BioTechnology
ISSN: 0974-7435

BioTechnology: An Indian Journal

Mini Review| Vol 13 Iss 1

The Epidemiology of Equine Diseases in Algeria

Kardjadj M*

Ecole Supérieure en Science de l'Aliments et des industries Agroalimentaire, ESSAIA, Avenue Hamidouche, El-Harrach, Algiers, Algeria

***Corresponding author:** Kardjadj M, Ecole Supérieure en Science de l'Aliments et des industries Agroalimentaire, ESSAIA, Avenue Hamidouche, El-Harrach, Algiers, Algeria, Tel: +213542173600; E-mail: drkardjadj@live.fr

Received: December 28, 2016; **Accepted:** January 06, 2017; **Published:** January 09, 2017

Abstract

The horse occupies an important space in the history, culture and tradition of the Algerian society. Horses represent an important industry, with approximate population of 1,00,000 horses. The aim of this review is to present review the epidemiological situation of some equine diseases in Algeria; West Nile fever (WNF), Rhinopneumonitis (RP), Equine Viral Arteritis (EVA) and Equine Influenza (EI). This epidemiological analysis showed the existence and persistance of rhinopneumonitis, Equine Arteritis virus, West Nile fever and Influenza virus in the equine population of Algeria. These pathologic agents deserve all the attention of owners, equine breeders, veterinarians and policy makers. Consequently, the monitoring of immunological status of horses and the systematic use of vaccination calls for the unanimity of the scientific community as a basic principle, to avoid these diseases of economic and zoonoses importance.

Keywords: ***Algeria; Epidemiology; Equine; Diseases***

Introduction

The horse occupies an important space in the history, culture and tradition of the Algerian society. Horses represent an important industry, with approximate population of 1,00,000 horses according to the data of the Algerian Ministry of Agriculture and Rural Development [1]. The great majority of these horses are commonly identified as Barb and Arab-Barb. These two breeds are native to the coastal regions of North Africa. They are generally used in the fantasia (traditional exhibition of horsemanship in the Maghreb performed during cultural festivals), as well as the equestrian sports. There are an approximately 10,000 and 80,000 heads belonging to the Barb and Arab-Barb breed, respectively [1].

The predominant breed in Algerian is the Arab-Barb which was a creation of the Algerian brood-mares in 1877; these breed emerged genetically by crossing between Barb and Arabian horses [2,3]. The breed was raised to combine hardiness, endurance and the stamina of the Barb to the elegance and speed of the Arabian thoroughbred. In addition to these two autochthonous breeds, we can also distinguish the Arabian Thoroughbred (approximately 5,000 heads) and the English Thoroughbred (approximately 5,000 heads), mainly used in equestrian sporting events of dressage and show jumping. For

Citation: Kardjadj M. The Epidemiology of Equine Diseases in Algeria. Biotechnol Ind J. 2017;13(1):121.

several decades, these imported breeds became unevenly distributed on the Algerian territory, and adapting mostly to the mountainous regions and arid territories of North Africa [1].

Over the years, increase in movement of these horses for sporting and their participation in national and international equestrian demonstrations are a risk for infection and spread of equine diseases that could generate a significant socio-economic deterioration in Algeria. The recent outbreaks of some equine diseases such as Equine influenza and the West Nile fever in North African countries showed the importance of an epidemiological monitoring system. Furthermore, equine vaccination in Algeria is not mandatory however, the available ones are limited to rabies, tetanus and influenza and there is no import authorization for other vaccines in the country [1].

Respiratory disease of viral, mechanical and allergic aetiology has continued to be a major challenge in Equine medicine globally [2,3]. However, the health situation of the Algerian equine population is still being threatened by the occurrence of certain infectious and contagious diseases that cause severe morbidity and sometimes mortality within infected flocks. Therefore, the aim of this review is to present review the epidemiological situation of some equine diseases in Algeria; West Nile fever (WNF), Rhinopneumonitis (RP), Equine Viral Arteritis (EVA) and Equine Influenza (EI).

West Nile Virus

West Nile Virus transmission has been confirmed in the Mediterranean Basin [4]. An increasing concern towards disease has been observed due to the high number of human and animal cases reported in these areas confirming the importance of this zoonosis. New cases of the disease have been reported outside Algeria which confirms the role of migratory birds in the epidemiology of the disease [4]. WNV infection is becoming endemic in some European territories today due to constant outbreaks by the same strains over the years and across the same geographical area. A recent epidemiological trend is currently emerging with the co-circulation of lineages 1 and 2 respectively, and thereby creating a favourable condition for genetic reassortment and emergence of new strains [4].

