

EPIDEMIOLOGICAL STUDY OF THE RESPIRATORY INFECTIOUS PATHOLOGY IN GOATS IN NORTH-EASTERN ROMANIAN REGION

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Abstract

The national and European small ruminant increasing number during the 2010-2014 period is the reason for starting studies and researching about specific pathology. The purpose of this study is to establish a local statistic concerning the prevalence of the respiratory infectious pathology for the goats from North-Eastern Romanian region, in the counties: Iasi, Botosani and Vaslui on a number of 4608 goats during the period 2014-2016. Since respiratory diseases are the most frequent on the goats, most knowledge are obtained from cattle and sheep pneumonia analogies or from personal experience. Clinical manifestation are caused by following viral agents: Parainfluenza 3 virus, Respiratory Syncytial virus, Maedi Visna virus, Caprine Arthritis Encephalitis virus, compounded by secondary complication caused by Mannheimia haemolytica and Pasteurella multocida. Research has led to establishment of the prevalence of respiratory disease in goats counties investigated during the study period. The most affected breeds are imported breeds or their half-breeds: Saanen 27% and French Alpin 34%, kids are more sensitive (60%) compared with adult animals (38%), with 44.4% of the morbidity and mortality rate 12%. Knowing the epidemiological situation facilitates drawing up plans to combat specific prevention and protection that allow herds of goats.

Key words: epidemiology, goat, respiratory disease, morbidity, mortality

Introduction

The increase in the number of small ruminant flocks at national and European level for the period 2010-2014 had created the need for studies and research on Infectious Pathology relating to those species. Respiratory diseases within the Infectious Pathology goats are commonly found, being classified according to the causative virus (e.g. influenza) or on the basis of clinical signs (for example, common cold, pneumonia or bronchiolitis. Although specific pathogens frequently causes the characteristic clinical manifestations (e.g. Parainfluenza virus causes the flu, Rinovirus the common colds, Sincitial Respiratory virus the bronchiolitis), each can cause many respiratory viral syndromes. *Mannheimia haemolytica* and *Pasteurella multocida* are complicating bacteria and disease malignancy.

Parainfluenza virus (PI3) affects small ruminants of all ages and races. The main sources of infection are the sick animals wich eliminates the virus through secretions and excretions, especially through nasal secretions, vaginal and abortions. The animals passed through illness remain carriers of the virus and knockout for a variable time. The disease has evolved enzootico-epizootic outbreak with a high diffusibility in and out of, the evolution and severity of the disease being conditioned by various stressors (crowding, poor transportation, zoo-hygiene deficient, secondary bacterial infection). The clinical manifestations vary depending on age and physiological state. Kids present an acute pneumonia with sero mucos nasal discharge, misconduct and feverish. Youth prevails subacute forms and / or chronic, and rarely with jetaj seromucos feverish state. Adult animals go unnoticed acute forms, the most common forms are subacute and chronic respiratory expressed phenomena exacerbated by secondary complications, made by *Mannheimia haemolytica* and *Pasteurella multocida* [Perianu et al., 2012]. Immunity and infection control is usually considered to be relatively easy, however complications that may follow due to invasion by other bodies led to an increased interest in the use of vaccines. Live attenuated vaccines and subunit vaccines are likely to become available for the sheep. The vaccine administered intranasally to stimulate the production of specific IgA antibodies in nasal secretions [Smith et al., 1975]. Widespread occurrence of this virus and the conclusions reached on enabling other pathogens to invade the lower respiratory tract would indicate that this is a virus of considerable

economic importance.

Goats Respiratory Syncytial Virus (RSV) was isolated from dwarf goats in America during an outbreak of severe respiratory disease [Lehmkuhl and Smith, 1980]. The clinical signs observed in goats during the outbreak included severe coughing, nasal discharge, ocular secretions, corneal opacity and fever. The virus, which was isolated from nasal and ocular secretions, has been considered closely related antigenically, but as distinct from bovine RSV.

Maedi-Visna Virus (MVV) and Caprine Arthritis Encephalitis Virus (CAEV) causes persistent infection in sheep and goats and are often grouped together and referred to as lentiviruses of small ruminants (SRLVs). Maedi-Visna is also known as ovine progressive pneumonia (OPP). CAEV and MVV transmission is through colostrum and milk. Horizontal transmission source in the absence of lactation remains unknown; however, faeces and lung fluids are known to be carriers of the virus. CAEV distribution is higher in industrialized countries, and seems to have coincided with the international movement of European breeds of dairy goats. There is no commercial vaccine for the OPP.

