RETROSPECTIVE STUDY OF CLINICAL DISEASES AND DISORDERS OF CATTLE IN SIRAJGANJ DISTRICT IN BANGLADESH

M. A. S. Sarker*, M. Aktaruzzaman[1], A. K. M. A. Rahman and M.S. Rahman

Department of Medicine, Bangladesh Agricultural University, Mymensingh-2202, Bangladesh
[1]Assistant Manager, Milkvita, Srinagar, Munshiganj

ABSTRACT

A retrospective-epidemiological study of cattle diseases/disorders was conducted at Baghabari Milking zone of Bangladesh starting from June 2008 to May 2012. Out of 22066 cases, 73.95% and 17.16% diseases/disorders were recorded in cows and calves respectively. About 58.42%, 23.56% 12.48% and 5.54% cases were general and systemic, infectious, production and reproductive and surgical diseases/disorders respectively. The most common general and systemic diseases/disorders were fever (17.91%), anorexia (17.55%) and weakness (14.71%). Among infectious diseases, 78.2%, 7.02% and 6.32% respectively were mastitis, FMD and black quarter. The predominant production and reproductive diseases were milk fever (33.48%), repeat breeder (17.10%), retained placenta (14.27%), metritis (13.11) and anestrous (11.44%). The most common surgical disorders were navel ill (46.9%), wound (20.19%), abscess (8.99%) and urolithiasis (8.67%). Statistically significant variation of diseases in different seasons was also noted. We recommend for undertaking research focusing on the causes of fever, anorexia and weakness as they were the most predominant general and systemic disorders of cattle. Control measure should be initiated to reduce the burden of mastitis, repeat breeder, retained placenta and anestrous which were most common production and reproductive diseases in the study area. A case control study may help to reveal the factors responsible for such a high level of occurrence of navel ill in calves. This study generated information which is valuable not only for the clinicians, researchers, animal health companies and policy planners but also for the academicians to update veterinary curricula.

INTRODUCTION

There are about 23.4 million cattle, 0.82 million buffaloes and 33.5 million goats in Bangladesh (DLS 1998). These animals are important for good quality meat, milk, leathers and a source of income to farmers. Livestock is an integrated part of our farming system and plays an important role in the traditional economy of Bangladesh. Among the various constraints to cattle, buffaloes and goats production, diseases are the most important which degraded the productivity of these animals (Sarker *et al*., 1999). Until the existence of diseases in a particular area is understood, it is difficult to plan systemic health program or formulate effective control strategies. Retrospective evaluation of clinical case records help to understand the predominant clinical problems and also their demographic and seasonal distribution in a particular area. Although some disease reports on the analysis of clinical case report of cattle from BAU veterinary clinic (Samad, 2001 and 2011, Rahman *et al*., 1972 ; Hossain *et al*.,1986; Das and Hasim, 1996), Haluaghat Upazila Veterinary Hospital, Mymensingh (Sarker *et al*., 1999) the report on clinical cases of cattle in Sirajgonj and nearby districts is rare (Pharo 1987). This paper describes the important clinical problems of cattle at Baghabari Milking zone of Bangladesh.

MATERIALS AND METHODS

The duration of the study was four years from June, 2008 to May, 2012 and the research area was at Shahzadpur, Ullapara under Sirajganj and Bera, Sathia, Faridpur under Pabna district of Bangladesh. A total of 22066 sick cattle were recorded. The class of cattle were recorded as calf (up to one year), heifer (>one year to calving), cow and bull. The clinical cases were recorded during the physical visit of the farms. The clinical diagnosis of the diseases were made based on the presenting clinical signs, clinical history, physical examination, laboratory diagnosis, gross postmortem lesion, and the responses to treatment (Kelly, 1979; Rosenberger, 1979; Samad 1996). Four years data were analyzed on the basis of age and sex of the cattle and seasons. The year was divided into three seasons namely summer (July to October), rainy (March to June), winter (November to February). The proportional prevalence of diseases and disorders were calculated in percentage of the total records. The variation of diseases according to class of cattle and season was analyzed by Chi-square test in R 3.0.1 statistical software.

