

RABIES

In 2013, 29,000 person dies in India due to rabies. Over 4.7 million person suffer from dog bite in US each year.

Once symptoms develop rabies is fatal.

Approximately 120,000 animals or more are tested for rabies each year in the United States, and approximately 6% are found to be rabid. The proportion of positive animals depends largely on the species of animal and ranges from <1% in domestic animals to >10% of wildlife species.

Rabies is zoonotic disease. Urban reservoir includes stray and pet dogs, cats, and other domestic mammals. a viral infection which produces fatal encephalitis in man.

Agent : rabies virus is a myxovirus, invades the CNS, and salivary glands.

I.P: usually 4-6weeks, but sometimes 6months or more.

In case of multiple or deep bites on the head and neck, face, the incubation period will be very short while if mild single bite and away from dangerous area it tend to be mild exposure with longer incubation period (the usual time).

Reservoir: Wild animals (fox, raccoons, skunks, and bats).), stray and pets.

Mode of transmission:

- Bite of infected animals to man.
- Licks of opened wound in skin or mucosa.
- Airborne; its rare mode through corneal and organ transplantation. Laboratory workers, bat caves.

*For mammals the clinical features is animal restlessness-----
difficulty in swallowing -----dropped jaw-----attacking
(angry rabies)-----coma and paralysis (dumb rabies).*

The early symptoms; fever, headache, general weakness, anxiety, convulsion, muscular paralysis, excitation, hallucinations, dysphagia, hypersalivation and hydrophobia of swallowing fluids even his own saliva. Death usually occurs within days of the onset of these symptoms.

Precaution & Risk

Any animal bitten or scratched by either a wild, carnivorous mammal or a bat should be regarded as having been exposed to rabies.

Unvaccinated dogs, cats exposed to a rabid animal should be euthanized immediately. Or the animal should be placed in strict isolation for 6 months and vaccinated 1 month before being released.

Animals with expired vaccinations need to be evaluated on a case-by-case basis. Dogs and cats that are currently vaccinated are kept under observation for 45 days.

Laboratory diagnosis:

In human virus saliva can be tested by virus isolation or reverse transcription followed by polymerase chain reaction (RT-PCR).

Serum and spinal fluid are tested for antibodies to rabies virus.

In animals, rabies is diagnosed using the direct fluorescent antibody (DFA) test, which looks for the presence of rabies virus antigens in brain tissue.

Prevention & Control

- 1- Health education to high risk people.
- 2- Kill stray dogs by bullets.
- 3- Immunize and license pets
- 4- Rabies surveillance in animals, test animal brain, Fluorescent antibody stain Negri bodies
- 5- serum sample tested for rabies antibody every six months and pre-exposure immunization for high risk group (research laboratories or vaccine production facilities, zoo persons, hunters).

3 doses (1 ml, I.M) of HDCV (Human Diploid Cell Culture rabies Vaccine)
one injection per day on **days 0, 7, and 28. DEV (Duck Embryo Vaccine)**
3 doses 1ml subcutaneous (2 doses 1month apart and the 3rd booster
dose 6-7 months later) or **VCRV (Vero Cell Rabies Vaccine)**

Post-exposure to bite:

- 1- Report.
- 2- Observe animal for 10 days----if it dies do direct fluorescent antibody test (brain tissue).
- 3- In case of wild animal bite it should be killed and the brain examined for rabies
- 4- Wound treatment: Cleaning (with soap and detergent or chlorine bleach, if can't find use sterile water, normal saline), No suture, and tetanus prophylactic and antibiotics.
- 5- Passive immunization: **human rabies immuno-globulin (HRIG)** as soon as possible to neutralize virus at wound (**20 I.U/ kg**) , **half dose I.M & half dose in wound.**
- 6- Active immunization: **HDCV** killed inactivated vaccine or **RVA (Rabies Vaccine Adsorbed) 1ml (I.M) deltoid, 6 doses with HIRG : 0, 3, 7, 14, 30,90).**

In developing countries where human globulin may be not available, 0.1 ml of vaccine may be given intradermal in day one give 8 shoots, then booster dose on the day 7, 28.

