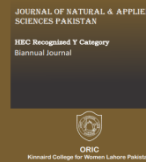




Contents list available <http://www.kinnaird.edu.pk/>

Journal of Natural and Applied Sciences Pakistan

Journal homepage: <http://jnasp.kinnaird.edu.pk/>



EPIDEMIOLOGY AND PREVALENCE OF INFECTIOUS CORYZA IN PAKISTAN

Muhammad Hamza¹, Abdul Samad^{1*}, Areeb Ahmer¹, Sania Tariq¹, Ayesha Muazzam¹

¹Department of Veterinary and Animal Sciences, MNS University of Agriculture, 66000, Multan Pakistan.

Article Info

*Corresponding Author

Email: buzdarabdulsamad@gmail.com

Abstract

One of the primary issues facing the commercial chicken sector in developing countries Such as Pakistan is infectious coryza. Haemophilus paragallinarum is the cause of the chicken upper respiratory illness. The disease's economic impact is mostly caused by an increase in culls and a large decrease (10 to 40%) in egg output, primarily on multi-age farms. There hasn't been nearly enough research done on infectious coryza in Pakistan to analyze the disease's effects on the nation's commercial chicken farmers. This study gives a general summary of the disease's prevalence in Pakistan and certain other states. The article contrasts the financial losses suffered by poultry owners due to result of an infection in developed or developing countries. The purpose of that study was to bring light over importance of Coryza for this purpose we use different methods in our study. The main objective of this study was to aware farmer from risk of coryza for this purpose we mentioned the treatment in the study There are also some limitation of that study which are following This study contain some figure and facts about Pakistan which are not applicable other Pakistan. This study was done on sampling base so error or difference may be possible. So these are some limitation of that study.

Keywords

Examination, Poultry Sector, Economy, Incidence, Serotype, Epidemiology, Infectious Coryza.



1.Introduction

Haemophilus paragallinarum is the etiological agent of Infectious Coryza (IC), an infectious contagious respiratory bacterial disease that affects several avian species. The disease may start off being acute or sub-acute, but as it spreads through the flock, it evolves to a chronic state. The disease is also referred to as roup, cold, and coryza 1. Blackall, P.J. (1989) The Avian Haemophili. Clinical Microbiology Reviews, 2, 270-277. De Blicck made the initial diagnosis of the clinical condition in 1931. The term "infectious coryza" was chosen because the illness was found to be contagious and mostly impacted the nasal passages 1. Blackall, P.J. (1989) The Avian Haemophili. Clinical Microbiology Reviews, 2, 270-277. The trachea, sinuses, and head bronchi are all affected by coryza, an illness of the upper respiratory system. The disease is also referred to as roup, cold, and coryza Blackall, P.J. (1999) Infectious Coryza Nasal discharge, face puffiness, sneezing, hard breathing, and an offensive odour to the exudates are symptoms of the disease. Birds become carriers of the disease after recovery from infections, which aids in the spreading of H. paragallinarum and explains why the disease is present throughout the world 3. De Blicck, L. (1932). Second, because there is little cross-protection among the nine serovars that make up the bacterial strain, it is useless to stop the disease's spread by inactivated immunization Kume, K., Sawata, A. and Nakase, Y. (1978 Rimler, R.B., Davis, R.B. & Page R.K. (1977). The term "Infectious Coryza" was chosen since the disease only appeared to be contagious in the nasal passages Beach, J. R. and Schalm, O. W. (1936). Lower respiratory tract involvement may be a result of the

interaction between H. paragallinarum & other infections of the respiratory system Blackall, P.J. (1999) Infectious Coryza. The disease's economic impact is a result of its symptoms. Both in layers and broiler birds. Laying of eggs in Laying flocks may have a 10-80% decrease. Affected Birds experience serious respiratory problems that lead to mortality ranging from 10% to greater than 10%. Young birds grow slowly, which results in condition loss. In broilers, ultimately leading to an increase in culls. A proposal for a new nomenclature for such species is made in light of the observation that there is a distinct group of bacteria within the family Pasteurelloceae linked with avian hosts and that these bacteria are infrequently isolated from any other host species. Haemophilus paragallinarum has been given the new name Avibacterium paragallinarum Blackall, P.J. (1989). Few nations have adopted this new terminology.

2.Method and Material

For the disease distribution we conduct survey in order know the disease risk. We use Epidemiology to know distribution pattern of disease while for finding the disease percentage we use the method of prevalence which is applied to data which is collected by survey while for new case ratio we use incidence method which also done through the data which is collected by survey.