RESULTS AND DISCUSSION

A total of 22066 cases were recorded during the period starting from June 2008 to May 2012. The distribution of the different types of cases according to the class of cattle is presented in Table 1. Almost 74% of the total cases were recorded in cows and 17.16% in calves.

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*Corresponding e-mail address: sayeedsarker@hotmail.com

General and systemic diseases/disorders

The frequency of general and systemic diseases/disorders is presented in Table 2. The most common general and systemic diseases/disorders were fever (17.91%), anorexia (17.55%), weakness (14.51) and bloat (8.66%).

Table 1. Overall distribution of diseases in different class of cattle

Diseases/disorders	Calf (%)	Heifer (%)	Cow (%)	Bull (%)	Total	Proportional prevalence (%)
General and systemic	2769 (21.48)	633 (4.91)	8638 (67.01)	850 (6.59)	12890	58.42
Infectious	265 (5.09)	221 (4.25)	4600 (88.48)	113 (2.17)	5199	23.56
Production and Reproductive	-	86 (3.12)	2668 (96.88)		2754	12.48
Surgical	753 (61.57)	29 (2.37)	407 (33.28)	34 (2.78)	1223	5.54
Total (%)	3787 (17.16)	969 (4.39)	16313 (73.93)	997 (4.52)	22066	100
Significant in Chi-square test at p<0.001						

Fever

The rectal temperature when recorded ≥ 103°F considered as fever (Radostits *et al*., 2007). We have recorded about 17.91% cases of fever of unknown aetiology but Rahman *et al.*, (2012) reported a lower level of fever in cow (5.1%). The differences in cattle density, breed, management system, ecology between study areas may be responsible for differences in etiology of fever. Further research is needed to explore the infectious and non-infectious causes of fever in cattle for treatment and control purposes.

Anorexia/Inappetence

Complete or partial loss of appetite was diagnosed in 17.55% of cases on the basis of history obtained from the owner. Relatively higher occurrences was reported by Samad (2001) who found 33.57% cases of inappetence in cattle brought to Bangladesh Agricultural University Clinic, Mymensingh for the therapeutic purposes. Oral lesion, indigestion, fever, toxemia, stress, poisoning and a lot of others may be responsible for anorexia/inappetance which should be confirmed clinical examination and laboratory aid.

Weakness

About 14.71% cases were suffering from weakness. Malnutrition, parasitic diseases, debilitating diseases and other factors may be responsible for weakness but it should be studied properly using case control study.

Bloat

Bloat is clinically characterized by marked distension of abdomen with severe distress and dyspnea. About 9% cases were suffering from bloat in this study. It is mainly dietary origin and occurs most frequently in ruminants in Bangladesh (Sutradhar *et al*., 2000, Samad, 2001) who reported 1.73% and 1.83% bloat in cattle, respectively. Bloat if not treated early it is fatal. If some controllable risk factors of bloat can be identified, it might be possible to reduce the extent of this problem.

Diarrhoea

Diarrhoea is the increased frequency of defecation accompanied by feces containing an increased concentration of water and decreased in dry matter content. In this study 7.08% cattle was suffering from the nonspecific diarrhoea whereas 8.99% and 25.97% diarrhoea were described in cattle in Bangladesh by Hoque and Samad (1996)and Samad (2001), respectively.

Diarrhea is an important cause of calf mortality. In this study the proportion of diarrhoea was higher in cows (61.07%) than in calves (28.94%) (Table 2). In all class of cattle the causes of diarrhoea should be known for proper treatment and control of this problem.

