J. Vet. Med. OH Res. (2019).1(1): 1-16 p-2664-2352 **: ISSN :** e-2664-2360
Website: www.lepvmbj.org DOI:10.36111/jvmohr.2019.1(1). 0001

A 50-YEAR REVIEW ON THE PREVALENCE OF CLINICAL DISEASES AND DISORDERS OF CATTLE IN BANGLADESH

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ABSTRACT

Background: The 25.7 million cattle populations in Bangladesh which is endangered by different diseases and disorders that are associated with significant socio-economic losses to the smallholder farmers and even in modern dairy farms. More than 100 articles on the retrospective evaluation of clinical case records have been published during the last 50 years from 1968 to 2018 in Bangladesh and their compilation and evaluation would help to understand the predominant diseases associated with morbidity and mortality.

Objectives: To analyze and evaluate the 50-year data on the prevalence of clinical diseases and disorders of cattle to identify the predominant and priority ailments for their prevention and control.

Materials and Methods: Data obtained from all the available 118 articles published on clinical cases of cattle during the last 50 years in Bangladesh were analyzed to detect their status on bovine health.

Results: Out of 137 different types of clinical cases recorded during the last 50 years, of which, calves affected with 27 (19.71%), adult cattle with 76 (55.47%) and both calves and adult cattle with 34 (24.82%) types of diseases and disorders. The highly statistical significant ($p < 0001$) percentage of clinical cases of cattle required medicinal treatment (81.19%) in comparison to surgical (10.03%) and gynaeco-obstetrical (GO; 08.78%) intervention. Results revealed that the parasitic diseases (fascioliasis 66.16%, humpsore 22.35%, gastro-intestinal (GI) nematodiasis 17.44%, ascariasis 12.17%, tick infestation 15.71%) and GI disorders (anorexia 14.90%, indigestion 6.15%) were highly prevalent as clinical cases in comparison to infectious diseases (anthrax 0.21%, BQ 0.92% and HS 0.45%) except FMD (10.13%) and mastitis (6.46%). Anestrus (3.04%), retained placenta (2.73%), repeat breeding (2.73%) and pyometra (2.12%) were recorded as major gynaeco-obstetrical problems, whereas umbilical myiasis (10.11%), lameness (4.25%) and abscess (1.15%) that mainly required surgical interventions.

Conclusions: The analysis of 50-year published reports on clinical cases of cattle gives an overall comprehensive idea about the disease problems that would help to formulate the devices for their prevention and control.

Keywords: Prevalence, Clinical diseases and disorders, 50-year review, Calf diseases, Adult cattle diseases, Medicinal cases, Gynaeco-obstetrical cases, Surgical cases

Article Info: Article ID No. © LEP: JVMOHR/00001/2019
Received: 5 April 2019 Revised: 6 May 2019 Accepted: 27 May 2019 Published: 30 June 2019

Citation: Samad MA (2019). A 50-year review on the prevalence of clinical diseases and disorders of cattle in Bangladesh. *J. Vet. Med. OH Res.* 1 (1): 1-16

INTRODUCTION

Cattle population in Bangladesh is currently estimated to be 25.7 million (Banglapedia). Although an encouraging number of dairy farms in both government and private sectors have been established but the majority of livestock are reared by smallholder farmers in integrated agricultural farming system in Bangladesh. Animal diseases are the most important constraints to livestock development in Bangladesh and animal diseases alone constitute half of the causes of death of all livestock population.[1] The direct effect of the livestock diseases are the morbidity and mortality of animals and indirectly associated with market disruption of the livestock and livestock products, costs of prevention and control of diseases and impacts on human health especially zoonotic diseases and public health over the security, quality and safety of livestock products. Bangladesh is divided into eight divisions and 64 districts and 492 sub-districts (Upazila). In addition to the Central Veterinary Hospital (CVH) and different universities teaching veterinary hospitals, each of the districts and Upazila have established government veterinary hospitals to cover the animal health services in Bangladesh. The first record on the occurrence of clinical disease humpsore has been reported in cattle from East Pakistan (now Bangladesh) in 1957 [2] and then 29% prevalence of this disease has been reported in cattle from the district of Mymensingh.[3] Then the prevalence of clinical diseases and disorders of livestock in Bangladesh have been widely reported from 1968 with the establishment of the '*Pakistan Journal of Veterinary Science*' in 1967. Review of literature revealed that more than 100 articles based on the analysis of the different veterinary hospital clinical case records and clinical disease surveillance in smallholders and dairy farms have been published.[1-118] Most of these articles on the prevalence of clinical diseases and disorders of livestock are based on either in a single or multiple attempts to analyze the hospital clinical case records, even multiple articles have been published with same data of clinical case records.[4-7] However, out of the 492 upazilas of 64 districts of Bangladesh, the clinical case records for only five livestock diseases that included anthrax, foot and mouth disease (FMD), haemorrhagic septicemia (HS), peste des petits ruminants (PPR) and rabies have been analyzed from 418 to 478 upazilas of 62 to 64 districts during the period between 2010 to 2012 for the study of epidemiology of these diseases[8] and the same source of data has also been used to analyze only for bovine fascioliasis in Bangladesh.[9] An overview on the livestock research reports published during the twentieth century with their main findings without any detail data has been compiled in a single published report from Bangladesh.[10] This paper describes an attempt to analyze the findings of all the available reports that are based on clinical case records maintained at the different upazila, district, university and dairy farm hospitals records published during the 50-year periods from 1968 to 2018 with the objective to find an overall status on the prevalence of different clinical diseases and disorders of cattle in Bangladesh.

