

*Research article***Occurrence of diseases of ruminants admitted at the Santhia upazila veterinary hospital of Pabna, Bangladesh**Md Bashir Uddin^{1*}†, Md. Moniruzzaman²†, Muzahidul Islam², Md. Raihan Khan Nayem², Pronesh Dutta² and Mohammad Mahmudul Hassan^{2*}¹Faculty of Veterinary, Animal and Biomedical Sciences, Sylhet Agricultural University, Sylhet-3100, Bangladesh, ²Faculty of Veterinary Medicine, Chattogram Veterinary and Animal Sciences University, Khulshi, Chattogram-4225, Bangladesh

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ABSTRACT

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Livestock is integral part of rural economy in Bangladesh. Different types of disease and disorders are common in rural areas of this country. We attempted to analyses the clinical diseases and the disorders of cattle, goat, buffalo, sheep that are admitted at the Upazila veterinary hospital of Santhia under Pabna district of Bangladesh. The study was conducted during the period from December 2018 to January 2019. A total of 2449 clinical cases were recorded from case sheet of the hospital. Based on the descriptive analysis, highest number of animals admitted were Goat (50.71%; 95% CI: 48.71-52.71) followed by cattle (48.8%; 95% CI: 46.80-50.80) and others. Each clinical case was diagnosed on the basis of physical and clinical examination. The highest prevalence of disease was parasitic infestation (46.71%; 95% CI: 43.60-49.83) which was followed by pneumonia (18.78%; 95% CI: 16.42-21.32), digestive disorders (6.98%; 95% CI: 5.49-8.72) and enteritis (14.65%; 95% CI: 12.53-16.98). This report can provide important information concerning the prevalent diseases in that region and may help to develop effective disease control strategies in future.

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1. INTRODUCTION

Bangladesh is a highly populated and agrarian country where livestock has been an important component of the mixed farming system practices (Alam et al., 2015). About 80% of its population is employed in agriculture and livestock farming. Livestock is an integrated part of our farming system and plays an important role in the traditional economy of Bangladesh (Alam et al., 2016). There are about 22.87% million cattle, 20.75% million goat, 2.63% million sheep, 116.5% million chickens,

13.47% million duck in our country (DLS, 2017).

However, the livestock diseases and disorders are the most important hindrance towards livestock development in our country (Alam et al., 2018). It has been estimated that about 10% animals die annually due to diseases and disorders (Ali et al., 2013). Diseases also cause nutritional deficiency and disturbance fertility. Most of the animals are weak, emaciated and production performance is low due to malnutrition and disease (Imtiaz, 2014). The

veterinary hospital is an ideal and reliable source of information about animal diseases and treatment. Pabna District is famous for Pabna breed of cattle and Santhia is one of the Upazila under Pabna district. People of surrounding local areas bring their sick animals every day in the veterinary hospital to treat diseased animals. It is important to know the disease occurrence to resolve the problems in the local area and we have traced the clinical records maintained in the Santhia upazila veterinary hospital (UVH) during this study. A significant number of animals enroll at the UVH regularly from surrounding villages for veterinary care including treatment, de-worming and vaccination purposes. The specific objective of the study was to investigate the prevalence of clinically occurring diseases and the disorders in cattle, goats' buffalo at the UVH with a view to understand the diversity of illness in ruminant animals. It is expected that the data will help develop suitable preventive measures to combat future disease burden in the study area.

2. MATERIALS AND METHODS

Description of study area and period

The study was conducted at Santhia upazila veterinary hospital of Pabna. Santhia is located in between in 23'57" and 24'08" North latitude and in between 89'25" and 89'37" East longitude. It has 46745 household and total area is 331.56 km². There are about 73570 cow and buffalo, 64798 goat and 3105 sheep (BBS, 2013). The study was conducted during the period of December 2018 to January 2019.

Study population

The clinical study was undertaken at the upazila veterinary hospital, Santhia, Pabna to determine the general clinical prevalence of diseases and disorders in ruminant species. The data were collected from UVH register book.

Case definition

Based on pathognomonic/cardinal clinical features diseases were diagnosed at UVH. A qualified veterinary surgeons diagnosed the illness and recorded in UVH register.

Statistical analysis

The data was entered into the Microsoft Excel-2010 spreadsheet, and analysed by STAT/IC-13 tool.

3. RESULTS AND DISCUSSION

The study was based on previously recorded cases in Santhia UVH of Pabna and only ruminant species were included. A total of 2449 different clinical cases were recorded at UVH during our study period. Based on the descriptive analysis, we found highest percentages of sick animals were goats (50.71%; 95% CI: 48.71-52.71) followed by cattle (48.8%; 95% CI: 46.80-50.80) (Table 1).

