

## **Handout on Rabies**

Rabies is 100% fatal acute encephalomyelitis

### ***Characteristic of Virus***

Bullet shaped, RNA virus belongs to genus Lyssavirus and rhabdo virus family Rabies virus is Strictly Neurotrophic.

### ***Transmission***

In nature by means of bites that introduces virus-bearing Saliva. May be transmitted by viral contamination of existing fresh wound., It also has been transmitted by aerosol in laboratories and in Vampire bats infested caves.

Transmission also has been associated with skinning and handling of infected carcasses Exposure of the conjunctivae, Mucous membranes genitals, skin abrasions to infected saliva.

**Note:** Virus may excrete in saliva in infected animals several days prior to the onset of Clinical Signs (14 days in case of dogs).

Human to human transmission other than through organ transplants has not been documented

**Cautions** - Rabid patient's secretions are frequently positive for rabies virus.

Intact skins appear to be an adequate barrier against infection but the virus enter the body through skin abrasions (e.g if a sore is licked by a rabid dog) and through intact mucous membranes.

### ***Pathogenesis***

Rabies virus may multiply in muscle cells at the site of inoculation. It binds with acetyl choline receptors at the neuromuscular junction and is then carried towards the central nervous system by the flow of axoplasm.

This progression can be blocked at the neuromuscular junction by alphabungarotoxin and in the peripheral nerves by local anesthetics, metabolic inhibitors and nerve section.

Rabies Virus also binds to Phospholipids receptors and protein receptors of non-target cells of any tissue. Virus multiplies in the central nervous system and also spreads through the cerebrospinal fluid (CSF). It travel centrifugally in the axoplasm of efferent nerves and reach many tissues and organs, such as salivary glands, lachrymal glands, cardiac muscles and adrenal medulla etc

### ***Clinical features in humans***

#### **Incubation period**

The incubation period is between 20 and 90 days in 75% of cases. But may be as short as 4 days or long as many years. The shortest incubation periods are observed in patients with facial Bites

## Symptoms

Prodromal symptoms are Non-specific, leading to a variety of misdiagnoses.

They include fever, chills, malaise, weakness, tiredness, headache, photophobia, myalgia, anxiety, Depression irritability and symptoms of upper respiratory tract and gastrointestinal infections.

Depending on whether the spinal cord or brain is predominantly affected Symptoms of either paralytic or furious rabies will then develop. Furious rabies is the commoner presentation in Humans

The most pathognomic sign is hydrophobia.

This is combination of jerky of inspiratory muscle spasms with or without painful laryngo-pharyngeal spasms with an indescribable terror the reflex is provoked initially by attempts to drink water, but later by a variety of stimuli, like draught of air ( aerophobia) water splashed on the skin, irritation of the respiratory tract or eventually, by the sight, sound or mere mention of water. Patients often die of cardiac and respiratory arrest during a violent hydrophobic spasm. One of the other main features of furious rabies is intermittent generalize arousal, a during which the patient becomes excited, hallucinated and sometimes even aggressive In marked contrast to the dramatic episodes of hydrophobia and excitation there may be virtually no abnormal neurological signs.

Other features reflecting disturbed hypothalamic nervous system function, include hyper salivation, lachrymation, excessive sweating, extremes of blood pressure and body temperature priapism and spontaneous orgasms

## Post Exposure Treatment Regimes.

World Health Organization recommends infiltration of rabies immunoglobulin around the wound for severe (Category iii) exposures in addition to vaccination. There are two types of rabies immunoglobulin namely human rabies immunoglobulin (HRIG) and equine rabies immunoglobulin. HRIG is prohibitively expensive As an alternative ERIG has been widely used for severe exposures.

## Different vaccination Regimes of cell culture vaccines

	Day 0	Day 3	Day 7	Day 14	Day 21	Day 30	Day 90
ID 2 sites 0.1ml per site	2	2	2	0	0	1	1
ID 2 sites 0.1ml per site	8	0	4	0	0	1	1
IM 5 dose one vial per site	1	1	1	1	0	1	
IM 4 dose one vial per site	2	0	1	0	1	0	0

## **The National Rabies Control program Animal Rabies**

The dog is the main reservoir as well as the transmitter of rabies in Sri Lanka. A dog ecology study conducted in the past has revealed a dog to human population of 1: 8. However, a study conducted in 1997, in Mirigama, a recently urbanized area revealed an increased dog population of 1; 4.6. Further, the study indicated that 20 per cent of the dogs were ownerless.