Goat herpesvirus 1 (CpHV1) affects goats of all ages, kids aged 1-2 weeks, more sensitive, do septicaemic infections, generalized, with a high morbidity and mortality. Adult animals transmit the disease occurs predominantly through slow and genital infections. Sources of infection are the sick animals and those with latent infection, which eliminates the virus through secretions eye, nose, genital and faeces [Perianu et al., 2012]. Vertical transmission from mother to child also is possible. CpHV1 infection is associated with episodes of abortion in domestic goats, especially in the second half of pregnancy [Tempesta M., et al - 2004]. Way genital considered the main gateway is responsible for the maintenance of the virus infection in a flock [Roperto et al., 2000]. A respiratory form, normally combined with secondary bacterial infections, where the animals develop a severe pneumonia [Buddle B. M. et al., 1990].

Materials and method

Investigations were conducted in the period 2014-2016 on flock of goats, 4608 from Iași counties Botoșani and Vaslui. In the epidemiological investigation we consider narrative episodes from the last past years, I looked at the hatchery maintenance conditions (cold and drafts), type of calves (permanent free), type of production (milk, meat, mixed) breeder (amateur training, age) and at the individual was taken into account species, breed, sex, age, state of health. The investigation descriptive observational took into account the following risk factors: growth system, production system, population size, presence of sheep, availability of veterinary services, purchase history animals, history of sales dropping animal, natural mating, artificial insemination, historic abortions, vaginal discharge, infertility, birth of weak and dying animals at weaning, communal grazing pastures.

Results and discussions

Herds of goats in the study come from family farms; animals are kept in loose housing both indoors and permanent; the breeds are Carpathian, White Banat, Saanen, Alpine French or their crossbred. There was no found a predisposition to infectious diseases such as respiratory factor depending on the sex, they showed clinical signs both the females and the males.

Respiratory disorders were present in all age categories, the sensitivity was high in young goat (60%) than adult animals (38%), which shows that an important trigger of respiratory diseases is age, especially on animals aged up to one year.

The most affected breeds are imported breeds or their half-breeds: French Alpine and Saanen 27% 34% was considered that races Carpathian and White Banat are the most common breed of goats.

Another aspect of the epidemiology of respiratory diseases have consisted in the investigation that incriminated several respiratory diseases are stress factors predisposing. The

most important stress factor is the factor of heat stress, the numerous cases of disease were reported in spring and autumn, usually in periods with large temperature differences between day and night. Stressors nutritional, metabolic stress, stress of transport, gestational stress increase risk of respiratory disease. Risk factors in the pathogenesis of respiratory diseases were represented and lack of application specific immunoprophylaxis, domestic animals have been wormed and / or have not been vaccinated.

The frequency of respiratory diseases in the goat population in the counties of Botosani, Iasi and Vaslui in the period 2014 - 2016 is expressed using impact indicators: morbidity, mortality and lethality rate. Morbidity is the ratio of the number of sick animals and at-risk population. Morbidity rate can be expressed by area (in the denominator of the indicator is responsive population in the area) or flock (the denominator is the number of herds). Morbidity in the area is 22.8%, herd morbidity level is 44%. Mortality is the ratio of dead individuals and at-risk population. Mortality rate can be expressed by area (in the denominator of the indicator is responsive population in the area) or flock (the denominator is the number of herds). Mortality in the area is 2.75% and at 5.34% of the herd. The lethality is expressed by the ratio of the number of dead animals and sick animals. Lethality rate is 12%. These indicators give an overview of the frequency and severity of respiratory diseases in the population of goats. Distribution epidemiological phenomenon while it is assessed by two indicators: incidence and prevalence. Incidence is the number of new cases in population determined during the period studied. The incidence during 2014-2016 was: in 2016 for Botosani county was 2 outbreaks; in 2015 for Iasi county, 2 outbreaks and in 2016 one outbreak; in 2015 for Vaslui county, 2 outbreaks and in 2016, 3 outbreaks. Prevalence is the number of existing cases over the study period, and was 22.8%.

Conclusions

Clinical examination of the herd in the identification of sick animals, they were isolated and treated. Infectious diseases research results on respiratory goats from Iasi, Botosani and Vaslui investigated during 2014-2016, the most affected breeds are imported breeds or their half-breeds: French Alpina 34% and Saneen 27%, kids are more sensitive (60%) compared to adult animals (38%), with a morbidity rate of 44.4%, the death rate of 12%. Knowledge of the epidemiological situation leads to the proposal of plans for specific preventive control or enabling the design, management and evaluation of animal health programs.

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