Historically, many outbreaks causing severe human encephalitis were observed in the Maghreb countries during the mid-1990s and early 2000s: Algeria 1994 (50 cases, including 8 fatalities), Morocco 1996 (one fatal case) and Tunisia 1997 (111 cases, 8 fatalities), 2010 (3 cases), 2011 (3 cases), 2012 (33 cases), 2013 (6 cases) [4-6]. Equine West Nile fever cases were never reported in Algeria. However in 2003, 9 cases were reported in neighboring Morocco in horses caused by lineage 1 of the virus [5], in Tunisia in 2013 where cases were indicated in horses, mules and donkeys [6] and recently in Algeria When Lafri et al. [7] describes the first seroprevalence study of West Nile virus (WNV) antibodies conducted in the equine population in Algeria; WNV seroprevalence was found 17.4% distributed as follows: 19 (seroprevalence 26.8%) horses and 32 (seroprevalence 14.4%) donkeys. Moreover 7 horses coming from Blida, in the center of Algeria, were tested before and after an 8-months stay in North-East Algeria. 2 horses showed a seroconversion, proving WNV circulation in 2014 in this specific region of Algeria.

Rhinopneumonitis

The equine rhinopneumonitis caused by Equine herpes virus 1 (EHV-1, 2 and 4), is a redoubted pathological condition (respiratory, abortive and nervous form) which generates important economic losses, immobilize the sero positive stocks and

disturb their sportive activities. In Algeria, Bererhi et al. [8] described RP seroprevalence of 2.82%, with complement fixation in the eastern region of Algeria. In addition [9] Bererhi et al. reported that older animals and females were most exposed to the infection.

Equine Viral Arteritis

Equine Viral Arteritis (EAV) is one of the major viral pathogens of horses; it can infect horses, donkeys, mules and zebras [10]. EVA is a respiratory and reproductive disease of horses that occurs worldwide. The vast majority of EAV infections are subclinical, but acutely infected animals may develop a wide range of clinical signs, including pyrexia, depression, anorexia, dependent oedema (scrotum, ventral trunk and limbs), stiffness of gait, conjunctivitis, lacrimation and swelling around the eyes, respiratory distress and leukopenia [10,11]. The direct consequences of EVA outbreaks are financial losses, mainly due to abortions of pregnant mares, and the death of young foals [11].

Although, specific EAV antibodies have been detected in Algeria by Laabassi et al. [12], who reported 7.49% seroprevalence. The results obtained in the different region investigated, demonstrated that the EVA prevalence were significantly higher (P=0.011) in horses over 20 years old seems to demonstrate the circulation of EAV in the Algerian horse population during the last 20 years. Conversely, the low percentage of positive horses aged less than 20 years old indicates that EAV has barely circulated in the studied regions during the last 20 years.

Equine Influenza

Equine Influenza Virus (EIV) belongs to the *Orthomyxoviridae* family and is a major cause of respiratory diseases in horses. EIV can spread very rapidly in a susceptible population and may lead to important economic losses to the equine industry worldwide [13]. Clinical signs associated to EIV infection are coughing, nasal discharge and high fever. In Algeria, Two EIV subtypes have been isolated from horses. The equine H7N7 viruses have been isolated in 1956 and have not been isolated in horses since 1979. The equine H3N8 viruses have been isolated in 1963 after an important outbreak in USA. This virus called A/Eq/Miami/63 [9]. In 1972 the first equine influenza virus isolated in Algeria has been characterized, since then no evidence of equine flu circulation in this country has been published until 2014, when an outbreak of equine influenza (EI) was reported in Algeria between May and July, 2011. The outbreak started in Tiaret, in west of Algeria, and spread to the other parts of the country affecting almost 900 horses in many regions. The virus (H3N8) was detected in nasopharyngeal swabs from non-vaccinated horses using a qRT-PCR and identified as H3N8 and were named from A/equine/Tiaret/1/2011 to A/equine/Tiaret/10/2011 [14]. Following this outbreak the Algerian veterinary services proceeded in mid-2013 to vaccination of horses against equine influenza [1].

Conclusion

The results of this epidemiological study showed the existence and persistence of West Nile, rhinopneumonitis, Equine Arteritis virus and Influenza virus in the equine population of Algeria. These pathologic agents deserve all the attention of owners, equine breeders, veterinarians and policy makers. Consequently, the monitoring of immunological status of horses and the systematic use of vaccination calls for the unanimity of the scientific community as a basic principle, to avoid these diseases of economic and zoonoses importance in farms.

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