ml i.v. daily for three days depending upon the degree of dehydration, (vi) Inj. Belamyl @ 2 ml i.m. alternate day (5 injections) were given after some improvement in the condition of goats, (vii) From 3rd day onwards, Ambiplex syrup was given @ 5 ml orally b.i.d. for one week, (viii) When improvement in pH of ruminal fluid was achieved, ruminal cud from healthy goats was given @ 150-200 ml per day by oral route for 3-4 days.

RESULTS AND DISCUSSION

All the mild and moderately affected and three out of five severely affected goats responded well to the respective therapies given to them and began showing signs and symptoms like healthy control goats. Two goats of severe acidotic group died on 3rd day during treatment. This might be due to toxaemia already set up as a result of chemical ruminitis (Blood and Radostits, 1989). In spite of treatment, fatalities in cases of acidosis have also been reported by Bhikane *et al.* (1996).

In the present study, the therapeutic measures consisted of (i) neutralization of acidity by oral and/or parenteral use of Soda bi-carb, (ii) counteracting excessive amounts of toxic amines and toxic gases by parenteral administration of antihistaminic (Anistamin) & dexamethasone (Dexona), (iii) normalization of ruminal pH and ruminal motility by rumenotoric drugs like Rumbion and Anigest, (iv) restoring number and activity of rumen microflora by giving ruminal cud from healthy goats orally, and (v) maintaining fluid and electrolyte balance by fluid therapy in the three treatment groups as per the condition of the animal. Various drugs with their particular properties have been used in the present study.

Anigest powder consisting of *Swertia chirata, Nux vomica, Zingiber officinale* etc. has got very good stomachic, appetizing and carminative properties (Dey, 1980; Kapoor, 1990). So it helps in improving the activity of rumen microflora, ruminal tonicity and thus facilitating digestive process. Chakrangi, Katubhadra, Mangalya and Amogha etc., the key ingredients of Rumbion bolus, make it a potent appetizer. It restores appetite and normalizes the rumen pH by promoting secretion of saliva and acts as a pH regulator. Cobalt and copper present in this bolus help in vitamin B synthesis and thus obviating the need for their extra supplementation. It also improves the tone and contraction of rumen and reticulum and also the activity of rumen microflora and fauna (Misra, 1991). Yea-Sacc bolus containing yeast helps in stimulation of ruminal flora and for optimizing biological and metabolic functions of rumen. Since the rumen microflora responsible for vitamin B production are disturbed severely during acidosis, so the vit. B production may be hampered, which needs supplementation from outside. Hence in the present study, vitamin B complex liquid (Ambiplex) in all the three treatment groups and B complex along with liver extract (Belamyl) in severe acidotic group was used as supportive therapy. This corrects the deficiency of thiamine hydrochloride associated with grain engorgement. Sodium bicarbonate, an antacid, was given orally in mild acidotic group, whereas in moderate and severe acidotic groups, it was given both by oral and i.v. routes. Intravenous injection of Soda bi-carb (7.5% w/v) might have helped to combat the loss of alkali reserve of the body while the oral administration neutralized the acidity of the rumen (Prasad and Rekib, 1975). When pH of ruminal fluid improved, ruminal cud was given orally to severe acidotic goats for restoration of rumen environment and fermentative processes. In rumen dysfunctions, the establishment of normal rumen microbial population is essential and can be best achieved by cud transplantation (Dunlop, 1972). In this study, Steclin bolus, which contains tetracycline hydrochloride, was administered orally in severe acidotic goats to check the growth of gram-

positive bacteria to stop further production of lactic acid in rumen and for sterilization of rumen contents. Use of oral antibiotics in the treatment of ruminal acidosis along with other drugs has been advocated by Bhikane *et al*. (1996) in buffalo. During acidosis, excessive production of endotoxins in the rumen due to destruction of gram-negative bacteria may contribute to the release of endogenous histamine from body cells (Ahrens, 1967; Huber, 1976). To counteract the effect of histamine and other toxic amines produced during acidosis, antihistaminic like Anistamin was given by i.m. route. Dexamethasone (Dexona), a corticosteroid that is ideal for emergencies, was used in the present study in moderate and severe acidotic groups. Corticosteroids were used to prevent shock in ruminal acidosis in buffalo (Bhikane *et al*., 1996). To check dehydration and for restoration of electrolyte volumes to some extent, normal saline solution was given by i.v. route in severe acidotic goats which is in accordance with the report of Bhikane *et al*. (1996) in buffalo.

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