GUIDELINES FOR RABIES PROPHYLAXIS
AND
INTRADERMAL RABIES VACCINATION IN HIMACHAL PRADESH, 2019

3rd Edition

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Directorate of Health Service, Swasthya Sadan, Government of Himachal Pradesh, Kasumpti, Shimla-171009

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Preface

The decision to frame guidelines for rabies prophylaxis has been taken in the wake of new World Health Organisation (WHO) rabies prophylaxis guidelines, 2018 wherein research done in Himachal has contributed immensely. New WHO guidelines are dose, cost and time sparing and patient friendly. Himachal Pradesh has done well in providing free rabies prophylaxis to all the patients visiting public health institutions and bringing deaths due to rabies to almost zero in the past two years and our endeavour shall be to make the state human rabies free by 2025.

It is expected that this guide would be a milestone in guiding medical and paramedical staff towards correct technique of vaccination, local wound infiltration of rabies immunoglobulins (RIG) and correct schedule of intra-dermal rabies vaccination.

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Foreword

India is the hot bed of human rabies, as an estimated 20,000 deaths are known to occur annually that accounts to about one-third of the global estimate of 55,000- 60,000. However, the state of Himachal Pradesh has made significant progress showing decline in the incidence of human rabies in the recent times from 4 cases in 2017 to 1 case in 2019. This has been mainly possible by providing uninterrupted rabies prophylaxis free of cost to animal bite victims despite frequent shortages of rabies biologicals in the state and country. In this context, the innovative and pioneering approach developed by Dr. Omesh Bharti, at Deen Dayal Upadhyay (DDU) hospital, Shimla, of injecting the rabies immunoglobulin (RIG) only to wounds and the saved remaining RIG being used in other patients provided the much needed evidence to WHO and this was incorporated in the new guidelines of rabies prophylaxis issued by WHO in 2018.

Now all out efforts are made by the state to overcome the short supply of rabies vaccines. As rabies is practically 100% fatal disease and hence, rabies post –exposure prophylaxis (PEP) is life saving in those exposed to rabies / animal bite victims. In this context, with a commitment to provide free and uninterrupted rabies PEP to all animal bite victims, without compromising with the standard of care, meeting was held on 22nd May, 2019, at SIH&FW Parimahal, Shimla-9. During this meeting guidelines for rabies prophylaxis and intra dermal rabies vaccination was developed. The committee has taken cognisance of the recent recommendations/guidelines of WHO, Government of India, Himachal Pradesh and manufacturers of rabies biologicals. These new guidelines should help medical and paramedical professionals to provide the state of art rabies prophylaxis to all animal bite victims in the government hospitals and prevent human rabies deaths in the state. The medical officers whenever in doubt are encouraged to contact the state nodal officer and seek further clarifications regarding PEP.

Date: 4th June, 2019

Dr.M.K.Sudarshan
Chairman

1. Introduction

Rabies is almost always fatal. However, following a rabies exposure the disease is practically 100% preventable by timely post-exposure prophylaxis (PEP) and correct use of rabies vaccines & immunoglobulins (RIG). About 55,000 – 60,000 human rabies deaths are known to occur globally each year of which 20,000, i.e. about one-third is from India alone. However, Himachal Pradesh (HP) with a population of about 74 lakhs, has made good progress as in the recent years there is a decline in the incidence of human rabies in the state as per surveillance in the hospitals and as verified from media reports (Table-1).

Table -1: Annual report of human rabies cases in HP from 2009 to 2019*

2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019*
5	4	3	2	1	3	2	0	4	1	1

*Till June, 2019

Hence, it is important to provide free rabies PEP to all animal bite victims on a continual basis to ensure dog mediated human rabies free HP by 2025. In a resource limited setting like India, high cost of vaccine is a major limiting factor. Intradermal rabies vaccination (IDRV) for post-exposure prophylaxis was approved by WHO as early as in 1992 and has now been extensively used in India since 2006. IDRV is found to be equally effective as intramuscular rabies vaccination and at the same time reduces cost of PEP by 60-70%. Similarly new method of only wound infiltration of eRIG without systemic intramuscular administration, as developed in Himachal[1] further saves costs of complete rabies prophylaxis.

