


Rabies



Session objectives

1. Definition
 2. Signs and symptoms
 3. Complications
 4. Agents
 5. Diagnosis
 6. Epidemiology (Occurrence, Reservoir, Transmission, incubation period, Communicability, Susceptibility and resistance)
 7. Methods of control(Preventive measures &Control of pt and contacts)
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Identification:

An almost fatal acute viral encephalomyelitis; onset heralded by a sense of apprehension, headache, fever, malaise and indefinite sensory changes at site of animal bite. Excitability and acrophobia are frequent symptoms.

The disease progresses to paresis or paralysis; spasms of swallowing muscles leads to hydrophobia; delirium and convulsions follow.

Without medical intervention, the duration is 2-6 days, death is due to respiratory paralysis.

Diagnosis is through specific FA staining of brain tissue or virus isolation in mouse or cell culture.

Infectious agent:

Rabies virus, a rhabdovirus of the genus lyssavirus .

Occurrence:

Worldwide, with an estimated 65000-87000 deaths a year, almost all in developing countries.

Dogs transmit urban (or canine) rabies, whereas sylvatic rabies is a disease of wild carnivores and bats, with sporadic spillover to dogs, cats, and livestock.



Reservoir:

Wild and domestic canidae, including dogs, foxes, wolves, and other biting mammals.

Mode of transmission:

Virus-laden saliva of rabid animal introduced through a bite or scratch .

Person to person transmission is theoretically possible.

Airborne spread has been demonstrated in a cave and laboratory setting, but very rarely.



Incubation period:

Usually 3-8 weeks, rarely as short as 9 days or as long as 7 years; depend on wound severity, wound site and distance from the brain, amount and strain of virus, protection provided by clothing and other factors.



Period of communicability:

In dogs and cats, usually 3-7 days before onset of clinical signs and throughout the course of the disease.

Susceptibility :

All mammals are susceptible, Humans are more resistant to infection than several animal species.



Methods of control

A. *Preventive measures*: They are possible at the animal main host(s) and transmitter(s) of rabies to humans.

- 1) Register, license, and immunize all dogs in enzootic countries.
- 2) Maintain active surveillance for rabies in animals.
- 3) Detain and clinically observe for 10 days any healthy appearing dog or cat known to have bitten a person;



dogs and cats showing suspicious signs of rabies should be sacrificed and tested for rabies. If the biting animal was infective at the time of bite, signs of rabies usually follow within 4-7 days. All wild mammals that have bitten a person must be sacrificed immediately and the brain examined for evidence of rabies.

4) Immediately submit to a laboratory the intact head of animals that die of suspected rabies, for testing by FA staining or by microscopic examination for Negri bodies, followed by mouse inoculation.



5) Immediately sacrifice un immunized dogs or cats bitten by rabid animals; if detention is elected, hold the animal in secure pound or kennel for at least 6 months and immunize against rabies 30 days before release. If previously immunized, reimmunize and detain for at least 45 days.

6) Oral immunization of wildlife animal reservoirs, using airdrops of bait containing attenuated or recombinant vector vaccine.



- 7) Cooperative programs with wildlife conservation authorities to reduce terrestrial wildlife hosts of sylvatic rabies.
- 8) Individual at high risk (e.g. veterinarians, wildlife conservation personnel, and park rangers in enzootic or epizootic areas, staff of quarantine kennels, laboratory and field personnel working with rabies) should receive pre-exposure immunization, using potent and safe cell-culture vaccines, given in 3 doses of 1.0 ml (IM) on days 0, 7 and 21 or 28.



9) Prevention of rabies after animals bites (post exposure prophylaxis), consist of the following (*8th Report of WHO Expert Committee on Rabies, 1992; Recommendation of the Advisory Committee for immunization Practices, MMWR 48(RR-1); 1-21 ,1999*):

a) First aid: Clean and flush the wound immediately with soap or detergent and water then apply either 70% ethanol or povidone iodine. The wound should not be sutured unless unavoidable.



b) Specific treatment (Serum and vaccine):
Specific immunological protection in humans is provided by administration of human (HRIG) which should be used in a single dose of 20 IU/Kg or equine (ERIG) rabies immune globulin in a single dose of 40 IU/Kg at the site of bite.

Modern cell-culture vaccines should be given in 5 doses of 0.5 or 1 mL in the deltoid region; and the last dose within 28 days for IM(0, 3, 7, 14, 28) and 90 days for ID (0, 3, 7, 28, 90) vaccination.

c) The combination of local wound treatment, passive immunization with HRIG or ERIG and vaccination is recommended for all severe exposure, virtually guaranteeing complete protection.



B. Control of patients, contacts, and immediate environment:

- 1) Report to local health authority.
- 2) Isolation: Contact isolation for respiratory secretions for duration of the illness.
- 3) Concurrent disinfection: Of saliva and articles soiled therewith.
- 4) Quarantine: Not applicable.
- 5) Immunization of contacts: Contacts who have an open wound or mucous membrane exposure to saliva of the patient must receive antirabies treatment.
- 6) Investigation of contacts and source of infection.
- 7) Specific treatment.

*C. Epidemic measures: Applicable only to animals;
a sporadic disease in humans.*

- 1) Establish area control under authority of law.
- 2) Immunize dogs and cats.
- 3) In urban areas killing of ownerless and stray dogs.
- 4) Immunization of wildlife.



POSTEXPOSURE PROPHYLAXIS GUIDE

Category of exposure	Type of contact with a rabid animal	Recommended treatment	Vaccination status	Treatment	Regimen
I	Touching or licks on intact skin	None	Not	Wound cleaning	Thorough cleaning with soap and water and povidone iodine
II	Minor scratches or abrasion without bleeding Licks on broken skin	Stop treatment if animal remains healthy(10) days or killed or –ve for rabies	Not	HRIG Vaccine	Administer 20 IU/Kg HDCV,RVA,orPCECV,1mL, IM on days 0, 3, 7, 14, and 28
III	Transdermal bites or scratches Contamination of mucous membrane with saliva (licks)	Administer vaccine Stop treatment if animal remains healthy(10) days or killed or –ve for rabies	Vaccinated	Wound Cleaning RIG Vaccine	Thorough cleaning with soap and water and povidone iodine RIG not administer HDCV,RVA,orPCECV,1mL, IM on days 0 and 3

