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TRIALS ON TETANUS TREATMENT IN BEETAL GOATS

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ABSTRACT

In the present study two different routes of anti-tetanus serum (ATS) administration were evaluated in naturally infected Beetal goats. A total of 10 goats during two years periods were registered at outdoor clinics of Department of Clinical Medicine and Surgery, University of Agriculture, Faisalabad. First 5 goats (irrespective of sex and age) were treated by using protocol –I (Inj. procaine penicillin- 1 million I.U./ IM + ATS- 10 thousands I.U/ IV+ Inj. Diazepam- 1ml IM) and other 5 goats received treatment protocol –II (Inj. procaine penicillin- 1 million I.U, IM + ATS- 10 thousands I.U IM + Inj. Diazepam- 1ml IM). Anti-tetanus serum was administered once daily in both protocols while administration of penicillin and diazepam was continued as far the animal survived. None of the goats receiving the two protocols recovered from tetanus and most of the animals died/ slaughtered within 5 days of appearance of clinical signs. The study concluded that treatment of tetanus in goat is not successful

Key Words: Tetanus, ATS, Goat

TRODUCTION

Tetanus affects almost all mammals. Horses are highly sensitive to the diseases while dogs and cats are relatively resistant. Sheep and goats are quite susceptible. Typically, tetanus is a toxemia caused by neurotoxin produced under anaerobic conditions. *Clostridium tetani* (*Cl. tetani*), the causative agent of tetanus, is Gram positive cocci. The organism found widely in both soil and animal feces. The neurotoxin is released when this spore-forming rod is confined to an oxygen-deprived area, such as a deep puncture wound (Kahn and Line, 2005). The may be present in animals and human intestinal tract without causing any symptoms of the disease

(Hungerford, 1990). In goats, *Clostridium tetani* spores enter through that occur during castration, disbudding, shearing, kidding, ear tagging etc. The clinical signs usually appear 4- 21 days after entry of the organism (Matthews, 1999; Hambidge, 2004). Clinical signs have reported in a one week old kid disbudding of which was done 4 days earlier. On the other, clinical signs may take several months to develop in does after dystocia. Castration by using elastrator bands is particularly blamed for establishing conditions for proliferation of spores. Similarly, persistent skin irritation by metal neck chain or rope may also lead to higher tetanus susceptibility. The goats housed together with horses and in barns previously used for equines may have increased risk of the disease (Smith and Sherman, 1994; Shearer and Bliss, 1994). In goats, clinical signs include erect ears, elevated tail, extended and stiff neck, general muscle stiffness, third eye lid prolapse, dysphagia, lock jaw and hyperaesthesia. In the latter stages, the animal goes to lateral recumbency and deaths results (Matthews, 1999). In goats like other ruminants, tetanus constipation and tympany are very pronounced (Smith and Sherman, 1994).

The diagnosis is based on characteristics clinical signs. There no definitive laboratory or necropsy findings. In tetanus prognosis is always guarded (Smith and Sherman, 1994).

ANIMALS AND CASE HISTORY

A total of ten goats of beetal breed were registered at outdoors clinics of Department of Clinical Medicine and Surgery, University of Agriculture, Faisalabad. Table-1 shows the estimated duration and set of clinical signs present in beetal goats at the time presentation at the clinic for treatment. While the probable predisposing factor responsible for occurrence of tetanus in these goats along with sex and age of the animals has been shown in Table-2 Out of ten goats, four were under 1 year of age, other four were between 1-2 years age while two animals were more than 2 years of age. All the animals belong to groups of 2-3 animals managed at home and green fodder and grains as concentrate. None of the animal was vaccinated against tetanus. Out of ten animals only 5 animals did have history for injury and possible entry point for *Cl. tetani* while in other 5 animals the owners were unable to recall any injury associated with organism entry.

TREATMENT PROTOCOLS

The animals were divided in two groups and treated by using two treatment protocols (Protocol I & II). Table-3 shows treatment protocols for two groups of Beetal goats suffering from tetanus. The treatment protocols were adopted with modification from protocol described by Hungerford (1990) for tetanus treatment in equine. In the protocol I, the animals were treated by administering Inj. procaine penicillin at dose rate

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of 1 million I.U through intramuscular route, Inj ATS at dose rate of 10 thousands I.U by intravenous and Inj. diazepam at dose rate 1 ml intramuscularly. In protocol II, the treatment was same except that Inj. ATS was administered intramuscularly instead of intravenous administration. Anti-tetanus serum was administered once in both protocols while administration of penicillin and diazepam was continued as far the animal survived. All the animals were observed for presence of wound and any visible wound suspected as portal of injury for organism was thoroughly washed with antiseptic. In addition, fluid therapy was done and animals were offered semisolid feed. The animals were kept in rooms with minimum light and noise. Soft bedding was provided to animals that became recumbent.