2. The disease

Rabies is caused by a RNA virus that is present in the saliva of rabid animal. It is invariably transmitted following a bite of a rabid animal that leads to deposition of the saliva and the virus in the wound. The virus being neurotropic (having affinity for nerves), then through a free nerve ending via the neuromuscular junction enters the peripheral nerve and internally through the axoplasm moves slowly at a speed of about @3 mm per hour to reach the spinal cord and brain. At this juncture following its multiplication in the brain, the symptoms and signs of human rabies appear in commonly known as furious or encephalitic rabies viz. hydrophobia (fear of water), photophobia (fear of light) and aerophobia (fear of breeze). In the less common paralytic or dumb rabies (20% cases), signs of progressive paralysis appear and mostly without hydrophobia.

The death invariably occurs in 4 days to two weeks due to cardio-respiratory failure. The time interval between the bite and occurrence of symptoms/signs of rabies i.e. incubation period varies from 4 days to two years or rarely even more. Once, the virus enters the nervous system it becomes inaccessible to rabies vaccines & RIG and death in inevitable. Thus, it is important to remove the virus from the wound as early as possible by immediate wound management involving wound wash with water and soap followed by application of virucidal antiseptics that reduce / eliminate the

chances of nerve infection. Besides early infiltration of wound/s with RIG will neutralize any virus that is still left behind after wound management; and the vaccine will induce anti-rabies antibody in 7-14 days later and this will last up to one to two years or even longer covering the longer incubation period and abort occurrence of any delayed rabies infection and thus prevent the disease.

3. Animals transmitting rabies in India /HP

The disease is transmitted by a rabid animal following bite, lick on a wound or mucous membrane of the individual. The virus cannot enter through an intact skin. Rabies is commonly transmitted following the bite of a rabid dog (97%), cat (2%) and other animals (1%) i.e. mongoose, fox, jackal and other wild animals. In HP, human rabies deaths due to mongoose bites have been reported in Kangra district and mongoose were found positive for rabies virus[2]**.** As monkeys have also been tested positive for rabies in HP[3], PEP is recommended following bites and even scratches by monkeys. After exposures (invariably mauling) to wild bears, PEP is recommended. Squirrels have been found to transmit rabies[4] and hence, following exposures to squirrels PEP is recommended**.**PEP is not recommended following exposures to domestic rodents, hares, and birds.

Whenever in doubt, the medial officer is informed to contact for further guidance, the state epidemiologist and State Master Trainer on IDRV: Dr. Omesh Kumar Bharti, Shimla – Mob. 9418120302 Email: bhartiomesh@gmail.com

4. Post-exposure prophylaxis (PEP)

The following World Health Organization (WHO) classification is used for grading the exposure to rabies and guide to provide rabies prophylaxis (Table-2).

Table-2: WHO classification of rabies exposures

Category of exposure	Description	Post-exposure prophylaxis
Category I	Touching or feeding animals, licks on intact skin, contact of intact skin with secretions or excretions of rabid animal or person	Not regarded as exposures, therefore no PEP required
Category II	Nibbling of uncovered skin, minor scratches or abrasions without bleeding	Vaccine should be injected as soon as possible
Category III	Single or multiple transdermal bites or scratches, licks on broken skin, contamination of mucous membrane with saliva from licks and exposure to bats.	Vaccine and rabies immunoglobulin should be administered at distant sites as soon as possible. Immunoglobulin can be administered up to 7 days after injection of the first dose of vaccine

Note: In HP, human rabies has been reported even following category II exposures of scratches (without bleeding) by dogs[5]. Hence, in such cases after wound wash, both vaccine and RIG are indicated. The RIG is used only to infiltrate the affected area/scratch of the skin.