MATERIALS AND METHODS

Over 50 years from 1967 the infrastructure of the laboratory diagnosis of livestock diseases and research has not been achieved impressive as human health system in Bangladesh. Accordingly, most of the published reports on the prevalence of clinical diseases and disorders of livestock are based on history and clinical examination however, some authors of the

published articles reported that they have used laboratory diagnosis for certain important diseases. However, this review articles is based on analysis of reports on clinical diseases and disorders of cattle published only in different journals. Therefore, the methods of diagnosis of clinical diseases and disorders of cattle are available in the different concerned published original articles.

Data analysis

The data obtained from the different published articles were entered in the MS Excel data sheet (Excel 2007, Microsoft) and descriptive statistics were performed. The data were presented as percentage of prevalence of clinical diseases and disorders based on calves and adult cattle. Some data are analyzed by conventional Chi-square test for significance.

RESULTS AND DISCUSSION

Animal diseases pose two basic types of problem for humans which include socio-economic and health. The socio-economic threats from animal diseases include: (a) losses in production, productivity and profitability, (b) disruptions to local markets, international trade and rural economics and (c) livelihood threats to the smallholder farmers. Human health threats from diseases of animals include (a) zoonotic diseases and (b) food-borne illness.

The multiple epidemiological terms like occurrence,[11-16] incidence,[17-20] prevalence[21-25] and retrospective studies[26-28] have been used by the different authors to present the title of their articles prepared from clinical case records on enzootic clinical diseases of animals maintained at the different veterinary hospitals in Bangladesh without considering the definition and scope of these terms. The occurrence of disease means that a disease occurs in a population and epidemiologically can be considered as incidence or prevalence of the disease. The incidence counts new cases of the disease (or outcome) whereas prevalence counts new and existing cases of the disease (or outcome). Retrospective study – 'to look back' looks back in time to study events that have already occurred. Therefore, prevalence and retrospective terms are more appropriate to present the clinical diseases and disorders based on data maintained on the hospital register books.

It appears that the retrospective studies on diseases based on hospital records have contributed greatly in understanding the prevalence and epidemiology of clinical diseases of livestock in Bangladesh. Therefore the findings of this review article on passive disease surveillance can also play an important role in the overall surveillance of cattle diseases in Bangladesh. However, some limitations are encountered during analysis of data of these published reports mainly due to different ways of presentation of data, presentation of all types of clinical diseases and disorders in a single article, presentation of a single[9] or only few diseases[8] among the all case records and even different articles published in different journals with the same data.[4-7] Considering all these limitations, data of all the available published reports on bovine clinical cases are analyzed and presented in Table 1.