Table 2. Distribution of general and systemic diseases in cattle

Diseases/conditions	Calf	Heifer	Cow	Bull	Total	Proportional prevalence
Allergic dermatitis	57	15	78	6	156	1.21
Anorexia	201	83	1762	216	2262	17.55
Arthritis	59	10	219	38	326	2.53
Bloat	230	74	728	84	1116	8.66
Bottle jaw	81	29	116	35	261	2.02
Colic	17	5	94	5	121	0.94
Constipation	11	16	145	21	193	1.49
Diarrhea	264	57	557	34	912	7.08
Dysentery	127		352	13	492	3.82
Eye disease	81	8	34	2	125	0.97
Fever	460	176	1547	125	2308	17.91
Lameness	119	45	543	90	797	6.18
Malnutrition	376	30	475	41	922	7. 15
Otitis	-	-	2	-	2	0.02
Partial paralysis	7	-	17	-	24	0.19
Pneumonia	94	20	202	19	335	2.59
Udder edema	-	-	602	-	602	4.67
Posthitis	-	-	-	39	39	0.30
Weakness	585	65	1165	82	1897	14.71
Total (%)	2769 (21.48)	633 (4.91)	8638 (67.01)	850 (6.59)	12890	

Table 3. Distribution of infectious diseases in cattle

Disease	Calf	Heifer	Cow	Bull	Total	Proportional prevalence
Actinomycosis	-	-	6	-	6	0.11
Anthrax	4	11	32	4	51	0.98
Black Quarter	186	90	29	24	329	6.32
Haemorrhagic Septicemia	5	-	6	-	11	0.21
Mastitis	-	-	4056	-	4056	78.02
Tetanus	21	4	-	-	25	0.48
Babesiosis	-	-	105	-	105	2.02
Coccidiosis	4	-	-	-	4	0.08
Ephemeral Fever	45	73	73	56	247	4.75
FMD		43	293	29	365	7.02
Total (%)	265 (5.09)	221 (4.25)	4600 (88.48)	113 (2.17)	5199	

Infectious diseases

   The infectious diseases of cattle recorded in this study is presented in Table 3. The most common infectious causes of cattle disease was mastitis (78.02%). The other predominant infectious diseases were FMD (7.02%), black quarter (6.32%) and ephemeral fever (4.75%).

Mastitis

   Mastitis, an economically important disease of milch animal, was diagnosed on the basis of history and physical abnormalities of udder (Radostits, *et al.* 2007). Mastitis was observed in 78.o2% of the infectious diseases recorded during the study period. Rahman *et al*. (1997) reported 13.3% of clinical mastitis in cows. However, comparatively lower proportion of mastitis was reported by Samad, (2001). This study reveals that mastitis is the most important infectious disease in cow of the study area. The incidence of mastitis has been reduced significantly world-wide by applying some control measures like treatment of clinical cases, selective dry cow therapy, pre and post milking teat disinfection and improved sanitation of the environment (Tyler *et al.*, 1997; Bradely, 2002; Berry and Hillerton, 2002). Offering feed to cows after milking to make them in standing condition for some time and administration of vitamin and selenium 5-10 days before calving had also been found to reduce incidence of mastitis in dairy cattle (Smith *et al.*, 1997; Tyler *et al.*, 1997). It is possible to apply all of them in Bangladesh context except dry cow therapy. Because the long acting antibiotics used for dry cow therapy is not available in market. Importing antibiotics is very time consuming and government policy does not allow import antibiotics from developing country like India where it is widely used and readily available. To implement other control strategies, farmers motivation through extension work is needed. Active milk inspection service and setting milk price based not only on milk fat percentage but also on herd milk somatic cell count (the lower the cell count the higher the price) will also indirectly influence farmers to control mastitis in their herds.

Table 4. Distribution of reproductive and production diseases in cattle

Diseases/disorders	Heifer (%)	Cow (%)	Total	Proportional Prevalence
Abortion	-	4	4	0.14
Agalactiae	-	18	18	0.65
Anoestrus	86	229	315	11.44
Cystic Ovary	-	18	18	0.65
Dystocia	-	77	77	2.79
Infertility	-	8	8	0.29
Metritis	-	361	361	13.11
Milk fever	-	922	922	33.48
Repeat breeding		471	471	17.10
Retained placenta	-	393	393	14.27
Uterine prolapse	-	143	143	5.19
Vaginal prolapse	-	24	24	0.87
Total (%)	86 (3.12)	2668 (96.88)	2754	100%

Foot and Mouth Disease (FMD)

About 7.02% of the infectious diseases were FMD. The occurrence of FMD has been reported in all age groups of animals and all the seasons of the years but higher susceptibility to young's and associated with increased movement of animals at the start of dry winter grazing season in Pabna district (Pharo, 1987). FMD is a transboundary animal disease (Rweyemamu *et al.,* 2008). Even after appropriate vaccination it is very difficult to control unless and until cattle trafficking is stopped and quarantine is followed appropriately during import from international market.