RESULTS AND DISCUSSION

The animals with longer duration showed more severe signs of disease as compared that animals in which the duration of the disease was less (Table-1). Moreover, the disease was more severe in the young animals as compared to adult animals. The same has been reported by others (Hungerford, 1990). None of the animals in both the groups showed improvement by condition throughout the study period. Table-4 and Fig.1 show the survival time in different animals suffering from tetanus and subjected to two treatment protocols. Although, no animal survived as a result of treatment animals showing less severe signs of the disease and those with elder age survived longer than with young animals and severe signs. The disease in young animals less than 1 year progressed rapidly (Hungerford, 1990) In the present study the younger animals became recumbent within 24 hours appearance of first sign. They developed severe locked jaw that did not respond muscle relaxant i.e diazepam. The animals that became recumbent died within 24-48 hours after recumbency.

Disease showed slower progression in animal over 1 year age. These animals developed bloating within 24 hours of appearance first sign and became recumbent within 48-72 hours. Same as in younger animals there was no treatment response in these animals. The animal died within 24-48 hours of recumbency.

The postmortem of these animals did not show any characteristic lesions or finding. Other workers have also reported absence of characteristic postmortem signs in tetanus (FAO, 1994).

The cause for death in animals suffering from tetanus is cessation of respiration as a result of inetercostal muscle spasm (Kahn and Line, 2005). The situation becomes exaggerated when the animal goes recumbent or there is development of bloat. In the present study treatment with diazepam did not result in muscle relaxation. The animals become recumbent in terminal diseases leading complete cessation of respiration.

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Table -1 Duration of disease and Clinical signs in beetal goats presented for the treatment of tetanus

Animal No	Duration of Disease	Clinical Signs
1	1 day	Stiffness of neck and legs , Locked jaw, recumbency
2	3 days	Stiffness of neck and leg, locked jaw, recumbency
3	3 days	Stiffness of neck and legs , partial locked jaw, drooling of saliva
4	2days	Stiffness of neck and legs, locked jaw
5	2days	Stiffness of neck and leg, locked jaw, recumbency, tympany
6	2 days	Stiffness of neck and legs , partial locked jaw, drooling of saliva
7	1 day	Stiffness of neck and leg, locked jaw, recumbency,
8	3days	Stiffness of neck and legs, locked jaw
9	2days	Stiffness of neck and legs
10	2 days	Stiffness of neck and legs , partial locked jaw

Table-2 Probable predisposing factor responsible for tetanus in beetal goats presented for treatment

Animal No	Sex	Age	Probable Predisposing factor
1	male	6months	castration
2	male	1 month	Not known
3	Female	30 months	kidding
4	male	15 months	Not known
5	Female	3 months	Neck chain injury
6	Female	26 months	Kidding
7	Male	8 months	Not known
8	Male	18 months	Punctured foot wound
9	female	15 months	Not known
10	Female	14months	Not known

Table-3 Treatment protocol in beetal goats suffering from tetanus

Animal No	Administration of Penicillin	Administration of Dizepam	Administration of ATS	
			I/M	I/V
1	√	√		√
2	√	√		√
3	√	√		√
4	√	√		√
5	√	√		√
6	√	√	√	
7	√	√	√	
8	√	√	√	
9	√	√	√	
10	√	√	√	

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Table-4 Survival time in beetal goats suffering from tetanus subjected to two treatment protocols

Animal Number	Age	Treatment Protocol	Survival Days after initiation of treatment
1	6 months	I	3 days
2	1 months	I	2 days
3	30 months	I	6 days
4	15 months	I	4 days
5	3 months	I	1 day
6	26 months	II	5 days
7	8 months	II	3 days
8	18 months	II	3 days
9	15 months	II	4 days
10	14 months	II	3 days

Fig1: Number of days that different animal suffering from tetanus survived after initiation of the treatment