3. Results

3.1Prevalence

3.1.1 Prevalence of serotypes:

Australia Beach, J. R. & Schalm, O. W. (1936). Indonesia. Thornton, A. M., Blackall, P. J., (1984 Malaysia, Japan Kume, K., Sawata, A. & Nakase, Y. (1978), and Australia have all recorded cases of serogroups A & C Takagi, M., Ohmae, K.,

Hirayama, N. & Ohta, S. (1991) Serogroups A and B have been identified in Germany Zaini, M. Z., Iritani Y. (1992). Serogroup A was discovered in Taiwan, whereas serogroup C was discovered in China Hinz, K.H. (1973) Chen, X., Zhang, P., Blackall, P.J. and Feng, W. (1993). National or international commercial vaccinations with A, B, and C strains or A and C serogroups are utilised in Mexico. India has been home to the discovery of Page serovars A and C Lin, J.A., Shyu, C., Yamaguchi, T. & Yakagi, M. (1995) presently, the approach described by is the most often used for the serological characterization of *H. paragallinarum*. To calculate the prevalence of infectious coryza in Pakistan we collected data from a farm where coryza attacked we saw that out of 50000 bird 10000 are effected by Coryza

Calculation of Prevalence

$$\text{Prevalence of Coryza} = \frac{\text{No of Disease birds}}{\text{Total Birds}} \times 100$$

$$\text{Prevalence of Coryza} = \frac{10000}{50000} \times 100$$

$$\text{Prevalence of Coryza} = 20\%$$

4. Epidemiology

There are cases of the disease everywhere. *Haemophilus gallinarum*, a bacterium that needed both Hemin factor X and NAD factors V for growth in vitro, was the causal organism as determined by early researchers. However, from the 1960s through the 1980s, it was discovered that all samples of the disease-causing agents only needed the V factor, leading to their designation as *H. paragallinarum*. Since 1989, the Republic of South Africa has seen *H. paragallinarum* isolates that are independent of the V factor. Therefore, *H. paragallinarum*, a bacterium that can be either V-factor dependent or

independent, is thought to be the disease's causal agent Blackall, P.J. (1999) Infectious Coryza. Reports on economically significant epidemics in two states of the Usa have highlighted the possible effect of coryza on meat chicken Thitisak, W., et.al. (1988). In America, there have been reports of unusual clinical symptoms. There have been coryza outbreaks in both North and South America where chickens displayed clinical symptoms more like a condition with an enlarged head Sobti, D. K., Dhanesar. N. S., Chaturvedi. V. K., (2000). Infectious coryza epidemic in broilers in Alabama that wasn't worsened by any other disease agent resulted in a condemnation rate of 69.8%, almost entirely because of air sacculitis. Reports from nations like Argentina, Pakistan, Morocco, and Thailand have shown how drastically different infectious coryza is and how it is made worse by other diseases and stress factors. Unique clinical manifestations such septicemia and arthritis are likely worsened by pathogens like *Mycoplasma gallisepticum*, *M. synoviae*, and *Pasteurella* spp. that have been identified. Argentina's broiler and layer flocks have been found to contain *Salmonella* spp. and the infectious bronchitis virus. For the first time in these epidemics, *H. paragallinarum* was isolated from non-respiratory locations like the liver, kidney, and tarsus Droual, R., et.al. (1990). In 10 coryza outbreaks, research in Morocco found that egg production fell by 14 to 41 percent and that 0.7 to 10 percent of people died Sandoval, V. E., Terzolo, H. R., (1994). Infectious coryza was shown to be the most frequent cause of death in chickens under two months old and those over six months old in a study on village fowl in Thailand. According to estimates, the sickness cost China during a three-year period

approximately 100 million yuan (approximately \$16.5 million USD at the time Chen, X., Zhang, P., Blackall, P.J. and Feng, W. (1993), Takagi, M., Ohmae, K., Hirayama, N. and Ohta, S. (1991). It is most common in California and the southeast of the US. In New England, AIC was identified in Connecticut in the 1980s but not in Maine for the previous 20 years. In 1975, 1978, and 1987, reports of the isolation of *H. paragallinarum* in Indonesia were made. Sadly, none of the samples from these experiments were kept in storage, thus no information about the serotype to which they belonged is available. In Arifwala, Pakistan, a layer farm with a population of 20,000 white leghorns, observed the effects of an epidemic of infectious coryza.

5. Status of the disease in Pakistan

5.1 Incidences in Pakistan:

Since the laboratory diagnosis of *H. paragallinarum* infection is based mostly on demonstration and confirmation by isolation and identification of the organisms, information on *H. paragallinarum* is quite scarce in Pakistan. For regular isolation and identification, this diagnosis proved to be challenging. According to research published in reputable journals, coryza instances have been recorded in Pakistan since 1967. The first documented isolation of this organism from Pakistan

References

Adlakha, S. C. (1967). Role of *Pasteurella multocida* in infectious coryza of fowls. *Indian Vet J.*, 44, 828-833.