Black quarter

Black quarter was recorded in 6.32% of infectious diseases. In cattle the disease is mostly confined to young stock between 6 months to 2 years but occasionally it may occur in younger animals and cattle up to 3 years (Radostits *et al.,* 2007). It is evident in our study that some cows and bulls were also affected with black quarter.

Production and reproductive disorders

The distribution of production and reproductive diseases is presented in Table 4. About 33.48% of the production and reproductive disease was milk fever. Repeat breeder (17.10%), retained placenta (14.27%) and anestrous (11.44%) were most common reproductive diseases. Khair *et al*. (2013) also observed higher occurrence of these diseases in the same area. Our clinical experience and opinion from field veterinarian are also in agreement with the findings of this study.

As unskilled veterinary practitioners at village level are not able to treat these complex diseases, their prevalence are increasing day by day. The detail epidemiology of these diseases should be known to undertake appropriate control measures.

Table 5. Distribution surgical diseases in cattle

	Calf	Heifer	Cow	Bull	Total	Proportional Prevalence (%)
Abscess	14	13	75	8	110	8.99
Abscess of anus	3	-	-	-	3	0.25
Brocken horn	-	-	19	-	19	1.55
Dermoid Cyst	6	-	-	-	6	0.49
Fracture	10	-	24	-	34	2.78
Haematoma	-	-	4	-	4	0.33
Hernia	4	-	-	-	4	0.33
Hip dislocation	-	-	5	-	5	0.41
Navel ill	574	-	-	-	574	46.93
Rectal Prolapse	4	-	-	-	4	0.33
Teat fistula	-	-	10	-	10	0.82
Teat polyps	-	-	64	-	64	5.23
Udder Wound	-	-	33	-	33	2.69
Urolithiasis	98	-	-	8	106	8.67
Wound	40	16	173	18	247	20.19
Total (%)	753 (61.57)	29 (2.37)	407 (33.28)	34 (2.78)	1223	

Surgical diseases

Out of a total of 1223 surgical cases 46.93% were navel ill or omphalitis in calves. It may be prevented by improving maternity pen hygiene, reducing calf residency time inunhygienic calving pens, ensuring adequate early intake ofgood quality colostrum and repeated cord dipping with chlorhexidine (Waltner-Toews *et al.,* 1986; Gorden and Plummer, 2010). Further study is needed to know whether it has any link with genetics or not as semen of Jersey bulls are also used in this area for breeding purpose. Whereas in all the other parts of Bangladesh, semen from Holstein Friesian bulls are predominantly used for artificial insemination.

Through this retrospective epidemiologic study, important diseases and disorder have been identified and hopefully on a priority basis control measures should be undertaken against them This study generated information which is valuable not only for the clinicians, researchers, animal health companies and policy planners but also for the academicians to update veterinary curricula.

Table 6. Seasonal distribution of cattle diseases

	Summer (%)	Winter (%)	Rainy (%)	Total	Proportional prevalence
Cow	6663 (40.84)	3906 (23.94)	5744 (35.21)	16313	73.93
Bull	331 (33.19)	389 (39.02)	277 (27.78)	997	4.52
Heifer	356 (36.74)	202 (20.85)	411 (42.41)	969	4.39
Calf	1575 (41.59)	1061 (28.02)	1151 (30.39)	3787	17.16
Total (%)	8925 (40.45)	5558 (25.19)	7583 (34.37)	22066	100%

Significant in Chi-square test at $p<0.001$

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