

RABIES - A DANGEROUS PROBLEM

A. SATHASIVAM

*Consultant Virologist In-charge
Rabies and Vaccine Departments
Medical Research Institute
Colombo*

Introduction

Rabies is a Zoonosis, that is, an animal disease which is transferable to man. It is primarily a disease of animals (all warm blooded animals are prone to this disease) and man is incidentally infected due to his close proximity to certain animals like the dog and cat.

Disease and Transmission

This disease is caused by a virus and involves the brain and spinal cord of the infected man or animal and produces an encephalomyelitis (brain fever). Transmission is generally through the infected saliva of the animal and occurs in one of three ways:

1. Direct bite of an infected animal
2. Direct lick on an open wound or break in the skin
3. Direct lick on broken or unbroken mucous membranes like the eyes, nose and mouth.

The saliva of a diseased animal is infective for about a week before signs of clinical illness in the animal. There are instances - not in Sri Lanka, where the infection has spread by the respiratory route, that is by inhalation or breathing.

Incubation Period

The incubation period of the illness is the time taken for clinical manifestations to occur after the bite of the animal. This ranges usually from 10 days to 6 months, the average being 1 1/2 to 3 months.

Once the clinical illness (that is the disease) develops, the patient or animal dies within 4-7 days. In Sri Lanka the disease is 100% fatal, although cases have been documented in other parts of the world of recovery from the disease. Hence a dog, an animal or a man suffering from rabies will not live for longer than 10 days at the most.

Infectivity

Not all animals or humans bitten by rabid animals develop rabies. Only 36-40% of animals or man bitten by rabid animals develop the disease. This is mainly because the virus is only intermittently excreted in the saliva and not all the time.

Mode of Spread

The virus multiplies at the site of the bite for about 72 hours after which it travels up the peripheral nerves to the brain and spinal cord where it multiplies and produces the disease. The virus then comes out into all parts of the body so much so that all tissues become infective namely, cornea of the eyes, salivary gland, gastro intestinal tract, genito urinary tract, mammary glands, skin etc. Thus the saliva, faeces, urine, milk, perspiration etc. are infective secretions.

Diagnosis of Rabies

The laboratory diagnosis of rabies is only done at present at the Rabies Laboratory of the Medical Research Institute which is open day and night on all days (whether a normal working day or holiday) to accept specimens

for diagnosis. The specimen to be sent is the head of the animal or brain of human beings. This should be sent preferably in ice within 10-12 hours of the killing or death of the animal. Decomposition sets in after that period and no tests can be performed on such a specimen. Disinfectants or preservatives should not be added. It is best to send specimens by personal messenger and not by post or train. The parcel should be packed in such a way that the highly infective material, namely brain matter and secretions ensuing from it do not escape out and infect the person bringing the parcel or any person accepting the parcel at the MRI. A leak proof polythene bag or a tin with a well fitting lid, is suggested for the purpose.

Usually the result of the first test which is done on the same day (if the specimen comes within working hours) is available on the same day. In first test negative cases a second test is performed. This is done only twice a week and hence the result of this will usually be available within 72 hours of receiving the specimen. For certain scientific reasons, about 30% of first test negative specimens become positive in the second test.

Management of a Case of Dog or Animal Bite

Since there is no treatment, one should remember the old adage with a slight modification namely: "Prevention Is Better Than No Cure".

Management of a case is broadly divided into two:

1. Local treatment of the wound

Immediate and thorough washing of the wound is essential. Copious amounts of water and soap, if available should be used. In this way, a certain amount of the virus could be washed away.

Then, advice should be obtained from the MRI or the nearest government hospital. It has been shown that the incidence of this disease can be markedly reduced with local therapy alone.

2. Specific treatment

If indicated, anti rabies vaccine treatment should be started without delay. In severe exposure anti rabies serum should be given before vaccine treatment.

Tetanus prophylaxis and measures to control bacterial infection by the use of antibiotics is also indicated.

Control of Rabies

The best way to solve this dangerous problem is by controlling the disease in animals especially dogs and cats. This consists of vaccination of pet animals and the destruction of stray dogs and cats.

Prophylactic Immunisation

Those persons who are regularly or frequently exposed to the risk of rabies like veterinarians, laboratory workers etc. should be prophylactically immunised against the disease.

RABIES

WHAT TO DO IN AN EMERGENCY

1 TREAT LOCALLY

Immediate and thorough local treatment of all bite wounds and scratches is perhaps the most effective preventive measure. The wound should be thoroughly cleansed and flushed with soap and water as soon as possible. Tetanus prophylaxis and measures to control bacterial infection should be given as indicated.

2 DECIDE ON TREATMENT

Every exposure to possible rabies infection must be evaluated individually. Primary consideration must be given to the fact that treatment is rarely, if ever, of value once the clinical signs of rabies become apparent.

If the decision is to treat, start immediately, *the sooner the better*. The recommendations given in the table are only a guide. They should be applied in conjunction with knowledge of the animal species involved, the circumstances of the bite or other exposure, the vaccination status of the animal and the presence of rabies in the region.

Bear in mind that approximately 20% of persons who are bitten by animals known to be rabid have developed rabies if not treated with IMOVAX RABIES VERO VACCINE and Rabies Immune Globulin (Human) (IMOGAM RABIES SERUM).

