**ABSTRACT**

Records of 160 clinical cases of different types of species (domestic animal, pet animal, poultry and pet birds) treated at Kotwali Veterinary Hospital, Chittagong were analyzed to asses and document important diseases from January to March, 2015. The diseases were diagnosed tentatively using anamnesis and clinical sign. The results were analyzed into four major diagnostic groups (bacterial, viral, parasitic and others) to observe prevalence of different types of diseases among those species. Among the species excluding others’ group, in domestic and pet animals the highest percentage was parasitic diseases (34.78% and 36.54%); in poultry that was viral diseases (32.65%). In domestic animal and poultry, bacterial diseases were 2.17% and 6.12% respectively. Whereas among the infectious diseases, bacterial and viral were at highest percentages in poultry (75% and 100%) and parasitic in pet animal (46.34%). A split hematological diagnostic intervention was done on dogs suffering from skin diseases in SAQTVH. Infected dogs had lower mean values of hemoglobin (9.46 ± 1.21), neutrophils (57.83 ± 12.14) and ESR (2.08 ± 2.20) compared to the normal value but TEC (5.26$ \pm $2.14), TLC (10.31$ \pm $10.31), PCV (40$ \pm $4.73) levels founded at normal.

**Key words:** Prevalence, infectious diseases, hematological diagnosis, skin disease.

**CHAPTER – I**

**INTRODUCTION**

Bangladesh is an over populated, rural and agrarian country in the world and livestock has been an important component of the mixed farming system practiced in Bangladesh for centuries. Livestock plays an important role on the agricultural economy of Bangladesh. The non-crop agriculture sector has registered significantly higher growth rate over the last few years. The crop sector showed an annual growth rate of 1.2% while fisheries, livestock and forestry sub-sectors experienced 5.3, 5.6 and 4.0% growth rate respectively (Mondal *et al.,* 1999). About 80% of our population is employed in agriculture and livestock farming. Twenty percent people are involved in livestock sector as permanent occupation.

The contribution of Livestock in the magnitude of Gross Domestic Product (GDP) is about 2.6 % in Bangladesh (Anon, 2010). But the diseases and disorders of animals are the most important hindrance towards livestock development in our country. In Bangladesh at present, there are about 23.1 million cattle, 1.39 million buffaloes, 24.2 million goats, 3.1 million sheep, 216.7 million chickens, 40.21 million duck in our country (DLS, 2010).

Poultry farming is now considered as a growing industry. Poultry production is generally acknowledged as the most efficient and cost-effective way of increasing the availability of high protein food (FAO, 1987). Approximately 11.5% of daily protein requirement and 5% of daily energy requirement is provided by one egg (Branckaert *et al.,* 2000). Among poultry, broiler rearing attributed its popularity to the farmers for its short life span and comparatively low capital investment (Raha *et al.,* 2007).

Dogs, Cats are the most thriving canids, adapted to human habitation. They have contributed to refreshment by pet keeping, physical, social and emotional well-being for their owners (Robertson *et al.,* 2000; Dohoo *et al.,* 1998). Besides, in spite of the beneficial effects, close bond between dogs and humans remain a major threat to public health, with dogs harboring a large number of infective stages of disease causative agents transmissible to man and other domestic animals (Robertson *et al.,* 2000; Molyneux *et al.,* 2004).

In addition livestock disease is one of the main important hindrances towards the development of the livestock. As a result the direct impact of animal disease includes loss and productivity, through the death or slaughter of the animals, reduce production of milk, meat and reduce productive capacity.

Besides parasitic disease, some other important diseases like Pneumonia, Diarrhoea, Fever, Tympany, Anorexia in Cattle, Goats and Fowl cholera, Fowl Pox, Infectious Bursal Disease (IBD), Newcastle Disease (ND), Infectious Coryza, Drowsiness, Diarrhoea in Poultry or Pet birds and Allergy, Diarrhoea, Vomition, Anorexia as like as skin diseases in Dogs, Cats, Rabbits etc causes a great loss in the economy of Bangladesh.

Indirect impact includes loss of export market, effect on human health, effect on social status etc.

Veterinary hospital is an ideal and reliable source of information about animal diseases and their solution. People from the neighboring areas bring their sick animals to the Veterinary hospital every day. Analysis of the case record gives a comprehensive idea about the disease problems at local areas.

Chittagong district is one of the important sites for different animals and birds population and most of the common animal and bird’s diseases are frequently found in this area. That’s why this study was conducted at the Kotwali Veterinary Hospital for two months and S.A.Q. Teaching Veterinary Hospital (SAQTVH), CVASU during internship training program with the following objectives :

1. To determine the prevalence of different diseases and disorders of animals (cattle, goat, dog, cat, rabbit, birds).
2. To study the infection with different demographic variable (Types of disease etc).
3. To know the frequency of common diseases of animals and birds.
4. To study hematological parameters in skin diseases of dogs.