The PEP has broadly four components i.e.

i. Wound management
ii. Vaccination
iii. RIG infiltration
iv. Counselling

4.1. Wound management. Following a rabid animal bite, as saliva containing the lethal rabies virus is inoculated into the wound, it is very imperative the virus is removed from the wound and thus prevent rabies infection. This greatly eliminates the risk of rabies death, is life saving and many times this simple procedure (of wound wash) is not done by the patients due to ignorance. Hence, it is important that wound washing facilities comprising of running tap water and liquid soap are provided at the antirabies clinics (ARCs) for animal bite victims to wash their wounds.

All animal bite victims are advised to thoroughly flush the wound/s with running tap water, when appropriate for 15 minutes to remove the traces of saliva from the wound. Then wash the wound/s with soap so that the virus, if still present is inactivated. In case of young children, they need to be closely examined for any unnoticed wound/s in the covered part of their body, and if these are missed may prove fatal later on. Then all the wounds are applied with povidone iodine or any other antiseptics available to neutralize the virus.

In case of large bleeding wounds, after wound wash with copious amount of water and application of antiseptics, a simple covered dressing shall be done. If the wounds are covered with local applicants like turmeric powder, plant juices, chillies, etc. they need to be removed by flushing with running tap water and then gently cleaned with a clean dressing material. If the wound is infected, still it is washed and an antiseptic applied. If the wound/s is gaping then (after careful infiltration of RIG) the edges are brought together and a pressure bandage is applied and delayed (after 72 hours) suturing is done. If the wounds are severe and profusely bleeding, then these are immediately infiltrated with RIG as anatomically feasible and loose occlusive minimal sutures are done to stop bleeding. In case of wounds on the face thorough wound care is done and after careful infiltration of RIG, wound is sutured to the minimum to avoid scarring.

Thus, proper and timely wound management is very important and life saving, more so in severe exposures. It is important to propagate this message in the families and community. All closures of wound/s should only be done after careful infiltration of RIG.

4.2. Intradermal rabies vaccination (IDRV). In the government institutions as a policy, only IDRV is provided free of cost to treat animal bite victims. The vaccine supplied shall be reconstituted only with the diluent provided with it. Disposable Insulin syringe with fixed needle or a suitable alternative 1 mL syringe provided shall be used for ID vaccination. The recommended regimen consists of injecting one dose of 0.1mL of the reconstituted vaccine at two sites on days 0, 3,7 and 28 (2-2-2-0-2) . This is known as the updated “Thai Red Cross (TRC)” regimen. The opened vials having reconstituted vaccine shall not be exposed to sunlight, used in 6-8 hours and any leftover vaccine shall be discarded at the end of the day.

Day 0 is the day of first dose of vaccination and not necessarily the day of bite/exposure. The commonly recommended site/s of ID vaccination is the deltoids. The alternate sites are

suprascapular and rarely lateral thighs only if necessary and with the consent of the patient; in case of women strictly in the presence of a female attendant. A successful ID injection is evident by the appearance of a bleb (3-4 mm) and peau de orange (orange peel) effect. If ID injection fails (no appearance of a bleb) at one site, than at an adjacent area the ID dose shall be injected. The patient shall be informed not to rub or apply any applicant to the injection sites. The common side effects of IDRV are soreness, redness, itching, occasionally slight pain, etc. and these are self limiting and no medication is ordinarily needed. Spirit swab shall not be used before ID vaccination.

The vaccination series may be discontinued if the biting dog or cat (not other animals) is alive after ten days of observation. In the process, if the patient has received at least two doses of rabies vaccine then he/she is considered to have received pre-exposure rabies vaccination/prophylaxis (PrEP) and in future in the event of a re-exposure to rabies than such patients require wound management, one dose (0.1mL) of rabies vaccine at one site on day 0 & 3 and no RIG.

In the private sector, PEP is provided for a fee by IM route, using the five dose Essen regimen given on days 0, 3,7,14 and 28. The doses are given in alternate deltoids; in case of children below 2 years of age, it is given in the antero-lateral thigh.

