

# Comparison of animal rabies from Northern Provinces of Iran referred to the Amol Research Center (ARC) during 2007

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## Abstract

Rabies has been endemic in Northern provinces of Iran for long time and it was a cause of some outbreaks of disease especially in Golestan province. This study has been carried out to compare rabies cases in northern part Provinces of Iran including Mazandaran, Golestan, Gilan and Ardabil during 2007. In this study, data analysis indicated percentage of positive cases in suspected rabies samples in Mazandaran were among dog (%37.5), cow, sheep/goat (%100) and human (%64.3); in Golestan were among dog, cow, wolf, sheep/ goat, horse/ donkey (%100); in Gilan were among cow (%95) and in Ardabil they were observed in dog (%50), cow (%95.8), wolf and sheep/goat (%100). In this study, data analysis indicated percentage of rabies positive cases in four provinces of Iran were %100 in Golestan, %90.5 in Gilan, %85.3 in Ardabil and %64.3 in Mazandaran. The results of this study also emphasized the important role of wildlife in disseminating of human rabies in Northern provinces. These results confirmed a high prevalence rate of animal form of rabies in northern district of Iran, and it underlined the importance of animal bites and rabies, which is required an extra precaution strategy.

## INTRODUCTION

Rabies is an acute fatal viral encephalitis that usually transmitted from animals to man followed by domestic and wild animal bites (1, 2). According WHO annual reports in 2000, rabies disease is one of the most important public health problems in some countries of the world such as those in the Eastern Mediterranean region. In Asia, most of the mortality cases of human rabies were reported from the underdeveloped countries such as India, Pakistan and Bangladesh which have high populations and have no specific strategies for controlling rabies. Reliable data on rabies is scarce in many areas of the globe, making it difficult to assess its full impact on human and animal health. WHO commissioned a re-assessment of the burden of rabies in 2004. According WHO reports in 2004, the annual number of deaths worldwide caused by rabies is estimated to be 55,000, mostly in rural areas of Africa and Asia. An estimated 10 million people receive post-exposure treatments each year after being exposed to rabies-suspect animals. The overall incidence of animal bites in the coastal regions of Caspian Sea and Persian Gulf areas was 428.5 and

186 per 100,000 of human population per year, respectively (3).

Rabies is endemic in the wildlife population in Iran where the infection of domestic livestock is frequent (4). Rabies has a special place in the history of medical research in Iran (5). Historically, in 1919, an Iranian delegation, dispatched in the peace treaty after World War I, visited the Pasteur Institute in Paris and made arrangements for the establishment of the Pasteur Institute for rabies prophylaxis in Iran. They first started to make rabies vaccines using the spinal cords of rabbits; however, these vaccines were later changed to the formal phenol-treated vaccines using the spinal cords of lambs a process which is currently utilized in many parts of the world. Thereafter, many research studies of international importance on rabies were carried out in Iran (5, 6) including the first successful field trial on the use of serum for post-exposure prophylaxis (5). To prevent infection of rabies virus penetration, anti-rabies serum was injected both systemically and locally; however, unfortunately because of virus settlement in the central nervous system (CNS) and appearance of clinical symptoms,

the treatment-prophylaxis regimen was not effective. As a consequence, management of this problem is one of the most important priorities of the Iran Health Ministry.

MATERIALS AND METHODS

Different suspected rabies samples from wild and domestic animals including dog, cow, cat, fox, wolf, jackal, sheep/ goat, horse / donkey and human were referred to the Amol Research Center (ARC, Pasteur Institute of Iran, Amol, Mazandaran, Iran) from Golestan, Mazandaran, Gilan and Ardabil Provinces. The collected data were statistically analyzed using descriptive softwares.

RESULT

In this study, data analysis indicated percentage of positive cases in suspected rabies samples in Mazandaran were among dog (%37.5), cow, sheep/goat (%100) and human (%64.3) [Figure 1]; in Golestan were among dog, cow, wolf, sheep/ goat, horse/ donkey (%100) [Figure 2]; in Gilan they were observed in cow (%95) [Figure 3] and in Ardabil they were among dog (%50), cow (%95.8), wolf and sheep/goat (%100) [Figure 4]. In this study, comparison of data analysis indicated percentage of rabies positive cases in four provinces of Iran were %100 in Golestan, %90.5 in Gilan, %85.3 in Ardabil and %64.3 in Mazandaran [Figure 5].

Figure 1

Figure 1: Percentage of positive cases among suspected rabies samples in Mazandaran province during 2007.

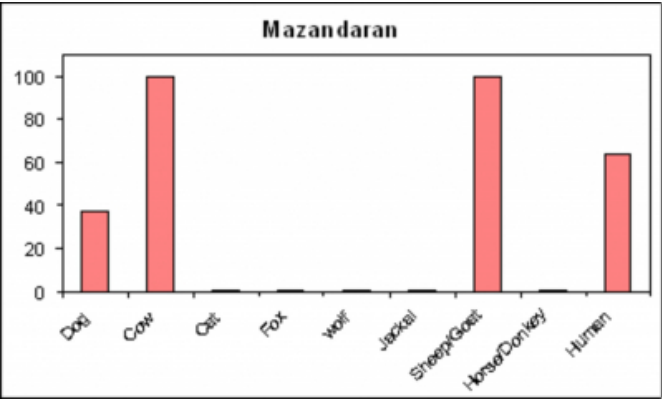


Figure 2

Figure 2: Percentage of positive cases among suspected rabies samples in Golestan province during 2007.