**CHAPTER – II**

**MATERIALS AND METHODS**

The study was conducted at Kotwali Veterinary Hospital of Chittagong district to determine the general clinical prevalence of diseases and disorders in domestic, pet animals and birds. The study period was 2 months standing from 13th January to 15th March, 2015.

All the sick animals brought for the treatment to this hospital were registered at first in the registered book. The owners complain as well as animals descriptions were recorded in the registered book.

**2.1. Reference population**

All the cattle, goats, dogs, cats, rabbits, poultry and pet birds that were brought in Kotwali Veterinary Hospital were considered to be reference population.

**2.2. Source of population**

Household raised or farm reared domesticated or pet animals or birds with history and clinical sign of diseases were considered to be the study population.

**2.3. Study population**

4 cattle, 42 goats, 22 dogs, 7 cats, 23 rabbits, 28 pigeons, 18 chicken, 3 duck, 5 mayna, 6 parakeets, 2 budgerigars were recorded during that period.

**2.4. Population and tools used for data collection**

All the sick animals are brought for the treatment to this hospital were first registered in the patient registered book.

In hospital at which owners willingly came with their complaints along with their patients or not and Veterinary Surgeon along with me examined and prescribed or only prescribed (in case of come without patient) the registered diseased animals. The age and other clinical history of sick animal were determined by asking the owner.

A total of 160 animals including 46 Domestic animal (cattle, goats), 52 Pet (dogs, cats, rabbits), 49 Poultry (pigeons, poultry, duck), 13 Pet birds (mayna, parakeets, budgerigars) were available during the study period and the clinical examinations were conducted according to the merit of the cases. Materials considered significant for the diagnostic purposes were collected.

**Registration form**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Types of patient** | **Address** | **Species** | **Sex** | **Age** | **Body wt.** | **Owner’s complain** | **Condition** | **Prognosis** | **Remarks** |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |

**2.5. Diagnosis of diseases either by clinical or physical examination**

**General Examination**

Physical condition, behavior, posture, gait, superficial skin wound, salivation, nasal discharge, distension of abdomen etc were observed by visual examination of the patient.

**Physical Examination**

Examination of different parts and system of the body of each of the sick animals were examined by using procedure of palpation, percussion, auscultation, needle puncture and walking of the animals.

**Clinical Examination**

The temperature, pulse and respiratory rate from each of these sick animals were recorded. Clinical examinations of the animals were conducted on the basis of diseases history, owner complaint, symptoms, to diagnose the following diseases and disorders. History of each case (present and past) was carefully taken which gave a guideline for examination of the animals. According the merit of the individual case, general clinical examination were conducted on the basis of disease history and owners complain, symptoms and techniques such as microscopic examination, laboratory common techniques used by Rosenberger *et al.,* 1979and Samad *et al.,* 1988.

The diseases were diagnosed by the techniques that already published at ‘Textbook of Clinical Veterinary Medicine’ by Blood D.C., Radostits O.M., Gay C.C. and Hinchcliff K.W. (2008) 10th edition.

 ** **

Fig. 1: Examination of the animals in Kotwali Veterinary Hospital

**2.6. Split Study**

A split diagnostic intervention on the changes of hematological value was performed on some selected dog suffering from skin problems registered in S.A.Q. Teaching Veterinary Hospital (SAQTVH), CVASU.

  

Fig. 2: Collection and analysis the parameters of the blood of dog

**2.7. Data Analysis**

The collected data was imported to the Microsoft Office Excel - 2007. After that obtained data was transferred to the software STATA/ IC- 11 for analysis.

**CHAPTER – III**

**RESULTS**

After the diagnosis of registered sick animals and birds in Kotwali Veterinary Hospital, highest percentage was given symptomatic treatment. In domestic animals, parasitic diseases were observed 34.78% and in poultry viral diseases were recorded 32.65%. Parasitic diseases also observed in pet animal as alarming condition (36.54%).

**Table – 1: The percentage of cases each of the major groups of diseases at Kotwali Veterinary Hospital.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Diseases** | **Domestic animal**(Cattle, Goat) | **Pet Animal**(Dog, Cat, Rabbit) | **Poultry**(Chicken, Duck, Pigeon) | **Pet Birds**(Mayna, Parakeet, Budgerigar) |
| **Bacterial** | 2.17 | 0 | 6.12 | 0 |
| **Viral** | 0 | 0 | 32.65 | 0 |
| **Parasitic** | 34.78 | 36.54 | 12.24 | 0 |
| **Others** | 63.05 | 63.46 | 48.99 | 100 |
| **Total** | **100** | **100** | **100** | **100** |

Among the species, viral diseases were recorded highest percentage in poultry (100%) and which indicate farmers were not maintained bio-security properly for poultry rearing. So, this dreadful condition may hamper our national economy. Domestic animals were affected by parasitic infestation (39.03%) also causing fearful condition because of production loss which intimated unhygienic condition at animal shed. Peoples were not careful for their pet animal as severe parasitic infection (46.34%).