4.3. Rabies immunoglobulin (RIG). The role of RIG in passive immunization is to provide readymade rabies neutralizing antibodies at the site of exposure before patients start producing their own antibodies as a result of vaccination**.** RIG administration is recommended after category III exposures of individuals who have not been previously vaccinated against rabies.

RIG is administered only once, preferably at or as soon as possible after initiation of post–exposure vaccination. It is not indicated beyond the seventh day after the first dose of rabies vaccine, regardless of whether the doses were received on day 3 and 7, because an active antibody response to the rabies vaccine has already started, and this would represent a waste of RIG.

There are two types of RIG. Equine RIG (eRIG) and Human RIG (hRIG). Equine RIG is supplied to government institutions and is provided free of cost to the patients. The hRIG that is imported and expensive is available in the private sector. Both the RIGs are considered to have similar clinical effectiveness. ERIG that is supplied to government hospitals is procured from Central Research Institute, Kasauli, HP or from other sources. It comes as 5 mL vial with a potency of 300 IU per mL and thus having 1500 IU/ vial. The maximum dosage is 40 IU per KG body weight. Skin testing before eRIG administration is not necessary because of its unreliable prediction of adverse effects. However, it is important to keep emergency drugs like injection adrenaline, cortisone, anti-histamine, oxygen, etc. to manage any anaphylaxis that is remote.
However, from the calculated volume of eRIG, the quantity that is sufficient to adequately infiltrate all wounds shall be used. Injecting remaining volume of eRIG intramuscularly at a distance from the wound provides no or little additional protection against rabies as compared with infiltration of wound alone. Hence, the left over eRIG may be stored at 2 to 8 degree centigrade in a refrigerator. Following strict aseptic conditions and using a separate syringe/needle this saved eRIG can be used in other patients. However, this constitutes “off label” use. In case the calculated volume of eRIG is not enough to infiltrate all wounds in a patient (when there are multiple/extensive wounds, more so in children or those mauled by wild animals) then the calculated volume of eRIG is diluted with sterile normal saline to a volume sufficient to infiltrate all wounds and the infiltration done carefully covering the surface of each wound till its depth.

For the purpose of infiltration, insulin syringe or 2 ml syringe with 24 G needles or 5 mL syringe with 24 G needles shall be used depending on the site, size, type and number of wounds. The needle shall puncture from the edge of the wound and following slow, gentle push of the plunger while withdrawing the needle backwards and resultant oozing of eRIG on the raw surface of the wound is an indication of successful infiltration. In superficial wounds besides from the edge/s, even the base of the wound as anatomically feasible shall be infiltrated. As far as possible minimal punctures shall be made to infiltrate the wound(s)/ scratch/s. While infiltrating care must be taken not to damage any blood vessel or nerve or to cause any compartment syndrome while injecting finger tips/toes/ear lobes/nasal area/external genitalia. An infected wound is not a contraindication to injection of eRIG.

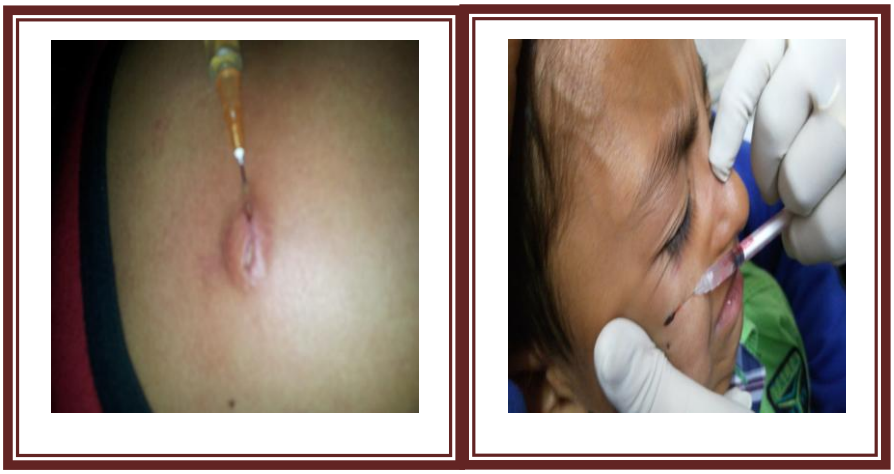

Fig 1 &2: Infiltration of scratches: Local Infiltration into Scratch base and abrasion; keep the bevel of the needle up
[Pics by: Mr. Gobind Singh/ Ms. Nirmal Gupta]