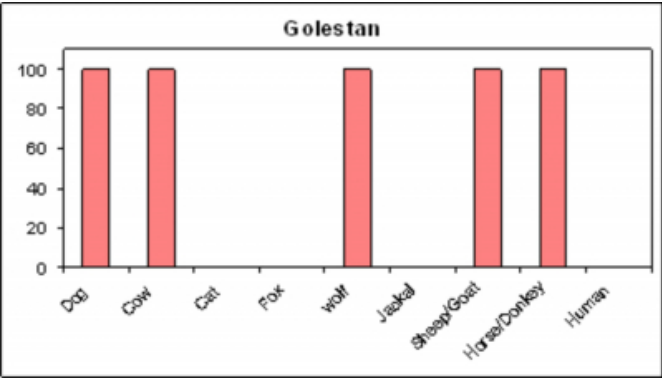


Figure 3

Figure 3: Percentage of positive cases among suspected rabies samples in Gilan province during 2007.

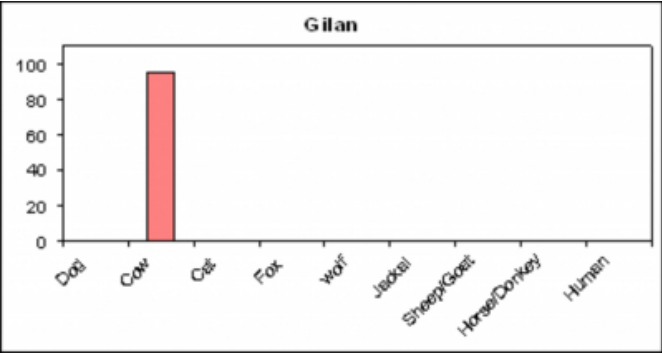
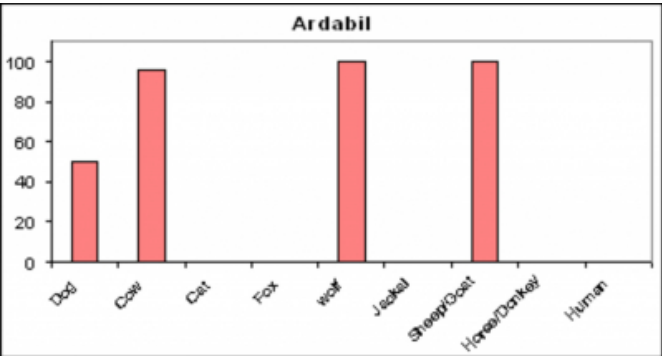


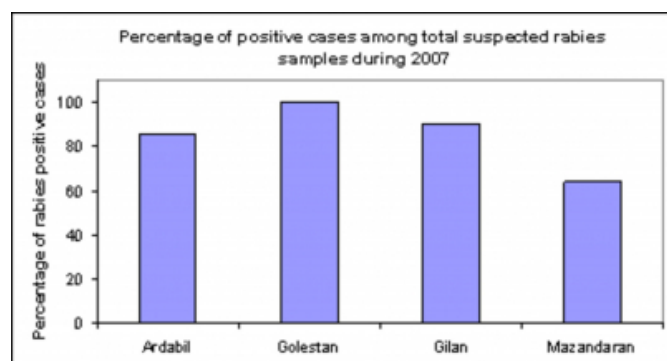
Figure 4

Figure 4: Percentage of positive cases among suspected rabies samples in Ardabil province during 2007



**Figure 5**

Figure 5: Comparison of percentage of positive cases among total suspected rabies samples in four provinces of Iran during 2007.



## CONCLUSION

Results of this study represented that in the majority of cases, dog, cow, wolf and sheep/goats conveyed rabies. The results of this study underlined the importance of animal bites and rabies in Iran. The increasing number of stray dogs in different provinces of Iran has raised the number of exposed persons nationwide. Thus the increasing number of stray dogs should not be ignored by public health authorities as well as Veterinary Public Health Organizations related to strategic programs of rabies control in the northern of Iran.

Although the number of animal bites in Iran is increasing (7), this rise is commensurate with the population growth rather than a genuine rise in prevalence. The species of animals most likely to be infected with rabies vary from region to region. According other studies in the Caspian littoral, jackals and stray dogs are the most important rabid animals, while, in the mountainous areas of the central plateau, foxes and wolves play a more important role (7).

The results of this study also emphasized the important role of wildlife in disseminating of human rabies in northern provinces which is almost similar to the findings of other investigators (2, 8, 9) and should not be ignored domestic animals. The results of this study reflect the potential dangers of animal bites and risks of contacting rabies in Iran concluding that the different aspects of the disease should be highlighted in health education activities.

According to studies were carried out by the Department of Rabies, Pasteur Institute of Iran, the number of anti-rabies treated people was increased from 1990 to 2002 (9, 10). People awareness and their contribution were also increased significantly (11). Number of human deaths caused by rabies

was 10% of the whole annual infectious deaths in country (12). According to other investigations, mass vaccination programs against rabies would only be effective in controlling rabies, if at least 80% of animal populations in the region were vaccinated against this disease (9, 13). The results confirmed a high prevalence rate of animal form of rabies in northern district of Iran, which is required an extra precaution strategy. Sometimes, because of indulgent reactions of animal bitten persons or lack of sufficient information about rabies disease among staff in clinics, the disease may occur sporadically. Therefore, public announces and giving information to people by mass media in order to teach them how to face with this problem and how to implement prevention processes is very important.

## CORRESPONDENCE TO

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