### **Animal Rabies**

Over 90 percent of animal rabies cases are reported among dogs. During 200], rabies was confirmed in 88% dogs, 9.7% cats, 14% Wild animals; 0.8% other domestic animals.

### **Strategies of Rabies Control**

- Mass Immunization of dogs against rabies.
- Mass rabies Immunization and Mass chemical birth control for stray dog population.
- Promotion of surgical birth control household dogs
- Promotion of quarantine of suspected dogs
- Prevention of human rabies among suspected dog bite victims.
- Promotion of Surveillance and Risk assessment
- Training and health education
- Enforcement of rabies control legislation,

### **Present Situation**

Vaccination of Stray Dogs with Auto Plunger (Auto Vaccinator) Dogs at temples, factories (free roaming community dogs) and even stray dogs could be vaccinated with the help of Auto Plunger. As Statistics shows majority of human rabies now originate from free roaming dogs. It is recommended to vaccinate free roaming dogs including strays.

### **Administration of Rabies Control**

The Public Health Veterinary Services in the Ministry of Health is responsible for the control of Rabies and other Zoonoses of public health importance. The Director Public Health Veterinary (D PHVS) is responsible for formulation of National policies, program and strategies for Rabies Control.

Provincial Directors of Health Services (PDHS) are responsible for the implementation of Provincial level programs Provincial Directors of Health have entrusted authority of program implementation to Regional Director Health (RDHS) services. Medical officer of Health (MOH) plan and implements all village level rabies control activities with the help of Animal Vaccinators, dog wardens and dog catchers attached to RDHS office and Public health Inspectors.

## Legislations and Policies for Rabies control.

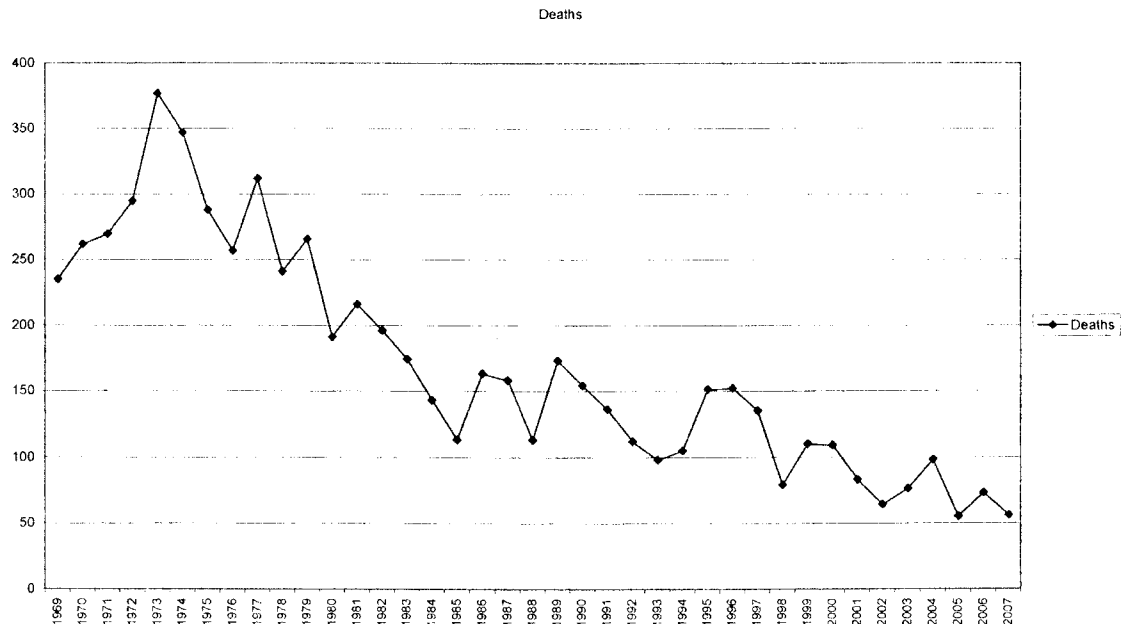
Rabies ordinance provides legal framework for Local authorities to conduct rabies control measures.

### Policies of Rabies control

In 1956 Hon Minister of Agriculture and Hon Minister of Health jointly agreed that the Department of Health Services should take over the responsibility for controlling rabies in Sri Lanka.

In 2005 health ministry developed policy to avoid indiscriminate killing of dogs. This led to complete abandoning of killing of dogs as methods applied were cruel.

### Progress in Reducing Human rabies.



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