After the administration of PEP/ eRIG, the patients shall be kept under medical supervision for 20-30 minutes and monitored for any immediate adverse events expected to occur rarely like syncope, urticaria, anaphylaxis, etc. These shall be managed by the medical officer using the emergency drugs available. In State Intra-dermal Anti-rabies Clinic & Research centre (SIARCRC), D.D.U. Zonal Hospital, Shimla, Himachal Pradesh, with only local wound infiltration of eRIG and IDRV adverse reaction rate was 0.41% (8 of 1923 patients) in 2016 and 0.2% (4143 of 2020 patients) in 2017. There was no anaphylaxis.

4.4. Counselling: Animal bite, more so when severe and in children is distressing. A word of advice and comforting the patient by the doctor, informing the patient to comply with the series of vaccination & not to default; no dietary restrictions; no alcohol & no strenuous physical exercises during the course of vaccination are to be given.

4.5. PEP in individuals re-exposed. If an individual has a repeat exposure less than three months after a previous exposure, and has already received a complete PEP or pre-exposure vaccination (PrEP), then only wound treatment is required; neither vaccine nor RIG is needed. For repeat exposures occurring more than three months after the last PEP or PrEP , the PEP consists of only one dose of vaccine (0.1mL by ID route) given on day 0 and 3 would suffice. RIG is not needed.

5. Pre-exposure Prophylaxis (PrEP)

Pre-exposure vaccination may be offered to at risk groups like laboratory staff handling the rabies virus and infective material, clinicians and persons attending to human rabies cases, veterinarians, animal handlers and catchers, wild life wardens, quarantine officers and travellers from rabies free areas to rabies endemic areas. The regimen is one dose of 0.1mL vaccine given by ID route on days 0, 7 and 21 or 28. The recent WHO, 2018, recommendation is giving 0.1mL vaccine on both deltoids by ID route on days 0 & 7 only. But using this new regimen will constitute an “off label “practice. PrEP induces circulating memory cells for life time and further booster doses are indicated in high risk groups based on expert advice and monitoring their periodic anti-rabies antibody titre levels. However, PrEP shall be offered only with prior approval of the authorities as the rabies vaccine is supplied in the government institutions to provide life saving PEP in rabies exposed individuals.

6. Frequently Asked Questions (FAQs)

The FAQs are broadly classified under the headings of – Animal rabies and disease transmission, wound management, post-exposure prophylaxis (PEP), vaccine , rabies immunoglobulin (RIG) and miscellaneous for easy reference.

Animal Rabies and disease transmission.

1. What are the signs of rabies in an animal?

In case of dogs – these show irritability, restlessness, salivation, unusual aggression, attack / bite without provocation, eat unusual objects like wood, stones, paper, etc. In some cases there is gradual paralysis of hind legs. These usually do not survive for more than ten days.

In case of cats – these show irritability, restlessness, hit their paws in air, jump aimlessly, aggressive, etc. Often paralysis of the legs sets in. These usually do not survive for more than ten days.

In case of wild animals – these appear during day time and are not afraid of man and attack viciously. These may survive for up to fourteen days.

2. Is observation of any biting animal for signs of rabies for ten days valid?

The observation of the animal for ten days for signs of rabies is valid only in case of dogs and cats and not in other animals.

3. Do exposures / bites by young puppies(less than three months of age) require PEP?

In HP as human rabies cases have been reported following exposure to young puppies; it is recommended to provide PEP in such cases irrespective of the age of the biting pup.

