

Rabies: The Deadly Neglected Disease Still Claiming Lives

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ABSTRACT

Rabies is a viral zoonotic disease caused by the rabies virus, primarily transmitted through the saliva of infected animals, most commonly via bites. It poses a significant public health threat, particularly in regions where dog-mediated transmission is prevalent. The disease manifests in two forms: furious and paralytic rabies, both leading to severe neurological symptoms and almost certain death once clinical signs appear. Despite being preventable through effective vaccination strategies, rabies remains neglected, contributing to tens of thousands of deaths annually, especially in developing countries. Key prevention strategies include mass vaccination of dogs and public education on avoiding contact with potentially rabid animals. Enhanced community awareness and collaboration between the human and veterinary health sectors are essential to combating this preventable yet fatal disease. Continued efforts in surveillance, vaccination, and education are crucial to reducing rabies incidence globally. This article aimed to know how the fatal is Rabies.

Keywords: Rabies, Transmission, Symptoms, Diagnosis, Prevention

Introduction

Rabies is a zoonotic fatal viral disease caused by the rabies virus (RABV) (1, 2) that primarily affects people in low-income nations. The majority of human infections are acquired through contact with domestic animals, particularly dogs. Only after prolonged exposure can humans show symptoms of the illness (3). It is transmitted through the saliva of infected animals, most commonly via bites or scratches. Over 150 nations and territories, primarily in Asia and Africa, have rabies as a major public health concern. Tens of thousands of people die from this neglected tropical disease every year. 40% of whom are under the age of fifteen (4, 5). Rabies It is still one of the deadliest zoonotic risks in Iraq and the Middle East (6).

The primary source of the virus in Iraq is thought to be unrestrained dogs; however, rabies cases have also been observed in wildlife, primarily in the country's western region and neighboring nations (7). The prevalence and management of disease in Iraq have been impacted by ongoing conflicts since 2003 (8). A threefold increase in human rabies cases between 2001 and 2010 was reported in official health records, with Baghdad seeing the highest number of cases nationwide (7, 8). The fight against rabies in Iraq has become more intense since 2010. At first, efforts to eradicate stray dogs were coordinated with the assistance of the local police. More recently, veterinary agencies have been immunizing canines and cattle against rabies in an effort to prevent the disease (5).

This article aims to know what rabies is, how it is transmitted, and how to protect yourself from it. The World Health Organization's (WHO) global strategy plan intends to eliminate human rabies deaths from dogs by 2030. The relevant governmental and non-governmental organizations in Nepal should collaborate using the One Health concept in order to meet the objective of "Zero by 30."

Causative agent of rabies

The causative agent of rabies is a negative-stranded RNA virus of the genus *Lyssavirus* (9). RABV is a member of the *Rhabdoviridae* family (9). Similar to other negative-stranded RNA viruses, rhabdovirus virions are made up of a highly ordered and stable complex of nucleoprotein and genomic RNA that is encased in a lipid envelope that is obtained from the membrane of the host cell (10).

Transmission

All animals regarded as warm-blooded are capable of spreading the *Lyssa* virus infection, but the *lyssavirus* can also additionally develop in cold-blooded animals' cells (11). The primary means of transmission for rabies are the saliva of an infected host and the bites of rabid animals; foxes and bats are among the primary rabies reservoirs as obvious in Fig. 1 (12). The virus seldom spreads from person to person, although a few cases were noted as a consequence of transplant surgery (13).

Clinical Features

The incubation period for rabies varies from one week to over a year (15), depending on factors such as the site of the bite and viral load. Initial symptoms often resemble flu-like signs, including fever and malaise, progressing to neurological symptoms like hydrophobia, hallucinations, and paralysis. There are two main forms of rabies: furious (or encephalitic) rabies, characterized by hyperactivity and aggression, and paralytic rabies, which leads to gradual muscle paralysis (16, 17).

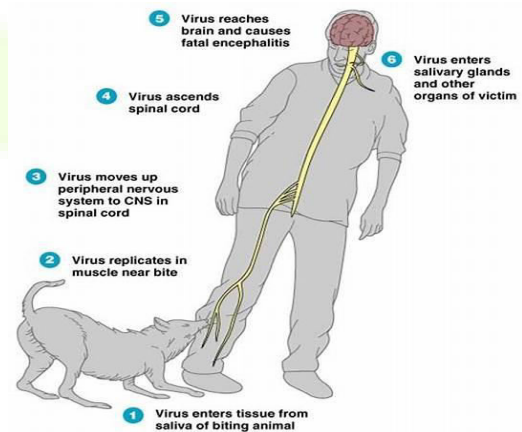


Fig. 1: Transmission and pathogenesis of Rabies (14)

Diagnosis

Diagnosis relies on clinical history and symptoms; laboratory tests confirm suspicions but are not routinely performed. Once symptoms manifest, treatment options are limited, as rabies is almost always fatal at this stage. However, post-exposure prophylaxis involving wound washing and administration of the rabies vaccine along with rabies immunoglobulin can effectively prevent the disease if administered promptly after exposure (18). There are many drawbacks to using traditional techniques for diagnosing rabies, both postmortem and antemortem. Despite the fact that rabies is nearly invariably lethal, some human survivors have been documented recently. Therefore, rabies can be confirmed in an early, antemortem laboratory setting, which encourages clinicians to try novel therapy strategies, particularly for paralyzed patients who may have a greater chance of survival. Modern diagnostic techniques, such as molecular techniques, supplement traditional diagnostic procedures and have the potential to completely transform the diagnosis of rabies (19, 20).

Prevention and recommendation

Rabies is a preventable viral disease that poses a significant threat to public health, particularly in areas where dog-mediated transmission is prevalent. Here are key strategies for preventing rabies:

- Regular vaccination of domestic animals and wildlife control programs (21, 22).
- Avoid interactions with wild animals, as they can carry rabies. Teach children not to touch or adopt wild or stray animals, and make your home less attractive to wildlife by sealing entry points and keeping food sources, such as garbage and pet food, indoors (22).
- Raising awareness about avoiding animal bites and recognizing symptoms (23, 24, 25).
- The CDC recommends people receive one dose of human rabies immunoglobulin and four doses of rabies vaccine over a 14-day period (11).

Conclusion

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Rabies is a preventable but neglected disease that poses a severe threat to public health in many regions. Increased vaccination efforts for dogs and public awareness campaigns are critical to reducing the incidence of this deadly virus. Enhanced access to medical care for bite victims can also significantly mitigate the risk of rabies transmission.

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