When categorized based on the sex of the animals, female (69.91%; 95% CI: 66.99-72.72) were more affected than male animals (30.09%; 95% CI: 27.28-33.01). Crossbred animals (51.19%; 95% CI: 56.01-62.23) was more prone to disease than local non-descriptive or deshi animals (40.81%, 95% CI: 37.77-43.90) (Table 2).

The present study included data from 1195 cattle, 1242 goats, 9 sheep and 13 buffaloes. Considering the types of diseases, cases of parasitic infestation (46.71%; 95% CI: 43.60-49.83%) was the highest followed by pneumonia (18.78%; 95% CI: 16.42-21.32), enteritis (14.65%, 95% CI: 12.53-16.98), digestive disorder (6.98%; 95% CI: 5.49-8.72), mastitis (1.28%; 95% CI: 0.68-2.18) and FMD (1.28%; 95% CI: 0.68-2.18) (Table 3).

Several types of digestive disorders including diarrhea, acidosis, bloat, anorexia, simple indigestion and abdominal pain were recorded in different ruminants. Digestive disorders were found 1.6% and 1.3% in cattle and goat while diarrhoea was found in highest number in both cattle, and goats, followed by acidosis, bloat, simple indigestion and abdominal pain. Previous reports indicated diarrhoea and acidosis as the major digestive disorders in ruminants (Alam *et al.*, 2014). This result is consistent with the previous findings where they found diarrhea 33.05% in cattle and 29.44% in goats as major

Table 1: Percentages of diseases based on species, sex, breed and infection status at UVH (N= 2449).

| Factors | Categories | Frequency (n) | %; 95%CI |
|------------------|--------------|---------------|--------------------|
| Species | Buffalo | 3 | 0.12; 0.02-0.36 |
| | Cattle | 1195 | 48.8; 46.80-50.80 |
| | Goat | 1242 | 50.71; 48.71-52.71 |
| | Sheep | 9 | 0.37; 0.16-0.70 |
| Sex | Female | 1807 | 73.86; 71.99-75.52 |
| | Male | 642 | 26.21; 24.48-28.00 |
| Breed | Local | 1128 | 46.06; 44.07-48.06 |
| | Cross | 1321 | 53.94; 51.94-55.93 |
| Infection status | Affected | 1017 | 41.53; 39.57-43.51 |
| | Non affected | 1432 | 58.47; 56.49-60.43 |

Table 2: Overall disease prevalence based on species, sex and breed (N=1017).

| Factor | Category | Frequency (n) | %; 95%CI |
|---------|----------|---------------|--------------------|
| Species | Buffalo | 3 | 0.29; 0.06-0.89 |
| | Cattle | 559 | 54.97; 51.85-58.05 |
| | Goat | 448 | 44.05; 40.97-47.16 |
| | Sheep | 7 | 0.69; 0.27-1.41 |
| Sex | Male | 306 | 30.09; 27.28-33.01 |
| | Female | 711 | 69.91; 66.99-72.72 |
| Breed | Local | 415 | 40.81; 37.77-43.90 |
| | Cross | 602 | 51.19; 56.01-62.23 |

Table 3: Prevalence of different diseases in UVH, Santhia, Pabna (N=1017).

| Disease/Disorder | Frequency (n) | %; 95% CI |
|-------------------------|---------------|--------------------|
| Arthritis | 12 | 1.18; 0.61-2.05 |
| Blood protozoal disease | 13 | 1.28; 0.68-2.18 |
| Dermatitis | 24 | 2.34; 1.52-3.49 |
| Digestive disorder | 71 | 6.98; 5.49-8.72 |
| Enteritis | 149 | 14.65; 12.53-16.98 |
| Eye infection | 5 | 0.49; 0.16-1.14 |
| FMD | 13 | 1.28; 0.68-2.18 |
| Mastitis | 13 | 1.28; 0.68-2.18 |
| Navel ill | 15 | 1.47; 0.83-2.42 |
| PPR | 8 | 0.79; 0.34-1.54 |
| Parasitic infestation | 475 | 46.71; 43.60-49.83 |
| Pneumonia | 191 | 18.78; 16.42-21.32 |
| Reproductive disorder | 14 | 1.38; 0.75-2.30 |
| Tetanus | 3 | 0.29; 0.06-0.86 |
| Urolithiasis | 11 | 0.11; 0.54-1.93 |

digestive disorder (Lucky et al., 2016). Another study also reported 7.6% and 12.1% of diarrhoeal diseases in cattle and goats, respectively (Rahman et al., 2013).