4. Do exposure to bats require PEP?

Bat rabies has not been conclusively proven in India (and HP) and hence, exposure to bats does not ordinarily warrant PEP. However, bats have been found to be sero positive for anti-rabies antibodies in North East of India. Hence, now depending on the nature and circumstances of exposure to bats, PEP may be given in individual cases on merit.

Wound management

5. What is "spirit test "?

In minor scratches on the skin (without bleeding), it is difficult to know whether the skin i.e. Superficial layer of dermis is breached and nerve endings are open for infection by the rabies virus present in the saliva of the rabid animal. In such cases application of spirit to the affected spot will cause burning sensation and confirm that the skin is breached/ dermis is broken exposing free nerve endings and leading to a possibility of rabies infection and in such cases complete PEP is given including RIG administration.

Post-Exposure Prophylaxis (PEP)

6. What is "pooling technique of Himachal"?

Hon'ble High Court of Himachal Pradesh has directed the health department to keep anti rabies vaccine and anti snake venom in all Primary Health Centres in the state and consequently all PHCs now have domestic refrigerator for storing them. Some of the Centres like that of remote land locked Dodra Quar in Shimla district are keeping eRIG as well for the benefit of the patients.

Himachal Pradesh has developed a unique technique to share the vaccine and eRIG vials by pooling the patients at nearby central place of not more than 2-3 Km radius. The patients are referred to pooling centre having all facilities of vaccine and eRIG storage with a dedicated nurse. There are about 90 such pooling centres where patients of animal bite are referred for optimum utilization of rabies biological/ vials. This pooling technique not only helped patients to have rabies prophylaxis near their residence but also saved valuable rabies biologicals. The first pooling centre was started at DDU Hospital, Shimla, in August 2008[6]**.**

However, this practice constitutes "off label "use of rabies vaccines and eRIG.

7. Is PEP recommended in an individual who is bitten by a vaccinated pet dog or cat?

As it is difficult to know whether the vaccinated dog or cat is adequately seroconverted/seroprotected against rabies, hence, even in such individuals it is recommended to start the PEP and discontinue after three doses of IDRV (given on days 0,3 &7), if the dog is alive after ten days of observation. Such individuals are considered to have received pre-exposure vaccination (PrEP) when needing PEP in the future.

8. Following consumption of raw milk of a rabid animal, do such cases require PEP?

Infectious rabies virus (RABV) has not been isolated from the milk of rabid cows, and no human rabies cases have been attributed to consumption of raw milk. Hence, PEP is not advised.

9. A person who was bitten by a dog long time ago, but not received the rabies vaccine now comes for vaccination. What should be done?

If person who gives history of exposure to a suspect rabid animal of up to one year previously, need to be given post –exposure rabies vaccination. However, in case of exposure to confirmed rabid animal, rabies vaccine should be provided regardless of the time since exposure, even if the exposure is reported years afterwards.

10. A person received two doses of rabies vaccine (on days 0, 3) previously. Now following another exposure he/she comes over for PEP? What should be done?

People who have received any time previously at least two doses (intradermal or intramuscular) of a cell culture vaccine on an appropriate schedule before discontinuation should be considered as having received preexposure vaccination and PEP given accordingly.

11. Can PEP be given to pregnant women and lactating mothers?

As rabies is practically 100% fatal, and rabies vaccines and immunoglobulins being quite safe, pregnancy and lactation are no contra-indication to PEP.

12. Can PEP be given to those having immunosuppression or on immunosuppressant drugs?

PEP both by ID and IM route is safe and immunogenic in such individuals. However, when in doubt, if possible their sera may be got tested for anti-rabies antibody on day 14 blood sample.

13. Is PEP needed following non-provoked dog bites?

Whether a dog bite was provoked or unprovoked should not be considered a guarantee that the animal is not rabid as it is difficult to understand what provokes a dog to attack. Hence, PEP is recommended to the victim irrespective of whether the bite was provoked or non-provoked.