Analysis of the 50-year data of more than 100 published articles based on mainly hospital clinical records revealed that cattle suffered with 137 different types of clinical diseases and disorders that required for treatment at the different veterinary hospitals, farms and small-

Table 1. Prevalence of clinical diseases and disorders of cattle in Bangladesh during the last 50 years from 1968 to 2018

SN	Diseases and Disorders	Calves			Adult cattle			Overall prevalence (%)	Reference
		No. of reports	No. of cases	Prevalence No. (%)	No. of reports	No. of cases	Prevalence No. (%)		
01.	Abortion[2]	-	-	-	17	62282	0435 (00.70)	00.70	1 =
02.	Abscess [3]	02	2176	142 (6.53)	15	56127	0528 (00.94)	01.15	2 =
03.	Actinobacillosis[1]	-	-	-	03	3992	0006 (00.15)	00.15	29,30,43
04.	Actinomycosis[1]	01	4129	0002 (00.05)	03	33139	0014 (00.04)	00.04	3 =
05.	Allergic dermatitis[1]	-	-	-	02	22747	0160 (00.70)	00.70	27,42
06.	Alopecia[1]	01	0497	0017 (03.42)	02	1648	0016 (00.97)	01.54	16,47,48
07.	Anaplasmosis[1]	-	-	-	03	16534	0224 (01.35)	01.35	23,49,50
08.	Anestrus [2]	-	-	-	15	51637	1572 (30.04)	03.04	4 =
09.	Anorexia[1]	03	6562	1048 (15.79)	14	50160	7404 (14.76)	14.90	5 =
10.	Anthrax [1]	-	-	-	07	2939741	6218 (0.21%)	00.21	6 =
11.	Arthritis[1]	04	6281	0057 (00.91)	10	58034	0896 (1.54)	01.48	7 =
12.	Ascariasis [1]	05	3787	0461 (12.17)	-	-	-	12.17	8 =
13.	A pneumonia[1]	01	848	0065 (07.67)	02	5132	0105 (02.05)	03.00	23,49,53
14.	Atresia ani[3]	11	56247	0693 (01.23)	-	-	-	01.23	9 =
15.	Babesiosis [1]	01	0848	0006 (00.71)	11	59961	0488 (00.81)	00.81	10 =
16.	Balanoposthitis [1]	-	-	-	06	39222	0122 (00.31)	00.31	11 =
17.	Balantidiosis[1]	-	-	-	06	19029	0288 (01.51)	01.51	12 =
18.	Bee sting[1]	-	-	-	01	10509	0003 (00.03)	00.03	33
19.	Blindness [1]	02	2875	0012 (00.42)	-	-	-	00.42	56,59
20.	Bloat[1]	03	6562	0062 (00.94)	18	67939	02068 (03.04)	02.86	13=
21.	Bottle-jaw[1]	02	5217	0105 (02.01)	03	33128	0509 (01.54)	01.60	14 =
22.	Black quarter [1]	04	6812	0058 (00.85)	20	72970	0673 (0.92%)	00.92	15 =
23.	Burn wound[3]	02	6065	0020 (00.33)	02	17509	0171 (00.98)	00.81	16 =
24.	Castration [3]	02	3311	0050 (01.51)	01	10509	0002 (00.02)	00.38	23,33,43
25.	Cervicitis [2]	-	-	-	04	6890	0229 (03.32)	03.32	17 =
26.	Coccidiosis [1]	11	51786	1278 (2.46)	-	-	-	02.46	18 =
27.	Colibacillosis [1]	06	14391	0350 (02.43)	-	-	-	02.43	19 =
28.	Colic[1]	-	-	-	02	23153	0125 (00.54)	00.54	27,32
29.	Congenital defects[3]	11	71518	0423 (0.59)	-	-	-	00.59	20 =
30.	Constipation [1]	03	6562	0082 (01.25)	-	-	-	01.25	16,46,53
31.	Corneal opacity [1]	-	-	-	06	25965	0193 (00.74)	00.74	21 =
32.	Cystic ovary[2]	-	-	-	05	26676	0118 (00.44)	00.44	22 =
33.	Dehorning[3]	-	-	-	05	33968	0027 (00.08)	00.08	23 =
34.	Dermatitis [1]	02	6208	0574 (09.25)	10	22813	0288 (01.26)	02.97	24 =
35.	Dermoid cyst [3]	11	86112	0198 (00.23)	-	-	-	00.23	25 =
36.	Dermatophilosis[1]	-	-	-	08	62018	791 (1.28)	01.28	26 =
37.	Dermatophytosis[1]	-	-	-	04	15750	0288 (01.83)	01.83	27 =
38.	Diarrhea[1]	08	25347	10378 (40.94)	18	54135	05141(09.50)	19.53	28 =
39.	Dog bite (Rabies)[1]	02	6065	0051 (00.84)	16	2948795	14584 (0.49%)	00.50	29 =
40.	DCS[1]	-	-	-	01	553	0004 (00.72)	00.72	29

