Management Rabies

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Introduction

• Rabies in sanskrit means “to rage”
• Uniformly fatal but completely preventable viral encephalitis
• 30-70 thousand deaths worldwide per year
Animals responsible for rabies transmission

• Dogs and cats: 98%
• Monkeys, donkeys, horses, cows, goats, sheep & pigs: 1%
• Wild animals like Mongoose, Jackals, foxes: 1%

Rodents, birds and bats not known to spread rabies in India
Modern management of rabies

• Pre exposure prophylaxis

• Post exposure prophylaxis
Pre-exposure prophylaxis

3 doses of any modern Rabies vaccine
 ✓ Day 0
 ✓ Day 7
 ✓ Day 21/28

I.M injection over deltoid or anterolateral aspect of thigh in children
Advantages of PEP

• Simplifies treatment of rabies by eliminating the need of Rabies immunoglobulin
• Decreases the no. of vaccine doses after exposure
• Provides protection to persons with apparent risk of rabies exposure

In endemic country like India, it is under consideration to be incorporated in routine immunization schedule
Post exposure prophylaxis

- Wound management
- Vaccination
- Rabies immunoglobulin
## Category of exposure and management

<table>
<thead>
<tr>
<th>Category</th>
<th>Type of contact</th>
<th>Recommend Rx</th>
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| 1        | • Touching or feeding of animals  
          • Licks on intact skin | None if history available |
| 2        | • Nibbling of uncovered skin  
          • Minor scratches/abrasion without bleeding | ✓ Start vaccination immediately  
          ✓ Stop vaccine immediately if animal remains healthy throughout 10 days or if animal is killed and proven to be negative for rabies by lab test |
### Category of exposure.....cont..

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| 3        | • Single or multiple transdermal bites, scratches, licks on broken skin with bleeding  
• Contamination of mucous membrane with saliva  
• Exposure to bats | Same as cat-2 plus Rabies Immuno Globulin (RIG). |

In India >90% of animal bites are in category 3
Wound management

- Gentle washing of wound with a detergent soap, under running water, for at least 15 minutes
- Application of Povidone iodine, 70% alcohol solution reduces viral transmission
- Extensive deep wounds require thorough exploration and debridement - institutional care needed
- Suturing must be avoided as a rule, except in extensive deep wound, in which case it should be
  - done as late as possible (upto 3 days)
  - RIG should be infiltrated before suturing and
  - it should be kept loose
Animal bite wounds should not be bandaged, if unavoidable it should be kept loose

Proper tetanus prophylaxis and systemic antibiotics should be started to prevent sepsis

Application of irritants like plant juices, tea/coffee powder, metals, chili, coins, acids and alkalis are strongly discouraged
Vaccination

- WHO recommended schedule of vaccination with new generation anti rabies vaccine:
  - Day 0-1 dose I.M-deltoid
  - Day 3-1 dose I.M-deltoid
  - Day 7-1 dose I.M-deltoid
  - Day 14-1 dose I.M-deltoid
  - Day 28-1 dose I.M-deltoid

For re-exposure:
- Day 0-1 dose I.M-deltoid
- Day 3-1 dose I.M-deltoid
Vaccination .....cont..

- Dose is same for all age groups
- **Immuno-compromised**: 2 injections are given on day 0 at 2 different sites
- This vaccine can be given with other vaccines
- All modern anti rabies vaccine are interchangeable
- All modern anti rabies vaccine and RIGs are safe in pregnant and lactating mothers
- Vaccines need to be stored at 2-8 degree C
- Re constituted vaccine should be used within 6-8 hrs
Vaccination schedule after bite from a pet dog already vaccinated against rabies

• In enzootic India, where protection status of vaccinated dog by antibody estimation is not possible and rabies could not be eliminated from stray dogs, the need for Post EP continues.
• They need 3-5 doses of vaccine according to the survival (10 days) status of the dog and 2 doses in already immunized individuals.
Intradermal rabies vaccine (IDRV)

- Potency at per with I.M injection
- Advised by WHO
- 0.1 ml of vaccine required per dose - cost effective
- Almost painless, simple intradermal injection
- Thailand & Srilanka have started the vaccine on National basis
- India-U.P & Orissa have started and Karnataka is going to start soon
- One of the protocol for PEP is 2-2-2-0-2
Rabies Immunoglobulin

• Indicated in all category 3 exposures and even in category 2 exposure in case of immunocompromised

• Following cases need RIG as life saving measure:

✓ All bleeding bite wounds caused by wild animals
✓ Bleeding bite wounds of dogs and cats, particularly if:

➢ Animal is suspected to be rabid or not possible for observation
➢ Proven or confirmed rabid animal by lab exam of the brain for Negri bodies or by fluorescent antibody test (FAT)
Types of RIG

• Equine Rabies Immunoglobulin (ERIG) - given in a dose of 40 IU/Kg of body weight, subject to a maximum of 3000 IU - skin test is necessary

• Human Rabies Immunoglobulin (HRIG) - given in a dose of 20 IU/kg of body weight, subject to a maximum of 1500 IU.
Administration of RIGs

- **Infiltrate all wounds** to neutralize the virus locally as systemic administration of RIG is less effective.
- **Severe/extensive wounds**: 10 ml of RIG may be insufficient, it should be diluted with sterile normal saline to a sufficient volume.
- **In small wounds** (e.g., on finger tips), full amount cannot be given locally, the remaining part to be given IM away from vaccination site.
- **In case of licks/saliva contamination of mucous membrane** of anatomically unsuitable site for infiltration, full amount has to be given IM.
Timing of giving RIG

- Best given immediately or within 24 hrs of bite
- Can be given even 1 to 2 wks later or till wound is not completely healed
- Healed wounds are not to be infiltrated with RIG
- Along with RIG, 1st dose of vaccine must be given
- If vaccination has started prior to RIG, then RIG can be given up to 7 days of starting vaccine
- One extra dose of vaccine is indicated if RIG is given after 3 days (when two doses of vaccine is already given on day 0 and day 3).
Conclusion

- About 20,000 Indians die every year due to uniformly fatal viral encephalitis
- This is 100% preventable
- APCRI (Association of Prevention & Control of Rabies in India) has given a call of “Rabies free India by the year 2020”
- Andaman - Nicobar Island and Lakshadwip in India are rabies free zones
- Countries like Japan, Sweden, Norway, Spain are Rabies free
Conclusion

The way forward

✓ Prophylactic measures have to be available to every Indian through Govt. Institutions
✓ Pre-exposure prophylaxis of children
✓ Pet care - proper vaccination, regular health check up, Municipal licensing
✓ Control of stray dogs