However, rabies rarely develops unless there has been an actual penetration of the skin by teeth, saliva or mucous membrane contact. Prompt treatment is of critical importance where there have been multiple bites of the head, neck or face, as the incubation period is considerably shortened and symptoms may appear as early as nine days following exposure.

Animal Species	Condition of Animal At Time of Attack	Treatment of Exposed Person (1). All bites and wounds should immediately be thoroughly cleansed with soap and water (see preceding text).
Domestic: dog and cat	Healthy and available for 10 days of observation	None, unless animal develops rabies (2).
	Rabid or suspected rabid	IMOGAM RABIES SERUM (3) and IMOVAX RABIES VERO (VERORAB) (4) (6).
	Unknown	IMOGAM RABIES SERUM (3) and IMOVAX RABIES VERO (VERORAB) (4) (6).
Wild: skunk, bat, fox, coyote, raccoon, bobcat, and other carnivores.	Regard as rabid unless proven negative by laboratory test (5)	IMOGAM RABIES SERUM (3) and IMOVAX RABIES VERO (VERORAB) (4).
Others: livestock, rodents, rabbits and hares.	Consider individually: provoked bites of squirrels, hamsters, guinea pigs, gerbils, chipmunks, rats, mice and other rodents or rabbits and hares almost never call for antirabies prophylaxis.	

(1) If antirabies treatment is indicated, both IMOGAM RABIES SERUM and IMOVAX RABIES VERO (VERORAB) should be given as soon as possible, regardless of the interval after exposure. If R.I.G.H. inadvertently was not given when the vaccination was begun it can be given up to the eighth day after the first dose of vaccine was given. Persons who have been previously immunized with Rabies Vaccine and were known to have protective rabies antibody titer should receive only vaccine.

(2) Begin treatment with IMOGAM RABIES SERUM and IMOVAX RABIES VERO (VERORAB) at first sign of rabies in biting domestic animals during the usual holding period of 10 days. The symptomatic animal should be killed immediately and tested.

(3) If IMOGAM RABIES SERUM is not available, use antirabies serum of equine origin. Do not use more than the recommended dosage.

(4) Discontinue vaccine if fluorescent antibody tests of brain section of the animal is negative.

(5) The animal should be killed and tested as soon as possible. Holding for observation is not recommended.

(6) Discontinue vaccinal treatment if animal remains healthy for 5 days.

These products are available in the following Zoellig Pharma Branches:

1. San Fernando, La Union	Tel. No. 41-307
2. Dagupan City	27-80
	21-91
3. San Fernando, Pampanga	61-54-49
4. San Pablo City	41-05
5. Legaspi City	22-23
6. Iloilo City	742-28
7. Bacolod City	2-26-15
8. Cebu City	7-50-14
9. Cagayan de Oro City	33-23
10. Davao City	7-26-12
11. Tacloban City	323-2222

In Manila, also available at:
Manila Sanitarium and Hospital
Makati Medical Center
Mercury Drugstore and selected branches
in Manila & Suburbs
Centro Drug Store in front of MOH



3 DOSAGE AND ADMINISTRATION

INSTRUCTION FOR USE: The freeze-dried vaccine must be reconstituted in its vial with the 0.5 ml. of diluent supplied in the disposable syringe. Gently stir the contents until completely dissolved and withdraw the total amount of the dissolved vaccine into the syringe.

DOSAGE:

RABIES IMMUNE GLOBULIN (HUMAN) IMOGAM RABIES®

20 I.U./Kg. body weight. If possible, up to half the dose should be used to infiltrate the wound.

IMOVAX RABIES VERO (VERORAB)

5 (0.5 ml.) doses given on days 0, 3, 7, 14, 30, (90 optional)

(Doses given on Day 0 (a single dose) / one injection)

IMOVAX RABIES VERO (VERORAB)

Now the outstanding choice combining high efficiency with cost effectiveness.

ADMINISTRATION: Rabies Immune Globulin (Human) IMOGAM RABIES® is administered only once at the beginning of antirabies prophylaxis to provide antibodies until the patient responds to vaccination. (IMOGAM RABIES SERUM) after preparation of the injection site, is injected intramuscularly, e.g., in the gluteal region.

IMOVAX RABIES VERO (VERORAB) is administered on days 0, 3, 7, 14, 30, and (90 optional). After preparation of the injection site, immediately inject the vaccine intramuscularly, e.g., in the deltoid region or subcutaneously.

NOTE: NEVER ADMINISTER RABIES VACCINE IN THE SAME INJECTION SITE AS R.I.G.H.

ADVERSE REACTIONS: Local or mild systemic adverse reactions to R.I.G.H. and to Rabies Vaccine are infrequent; they do not contraindicate continuing immunization and may be treated symptomatically.

For further information, please consult I.M. leaflets of Rabies Immune Globulin (Human) and IMOVAX RABIES VERO (VERORAB) IMOGAM RABIES SERUM

To order or for more information on Institute Merieux RABIES VACCINE H.D.C.S. and IMOGAM RABIES:

Write or Call

RHÔNE-POULENC PHILIPPINES, INC.

3rd Floor, ITC Building
337 Gil J. Puyat Avenue
Makati, Metro Manila
Telephone: 816-17-09 to 16

Manufactured by:

INSTITUT MERIEUX
58, Avenue Leclerc
69007 Lyon, France

Distributed by:

Chem. inc.

7224 Malugay Street
Makati, Metro Manila
Telephone: 87-10-51 to 58
87-20-51 to 54