41. Dysentery [1]	04	6562	0271 (04.13)	05	35834	0749 (02.09)	02.41	30 =
42. Dystocia [2]	-	-	-	15	52543	1564 (2.98)	02.98	31 =
43. Ear diseases [1]	01	4129	0002 (00.05)	-	-	-	00.05	46
44. Ear sore [1]	-	-	-	01	164	0005 (03.05)	03.05	78
45. Ectopasitism[1]	03	6065	0109 (01.80)	09	23497	1359 (05.78)	04.97	32 =
46. Endometritis[2]	-	-	-	04	10562	0396 (03.75)	03.75	33 =
47. Ephemeral fever[1]	01	4129	0032 (00.78)	10	23339	0862 (3.69)	03.25	34 =
48. Epistaxis[1]	03	14778	0007 (00.05)	02	11302	0008 (00.07)	00.06	35 =
49. Eye diseases[1]	03	6562	0141 (00.99)	09	57200	0569 (0.99)	01.11	36 =
50 Fascioliasis[1]	-	-	-	16	1766439	1168712 (66.16)	66.16	37 =
51. Fever[1]	06	8760	0707 (08.07)	14	50924	4837 (09.50)	09.29	38 =
52. FMD[1]	08	9499	0262 (02.76)	33	2999968	304455 (10.15)	10.13	39 =
53. Foot rot[1]	-	-	-	05	9124	0046 (00.50)	00.50	40 =
54. Fracture [3]	03	24142	16 (0.07)	08	69210	0252 (00.36)	00.29	41 =
55. Gangre mastitis[3]	-	-	-	04	41416	0236 (00.57)	00.57	42 =
56. GI nematodes [1]	01	2079	0390 (18.76)	13	35365	06142 (17.37)	17.44	43 =
57. Grass tetany[1]	-	-	-	03	5685	52 (00.91)	00.91	23,29,49
58. Haematoma[3]	-	-	-	01	22066	0004 (00.02)	00.02	27
59. Haemoglobinurea[1]	03	6065	0013 (00.21)	01	10509	0029 (00.28)	00.25	33,46,53
60. Hernia (umbilical)[3]	12	84955	0641 (00.75)	-	-	-	00.75	44 =
61. Hip dislocation [3]	-	-	-	04	60121	0460 (00.77)	00.77	45 =
62. Horn fracture [3]	-	-	-	05	46201	0280 (00.61)	00.61	46 =
63. HS [1]	-	-	-	12	2966575	13350 (0.45)	00.45	47 =
64. Humpsore[1]	-	-	-	20	39665	8866 (22.35)	22.35	48 =
65. Hydrocephalus[3]	02	3501	0002 (00.06)	-	-	-	00.06	45,58
66. Ill-thrift [1]	01	1936	0070 (03.62)	-	-	-	03.62	53
67. Impaction[1]	-	-	-	03	33256	0241 (00.73)	00.73	27,33,42
68. Indigestion[1]	04	2530	0155 (06.13)	08	27336	1683 (06.16)	06.15	49 =
69. IBK[1]	-	-	-	01	90	0001 (01.11)	01.11	48
70. Ketosis[1]	-	-	-	02	3090	0116 (03.75)	03.75	21,29
71. Knuckling [3]	03	37085	0031 (00.08)	-	-	-	00.08	21,45,64
72. Lactation failure [1]	-	-	-	03	35221	0181 (00.51)	00.51	27,30,33
73. Lameness [3]	05	14169	0038 (00.27)	13	69225	3505 (05.06)	04.25	50 =
74. Lice infestation [1]	-	-	-	08	38234	2186 (05.72)	05.72	51 =
75. Lymphadenitis[1]	02	6065	0017 (00.28)	01	10509	0014 (00.13)	00.19	33,46,53
76. Malnutrition[1]	-	-	-	05	27378	1064 (03.89)	03.89	52 =
77. Mange mites [1]	-	-	-	10	36993	1107 (2.99)	02.99	53 =
78. Mastitis[1]	-	-	-	29	92170	5954 (06.46)	06.46	54 =
79. Metritis[2]	-	-	-	15	54357	1201 (02.21)	02.21	55 =
80. Milk fever[1]	-	-	-	12	42463	1261(02.97)	02.97	56 =
81. Mobil poisoning[1]	02	6065	0004 (00.07)	-	-	-	00.07	46,53
82. Myiasis[1]	05	22275	0828 (03.72)	21	80992	0934 (01.15)	01.71	57 =
83. Nasal granuloma[1]	-	-	-	01	1087	0018 (01.66)	01.66	32
84. Navel-ill [1]	21	94459	3722 (3.94)	-	-	-	03.94	58 =
85. NFO[2]	-	-	-	03	2830	0114 (04.03)	04.03	36,37,68
86. Orchitis[2]	-	-	-	01	2646	0030 (01.13)	01.13	5
87. Otitis[1]	-	-	-	02	24712	0010 (00.04)	00.04	27,30
88. Otorrhoea[1]	-	-	-	02	11596	0010 (00.09)	00.09	32,33
89. Ovarian cyst [2]	-	-	-	02	8154	0007 (00.09)	00.09	11,35