**Table – 2: The percentage of the infectious diseases in different species at Kotwali Veterinary Hospital.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Species** | **Bacterial** | **Viral** | **Parasitic** |
| **Domestic animal**(Cattle, Goat) | 25 | 0 | 39.03 |
| **Pet Animal**(Dog, Cat, Rabbit) | 0 | 0 | 46.34 |
| **Poultry** (Chicken, Duck, Pigeon) | 75 | 100 | 14.63 |
| **Pet Birds**(Mayna, Parakeet, Budgerigar) | 0 | 0 | 0 |
| **Total** | **100** | **100** | **100** |

Examination of blood parameters was done for skin disease affected dogs in S.A.Q. Teaching Veterinary Hospital (SAQTVH), CVASU. Afterwards, various fluctuating range of blood component was executed. Level of hemoglobin (9.46 ± 1.21), neutrophils (57.83 ± 12.14), erythrocyte sedimentation rate (ESR) (2.08 ± 2.20) were reduced compared the normal level. Enhancement of lymphocyte (28 ± 9.33), eosinophil (8.17 ± 4.35) and monocyte (6.17 ± 3.31) were noticed. But total erythrocyte count (TEC) (5.26$ \pm $2.14), total leukocyte count (TLC) (10.31$ \pm $10.31), packed cell volume (PCV) (40$ \pm $4.73), basophil (0.16$ \pm $0.4) levels founded at normal range.

**Table - 3: Hematological findings of the skin disease affected dog from SAQTVH**

|  |  |  |
| --- | --- | --- |
| **Parameter** | **Normal range** | **Findings** |
| **(Mean** $\pm $ **S.D)** |
| **Haemoglobin**(gm %) | 12-15 | 9.46 $\pm $ 1.21 |
| **ESR**(mm in 1st hour) | 6-10  | 2.08 $\pm $2.20 |
| **TEC** (million/cumm) | 5-9  | 5.26 $\pm $ 2.14 |
| **TLC**(thousand/cumm) | 9-15  | 10.31 $\pm $ 10.31 |
| **PCV** (%) | 37-55  | 40 $\pm $ 4.73 |
| **Lymphocytes** (%) | 20-25  | 28 $\pm $ 9.33 |
| **Neutrophils** (%) | 60-75  | 57.83 $\pm $ 12.14 |
| **Eosinophils** (%) | 2-5  | 8.17 $\pm $ 4.35 |
| **Monocytes** (%) | 0-4  | 6.17 $\pm $ 3.31 |
| **Basophils** (%) | 0-1  | 0.16 $\pm $ 0.4 |

**CHAPTER – IV**

**DISCUSSION**

At Kotwali Veterinary Hospital, in the percentage of cases each of the major groups of diseases, parasitic diseases were observed in domestic animals 34.78% and in pet animal 36.54%. Viral diseases were recorded in poultry 32.65%. In the percentage of the infectious diseases among the species, viral diseases were recorded highest percentage in poultry (100%). Domestic animals were affected by parasitic infestation (39.03%) and in pet animal the prevalence was 46.34%. Islam *et al.,* (2011) given emphasis on bacterial diseases in cattle. Bacterial pathogens isolated were coagulase negative *Staphylococcus* sp. (73.73%), *Staphylococcus aureus* (26.67%), *Streptococcus* sp. (20%), *Bacillus* sp. (70%) and *Escherichia coli* (6.67%).

Aktaruzzaman *et al.,* (2013) investigated concurrent infection and seasonal distribution of gastrointestinal parasites in cross-bred cattle in Bangladesh. Out of 4248 fecal samples examined, 3268 (76.93%) samples harbored one or more parasitic ova or cyst and the rest 980 (23.07%) samples found free of parasitic ova or cyst. Among the positive cases, single infection of fascioliasis (29.0.5%), paramphistomiasis (8.3%), toxocariasis (11.32%), haemonchosis (2.47%), monieziasis (0.7%), balantidiasis (4.19%), trichuriasis (1.1%), trichostrongylosis (1.4%) and strongyloidosis (1.6%) were diagnosed.