Beach, J. R. and Schalm, O. W. (1936). Studies of the clinical manifestations and transmissibility of infectious coryza in chickens. *Poultry Science*, 15, 466-470.

was made Thjotta, T., and O. T. Avery. (1921). and a second report on it 11 years later in 1961. Infectious coryza has been identified as the second-most significant bacterial disease associated with mortality in the Multan district of Pakistan, following salmonellosis Adlakha, S. C. (1967). In the Multan district, it has been described as an epidemic. Lower Punjab and the province of Sindh in India are where it is most prevalent in high-altitude locations.

5.2 Treatment

Infectious Coryza can be treated through Antibiotics such as tylofurcin etc. But it's compulsory to use antibiotics 3-5 days according to body weight.

6. Discussion

Coryza is a bacterial disease here in this research we saw that effect of coryza on chicken and also saw prevalence, incidence and Epidemiology of Coryza. The following results shows Coryza can affect 20% birds of shed

7. Conclusion

After achieving of results we conclude that Coryza can cause high economical loss and it effect 20% birds of shed which 20% did not achieve appropriate weight which may cause loss. So for saving from loss we should use antibiotics like I also mentioned above as antibiotics can help to fight disease we can also use vaccine for saving bird from disease.

Blackall, P.J. (1989) *The Avian Haemophilus*. *Clinical Microbiology Reviews*, 2, 270-277.

Blackall, P.J. (1999) *Infectious Coryza: Overview of the Disease and New Diagnostic Options*. *Clinical Microbiology Reviews*, 12, 627-632.

Chen, X., Zhang, P., Blackall, P.J. and Feng, W. (1993). *Characterization of Haemophilus*

- paragallinarum isolates from China. *Avian Diseases*, 37, 574-576.
- De Blicck, L. (1932). A haemoglobinophilic bacterium as the cause of contagious catarrh of the fowl. *Veterinary Journal*, 88, 9-13.
- Droual, R., et.al. (1990). Outbreak of Infectious coryza in Northern California, Proceedings of 39th Western Poultry Disease conference. Sacramento (California) USA., California (Davis), University of California.
- Hinz, K.H. (1973). Differentiation of *Haemophilus* strains from fowls. 1. Cultural and Biochemical studies. *Avian Pathology*, 2, 211-229.
- Kume, K., Sawata, A. and Nakase, Y. (1978). *Haemophilus* infections in chickens. 1. Characterizations of *Haemophilus* paragallinarum isolated from chickens affected with coryza. *Japanese Journal of Veterinary Science*, 40, 65-73.
- Lin, J.A., Shyu, C., Yamaguchi, T. & Yakagi, M. (1995). Characterization and pathogenicity of *Haemophilus* paragallinarum serotype C in local chickens of Taiwan. *Journal of Veterinary Medical Science*, 58, 1007-1009.
- Rimler, R.B., Davis, R.B. and Page R.K. (1977). Infectious coryza cross protection studies, using seven strains of *Haemophilus* paragallinarum. *American Journal of Veterinary Research*, 38, 1587-1589.
- Sandoval, V. E., Terzolo, H. R., (1994)., *Corizza Infeciosa*, Primera Parte, description de la enfermedad, el agente, y los brotes de campo, *Avicult Profes*, 14, 29 – 35.
- Shrinivasa, C. S., Reddy, P. K. and Aruna, D., (1989). Incidence of Poultry Diseases in Karnool district (A.P.) *Polut. Adviser*, 22, 45 – 48.
- Sobti, D. K., Dhanesar. N. S., Chaturvedi. V. K., (2000), *JNKVV Research Journal*. 34 (1/2): 57-59.
- Sobti,-D-K; Dhanesar,-N-S; Chaturvedi,-V-K (2001) *JNKVV-Research-Journal*. 34 (1/2): 54-56.
- Takagi, M., Ohmae, K., Hirayama, N. and Ohta, S. (1991) Expression of Hemagglutinin of *Haemophilus* paragallinarum Serotype A in *Escherichia coli*. *Journal of Veterinary Medical Science*, 35, 917-920.
- Thitisak, W., et.al. (1988). Causes of death found in an epidemiological study of native chickens in Thai villages. *Acta Vet Scand*, 84, 200S-202S.
- Thjotta, T., and O. T. Avery. (1921). Studies on bacterial nutrition. 11. Growth accessory substances in the cultivation of hemophilic bacilli. *J. Exp. Med.* 34, 97-114
- Thornton, A. M., Blackall, P. J., (1984), Serological classification of Australian isolates of *Haemophilus* paragallinarum, *Australian Veterinary Journal*, 61, 8,251-253.
- Zaini, M. Z., Iritani Y. (1992). Serotyping of *Haemophilus* paragallinarum in Malaysia., *J Vet Med Sci*, 54, 363-365.