090. Overgrown hoof[3]	-	-	-	02	11192	0009 (00.08)	00.08	33,44
091. Papillomatosis[1]	04	6955	0052 (00.75)	14	38565	0469 (01.22)	01.14	59 =
092. PCL[2]	-	-	-	02	3397	0051 (01.50)	01.50	4,68
093. Pica[1]	01	119	0004 (03.36)	-	-	-	03.36	20
094. Pneumo-enteritis[1]	03	2784	0202 (07.26)	-	-	-	07.26	53,101
095. Pneumonia[1]	06	9410	0459 (04.88)	14	50023	1341 (02.68)	03.03	60 =
096. Poisoning [1]	-	-	-	07	15128	0158 (00.04)	00.04	61 =
097. Pyometra[2]	-	-	-	12	24965	0529 (2.12)	02.12	62 =
098. RDS[1]	-	-	-	01	1087	0006 (00.55)	00.55	32
099. Rectal prolapse[3]	04	28131	0007 (00.02)	-	-	-	00.02	27,46,53
100. Repeat breeding [2]	-	-	-	15	58030	1584 (02.73)	02.73	63 =
101. Retained placenta[2]	-	-	-	29	58030	1584 (02.73)	02.73	64 =
102. Rumen flukes [1]	-	-	-	08	10689	1207 (11.29)	11.29	65 =
103. Ruminal acidosis[1]	-	-	-	07	9667	0847 (08.76)	08.76	66 =
104. Ruminal alkalosis [1]	-	-	-	02	5132	0165 (03.22)	03.22	23,49
105. Salmonellosis [1]	01	2079	0204 (09.81)	-	-	-	09.81	21
106. Schistosoma refl[2]	01	3361	0002 (00.06)	-	-	-	00.06	45
107. Schistosomiasis[1]	-	-	-	05	5044	979 (19.41)	19.41	67 =
108. Stillbirth [2]	04	3246	33 (01.02)	-	-	-	01.02	68 =
109. Streptothricosis [1]	-	-	-	01	681	0071 (10.43)	10.43	42
110. Strongyloidiosis[1]	02	5132	0056 (01.09)	-	-	-	01.09	23,49
111. S/C nodules[3]	-	-	-	03	17618	1480 (08.40)	08.40	75,78,112
112. Tail gangrene[3]	-	-	-	05	51925	0070 (00.14)	00.14	69 =
113. Tapeworm [1]	01	11402	0817 (07.17)	-	-	-	07.14	50
114. Teat fistula[3]	-	-	-	03	23183	0017 (00.07)	00.07	27-29
115. Teat obstruction [3]	-	-	-	04	41416	0924 (02.23)	02.23	70 =
116. Teat polyps[3]	-	-	-	01	22066	0064 (00.29)	00.29	27
117. Tetanus[1]	-	-	-	07	33688	0116 (00.34)	00.34	71 =
118. Theileriosis[1]	-	-	-	01	11402	0033 (00.29)	00.29	50
119. Tick infestation[1]	-	-	-	09	30874	4850 (15.71)	15.71	72 =
120. Tongue ulcer [3]	-	-	-	01	10509	0013 (00.12)	00.12	33
121. Traumatic injury[3]	01	0497	0027 (05.43)	01	1087	0003 (00.28)	01.89	16,32
122. Trichomoniasis[1]	-	-	-	02	200	0003 (01.55)	01.55	116,117
123. Tuberculosis[1]	02	1936	0012 (00.62)	-	-	-	00.62	53
124. Udder edema[1]	-	-	-	01	22066	0602 (00.03)	00.03	27
125. Udder wound[3]	-	-	-	01	22066	0033 (00.15)	00.15	27
126. Ulcer dermatitis[1]	02	1936	0065 (03.36)	01	10,509	0246 (02.34)	02.34	32,53
127. Umbilicus abscess[3]	01	0140	0010 (07.14)	-	-	-	07.14	58
128. Umbilical myiasis [3]	01	0564	0057 (10.11)	-	-	-	10.11	28
129. Urolithiasis[3]	-	-	-	08	72433	0420 (00.58)	00.58	73 =
130. Urticaria[1]	-	-	-	01	2646	0033 (01.25)	01.25	30
131. U-V prolapse[2]	-	-	-	16	50205	0473 (0.94)	00.94	74 =
132. UPF[3]	-	-	-	10	57596	0316 (0.55)	00.55	75 =
133. Vaginal prolapse[2]	-	-	-	08	50769	0483 (00.95)	00.95	76 =
134. Vaginitis[2]	-	-	-	05	16098	0122 (00.76)	00.76	77 =
135. Weak calf S[1]	04	6279	0197 (03.14)	-	-	-	03.14	78 =
136. Wound[3]	04	6726	0061 (00.91)	08	48499	1579 (03.26)	02.97	79 =
137. Yolk gall[3]	-	-	-	02	11596	0007 (00.06)	00.06	32,33
Overall	255	830139	26357 (3.18)	812	16866530	1602420(9.50)	09.20	