Tarafder *et al.,* (2010)observed clinical conditions of 3670 sick pet dogs presented to the Central Veterinary Hospital. The prevalence of diseases and/or conditions from low to high rates included glaucoma (0.05%), babesiosis ( 0.08%), tetanus (0.08%), cataract (0.25%), metritis (0.25%), orchitis (0.35%), rabies (0.35%), pus in antrum (0.41%), purulent cough (0.46%), alopecia (0.52%), pharyngitis (0.52%), transmissible venereal tumor (0.54%), cystitis (0.52%) phimosis (0.52%), paraphimosis (0.60%), stomatitis (0.63%), pneumonia (0.63%), mastitis (0.71%), otitis (0.73%), taeniasis (0.74%), abscess (0.82%), anal gland disease (0.82%), dystocia (0.84%), conjunctivitis (0.90%), lice infestation (0.90%), lameness (0.95%), ottorrhea (1.06%), uterine prolapse (1.31%), posthitis (1.31%), dental disorders (1.34%), metabolic diseases (1.36%), protrusion of eye ball (1.44%), canine distemper (1.61%), liver disease (1.72%), nutritional deficiency diseases (1.77%), infertility (1.80%), coccidiosis (1.93%), toxocariasis (1.93%), urinary tract infection (2.10%), accidental wounds (2.32%), haematuria (2.34%), bronchitis (2.81%), dermatomycosis (3.30%), mange (3.76%), echinococcosis (3.92%), dermatitis (4.99%), diarrhea (5.21%), ancylolostomiasis (6.20%), flea infestation (9.84%) and tick infestation (11.88%).

Rahman *et al.,* (2010) analyzed of clinical case records from some villages around Bangladesh Agricultural University Veterinary Clinic. Records of 1500 clinical cases of different types of cattle. The percentages of major diagnostic groups were parasitic (29.2%), general and systemic (28.7%) and reproductive (14.7%).Whereas bacterial, congenital, fungal and surgical disease cases were found as 6.3%, 5.3%, 4.3% and 4.8% respectively.

Islam *et al.,* (2014)clinical and pathological investigation was done in different regions of Bangladesh of birds. The birds were found with IBD (16.9%), ND(14.1%), pox (1.4%), avian influenza (0.3%), duck plague (2.7%), duck viral hepatitis (1.2%), colibacillosis (14.1%), salmonellosis (14.6%), necrotic enteritis (1.5%), CRD/mycoplasmosis (7.6%), trichomoniasis (1.8%), psittacosis (1.3%), coccidiosis (9.9%), (IBD+coccidia) (3.6%), (IBD+ND+coccidia) (0.6%), (IBD+ND) (1.5%), internal parasitism (0.3%), nutritional deficiency disorders (3.8%) and miscellaneous (2.8%) cases.

The examination of blood parameters was done for skin disease affected dogs in SAQTVH. Afterwards, various fluctuating range of blood component was executed. Level of hemoglobin (9.46 ± 1.21), neutrophils (57.83 ± 12.14), ESR (2.08 ± 2.20) were reduced compared the normal level. Enhancement of lymphocyte (28 ± 9.33), eosinophil (8.17 ± 4.35) and monocyte (6.17 ± 3.31) were noticed. But TEC (5.26$ \pm $2.14), TLC (10.31$ \pm $10.31), PCV (40$ \pm $4.73), basophil (0.16$ \pm $0.4) levels founded at normal range. Simon *et al.,* (2011) correlated between Atopic dermatitis (AD) and eosinophil parameters in dog. Tissue eosinophilia is a typical feature of AD. The numbers of eosinophils in the skin are usually modest (2.8 cells/mm2 [range 0 to 90.3]) and correlate with disease severity. Besides eosinophils, eosinophil derived products such as ECP, EDN (also abbreviated as EDX), and MBP are present in increased amounts in the blood and the skin of AD patients.

Shyma *et al.,* (2011) studied on haematobiochemical parameters in dogs affected with bacterial dermatitis. Infected group of dogs had significantly lower mean values of hemoglobin, PCV, TEC, TLC (11.74 ± 0.32 g/dl, 33.75 ± 1.76 percent, 4.63 ± 0.32 X106/mm3) respectively when compared to respective mean values of control animals (13.36 ± 0.64 g/dl, 36.89 ± 1.27 percent, 6.24 ± 0.46 X106/mm3).

**CHAPTER – V**

**CONCLUSION**

After analysis the prevalence of diseases in my study area, it is true that farmers were not concerned about the bio-security for poultry rearing because of highest prevalence of bacterial and viral diseases. The farmers involved in domestic animal rearing were also not careful about shed hygiene because of high prevalence of parasitic diseases. Owners were also inattentive to keep their pet animal neat and clean whereas growing rate of parasitic infection as well as enduring of skin diseases.

**CHAPTER – VI**

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**Biography of the AUTHOR**

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