Viral diseases were also prevalent in study areas. We recorded (0.53%) cases of FMD in cattle from the hospital record. Animals were affected with FMD virus although fewer in female (0.04%) and more in male (0.57%). Again, most of the FMD cases were recorded in cross breed (0.53%) compared to local/indigenous breed of cattle (0.08%). This results support the findings of earlier outputs who reported 0.88% and 1.3% cases of FMD in calves and cattle, respectively (Debnath et al., 1990; Rahman et al., 2013). Earlier, higher prevalence rates of FMD in cattle have been reported by different authors as up to 38.96% in male and as low as 6.91% in female in different areas of the country (Alam et al., 2018; Chowdhury et al., 2020; Islam et al., 2019; Karim et al., 2014; Lucky et al., 2016). These variations might be due to breed, sex and topographical locations and further research can validate the hypothesis.

During this study, we recorded around 0.33% cases of PPR in goats. PPR were recorded higher in female goat (0.24%) than male goats (0.08%). Similar findings were reported by other researchers who reported 27.94% and 8.33% PPR in goats (Lucky et al., 2016; Rahaman, 2017).

We recorded 0.41% mastitis during this study. Occurrence of mastitis was recorded more in female cross breed (0.53%) compared to local breed (0.41%). Previous reports showed an overall sub-clinical mastitis as high as 51.8% in the tested cows (Islam et al., 2019; Rahman et al., 2010; Tripura et al., 2014). In another study, 6.59% and 2.38% mastitis was recorded in cattle and goat, respectively (Alam et al., 2018). However, the geographic region was not the same in all cases although farming condition might be same in different parts of the country. Further research on different risk factors can shed light on the prevention option of this important infection in ruminants.

Dermatitis was recorded in cattle and in goats. Prevalence of dermatitis in cattle was also documented previously (Rahman et al., 2013). In the study area, parasitic infestation was common in cattle, goat and buffalo. Previously stated parasitic diseases in a study that performed on Black Bengal goats in other region of Bangladesh which is higher than the present study (Hassan et al., 2011). This may be due to diverse topographical location and type of parasites affected (Mamun et al., 2011). All gynecological cases are explained under subheadings of reproductive diseases where includes repeat breeding, anestrus, retained placenta, uterine prolapse and abortion etc. (Sarder et al., 2015). Reproductive disorders were affected mostly in female, cross breed and local breed. The cases of reproductive diseases/disorders were accounted as 4.87% and 1.59% in adult cattle and goats, respectively (Alam et al., 2018).

Overall, navel-ill was recorded only in cattle calves and kids of goat. This outcome supports the earlier results of where (0.79%) and (0.62%) navel-ill cases were recorded in calves and kids, respectively (Samad, 2001). From the 15 affected cases, 13 (86.7%) were cattle and 2 (13.4%) were goats. In earlier, 46.9% and 10.1% navel-ill in calves were recorded in Sirajgonj and Patuakhali district of Bangladesh, respectively (Rahman et al., 2013).

Urolithiasis was recorded in cattle and in goats and it is a main problem for goats reported previously (Sutradhar et al., 2018). It is also reported the variable percentage of obstructive urolithiasis in cattle as 0.02% and 1.1%, respectively (Rahman et al., 2013; Samad, 2001). Urolithiasis were affected in male animal (0.45%), cross breed (0.12%) and local breed (0.33%) in which supports the previous study who investigated prevalence of urolithiasis was higher in male goats (1.37%) than female goats (Parvez et al., 2014).

4. CONCLUSIONS

This study was conducted to investigate the present situation of clinical diseases and disorder of animal. Domestic animals are most susceptible to parasitic infestation and other

diseases. This may be due to hilly and low land area and marshy grazing field where intermediate host for parasitic infestation are available and the farmers are not aware about the anthelmintic treatment of animal. The contagious diseases like FMD and PPR are frequently outbreaks in this area. Therefore, restriction of movement and frontier vaccination is necessary to control these types of diseases. The study showed that general systemic states, digestive disorder, parasitic infection, dermatitis, are predominantly present. Necessary steps of biosecurity should be taken to prevent seasonal influence of infectious disease of livestock. Proper feeding, management and with the regular anthelmintic therapy is therefore necessary to gain maximum output from rural livestock. The knowledge derived from this study will increase our understanding the clinical cases of animal in a particular area and taking necessary preventive measures against diseases at national policy level. Proper planning and program should be undertaken to prevent and control diseases and disorders.

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