Medical cases[1]	Gynaeco-obstetric cases[2]	Surgical cases[3]
A = Aspiration	DCS = Downer cow syndrome	Gangre = Gangrenous
reft = reflexus	S/C = Subcutaneous	Ulcer = Ulcerative
U-V = Utero-vaginal	UPF = Upper patellar fixation	S = Syndrome
FMD = Foot and mouth disease	IBK = Infectious bovine keratoconjunctivitis	NFO = Non-functional ovary
PCL = Persistent corpus luteum	RDS = Rapid death syndrome	

1 = 4,5,11,17,26,27,29,30,32-40
2 = 11,21-24,28,31-33,41-45
3 = 22,28,33,46
4 = 5,11,17,27,29,30,32-35,37,38,43,44,48
5 = 13,16,18,23,27,30,33,34,39,41,42,44,46,49,51-53
6 = 8,19,23,27,34,49,50
7 = 24-27,30,31,33,43,46,47,49,53,54
8 = 31,32,55-57
9 = 11,21,25,27,28,30,42,45,54,58,59
10 = 18,21,23,26,27,30,32,43,48,49,50,53
11 = 27,30,31,33,43,47
12 = 18,23,49,60-62
13 = 16,22,26,29,31-34,41-48,51,53,63-65
14 = 27,29,33,46,53
15 = 12,18,19,21,23,24,26,27,29,-33,41,42,44,46,48, 50,51,53,56,66,67
16 = 18,33,46,53
17 = 4,5,36,68
18 = 18,27,23,30,32,41,43,44,49,50,56,
19 = 21,23,26,46,53,56
20 = 4,23,28,33,46,49,53,56,59,64,69
21 = 12,21,30,41,4370
22 = 4,5,27,36,68
23 = 13,27,28,33,43
24 = 13,21,26,32,34,43,44,46,48,49,71
25 = 13,25,27,28,45,54,56,58,59,70,72
26 = 23,30,42,49,50,73-75
27 = 22,29,32,78
28 = 16,21,24,26,27,29,30,32-34,41-44,46-48,51,53, 56,63,66,76
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78 = 16,23,49,56
79 = 18,24,25,27,28,33,43,45,46,48,53

holders levels in Bangladesh, of which 27 (19.71%) types affected in calves, 76 (55.47%) in adult cattle and 34 (24.82%) affected both the calves and adult cattle (Table 2). These findings remain un-compared due to lack of similar available reports. However, these findings support the age susceptibility, production and reproduction based diseases and disorders between calves and adult cattle.

Table 2. Types of treatment required and age-wise prevalence of clinical diseases and disorders in cattle

SN Types of cases	Calf affected No. (%) A	Adult cattle affected No. (%) B	Both A + B affected No. (%)	Overall (%)
① Medicinal	23724	82167	105891	81.19*
② Gynaeco-obstetrical	0	11449	11449	08.78
③ Surgical	2571	10506	13077	10.03
Total	26295	104122	130417	
④ Age-wise prevalence	27(19.71)	76 (55.47)	34 (24.82)	137

χ^2 = 3224.017 and significance at ($p < 0.0004$)

The recorded clinical diseases and disorders are divided into three groups on the basis of treatment required which include (a) medicinal, (b) gynaeco-obstetrical and (c) surgical cases. The prevalence of medicinal cases constituted significantly ($p < 0.01$) highest percentage (81.19%) in comparison to gynaeco-obstetrical (8.78%) and surgical (10.03%) cases (Table 2). These findings are in conformity with most of the published concerned reports[41] who reported 86.5% medicinal, 6.1% gynaeco-obstetrical and 7.3% surgical cases. However, the criteria for classification of different recorded clinical diseases and disorders in three groups differed in different articles.

It appears from the analyzed results that the parasitic diseases (fascioliasis 66.16%, humpsore 22.35%, GI nematodiasis 17.44%, ascariasis 12.17%, tick infestation 15.71%) and gastro-intestinal disorders (anorexia 14.90%, indigestion 6.15%) were highly prevalent as clinical cases in comparison to infectious diseases (anthrax 0.21%, BQ 0.92% and HS 0.45%) except FMD (10.15%) and mastitis (6.46%). These findings indicate that appropriate and adequate animal husbandry practices, treatment and control measures are not used against parasitic diseases in cattle whereas some effective vaccination program might have practiced against anthrax, BQ and HS in cattle that reduced the prevalence of these bacterial diseases but the vaccines and vaccination may not be so much effective against FMD might be due to widespread FMD, limited vaccination program and mutation of the causative virus of the FMD in cattle.

Anestrus (3.04%), retained placenta (2.73%), repeat breeding (2.73%) and pyometra (2.12%) were recorded as gynaeco-obstetrical problems, and umbilical myiasis (10.11%), umbilicus abscess (7.14%), lameness (4.25%), wound (2.97%) and teat obstruction (2.23%) that required major surgical interventions. These analyzed results reflect the finding of the published reports. In addition to certain infectious agents, unhygienic management and nutritional deficiency might have contributed for high prevalence of these gynaeco-obstetrical and surgical clinical cases.

The overall findings of the analyzed retrospective data on clinical case records for the past 50 years in Bangladesh revealed that the veterinary medical services especially animal husbandry practices, disease prevention and control (especially vaccines and vaccination) status and veterinary medical extension services are not adequate to cover the animal health services that need to be a strengthened at all the veterinary hospitals, animal farms and smallholder farmers levels. It may be recommended for strengthening both animal and human disease surveillance monitoring and control systems to improve animal health and safety animal products and prevent vulnerable populations with a means of protecting their livelihood and health especially from zoonotic diseases.

CONCLUSIONS

The findings of this review article provide an overall data about the widespread distribution of different clinical diseases and disorders in cattle throughout Bangladesh. The prevalence of infectious diseases in cattle might be mainly due to lack of adequate vaccination and lack of epidemiological knowledge of these diseases. The prevalence of cattle diseases in Bangladesh require a serious attention especially laboratory diagnosis for proper treatment and control of these diseases. Animal diseases are not only important for animal health and production but equally importance of human health. The major constraints in the prevention and control of livestock diseases are poor vaccination coverage, insufficient veterinary medical services feed-back infrastructure that interferes the vaccine –induced immunity at herd level in Bangladesh. Monitoring animal health and disease and their prevention and control helps to ensure security and safety of livestock products for human consumption. It may be recommended for improving disease diagnostic capacity and veterinary clinical and extension services, especially to the smallholder and poor livestock farmers.

CONFLICT OF INTEREST

Author would hereby like to declare that there is no conflict of interests that could possibly arise.

ACKNOWLEDGEMENTS

Many thanks to Md. Kamruj Jaman Bhuiyan, Member of the Editorial Board, 'JVMOHR' and Professor of Statistics, Department of Agricultural Statistics, Bangladesh Agricultural University, Mymensingh-2202, Bangladesh for statistical analysis of the data of this article.

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