Vaccine

14. What is "off label "use?

All medicines, including rabies vaccines and immunoglobulins are accompanied by product inserts (or also known as labels or enclosures, etc.) that provide guidance for their use in the patients. These labels or product inserts are approved by the Drug Controller General of India (DCGI). Any usage that involves deviation from the guidelines provided in these product inserts/labels is considered as "off label "use.

15. Can any rabies vaccine be used for ID administration?

According to WHO, rabies vaccines labelled for IM use can be used safely via the ID route, even if that constitutes "off –label" use.

16. Can route of vaccination be changed during a course of PEP?

In unavoidable circumstances, the route of vaccination from ID to IM and vice versa can be changed. However, there is no need to restart the course of vaccination in such individuals and the remaining doses of vaccine as per changed route of vaccination shall be given to complete the course of vaccination.

17. Can the type/brand of vaccine be changed during a course of PEP?

When the same type/brand of vaccine is not available, the types/ brand of vaccine are interchangeable.

18. If an animal bite victim who is re-exposed, informs that he is not able to come on day 3 for the second booster dose, what is the alternative?

A four site intradermal vaccine administration (of 0.1mL at each site) on a single day (day 0) may be given as booster. But this constitutes an "off label "use.

19. Is IDRV inferior to IM vaccination?

Unlike in IM vaccination there is no haemo-dilution of the rabies antigen / vaccine in IDRV. The concentration of antigen-processing cells in the dermis is responsible for the strong immunologic response to vaccine administered ID, despite the lower amount of antigen injected. Secondly the IDRV precisely stimulates the regional lymph nodes and quickly generates an immune-response that is sometimes even more than IM response. Hence, IDRV is as good as IM vaccination and may be even better in many instances.

20. Why there has been a shift in IDRV from three doses regimen (one week regimen via a HP, DHS letter in May, 2018) back to four doses (one month) regimen now in 2019?

In the beginning of 2018 there was a prolonged shortage of rabies vaccine in HP. In April, 2018, WHO recommended use of one week (2-2-2-0-0) regimen and it was considered prudent to use this one dose saving regimen in HP. However, in January, 2019, Government of India, Delhi (NCDC meeting of rabies experts) recommended that a national multicentric study be conducted to test the efficacy of this new WHO recommended one week regimen using Indian vaccines. Hence, in May, 2019 a meeting held in Shimla, HP recommended continuing the previously used one month/4 doses updated TRC regimen till the results are known of the proposed Indian study. Hence, this reversal from the current (2018 -19) one week ID regimen (2-2-2-0-0) to the previously used one month/4 dose updated TRC regimen (2-2-2-0-2) to be used from now on.

21. Can any rabies vaccine be used for IDRV?

Rabies vaccines labelled for intramuscular use can be used safely via the intradermal route, even if this constitutes “off – label” use.

22. If a person has missed a dose of vaccination, is it required to restart the vaccination?

If a person has missed a dose of vaccination, there is no need to restart the vaccination and the remaining doses of the vaccine be given as per revised schedule of dates i.e. in such cases vaccination is resumed not restarted.

23. Some rabies vaccines come in 0.5mL per vial. In such cases what is the dose of ID vaccination?

Irrespective of the volume of reconstitution of the vaccine whether 0.5 mL or 1.0 mL, the dose of ID vaccination is 0.1 mL per site. However, when the reconstituted volume is 1.0mL, IDRV is cost – saving.

Rabies immunoglobulin (RIG)

24. Can rabies monoclonal antibody (rmAb) be used in place of rabies immunoglobulin?

The currently available indigenously manufactured rmAb was launched in October, 2017 and is yet to have a three year market standing. Hence, it is not yet recommended for use in the government hospitals.

25. Can only eRIG (without vaccine) be used in PEP?

No. eRIG shall be used always with rabies vaccine in PEP. Using only eRIG amounts to incomplete and inadequate treatment.

Miscellaneous

26. How to know that a person receiving PEP is protected against rabies?

In an individual receiving PEP, rabies virus neutralising antibody (RVNA) titre of 0.5IU/mL or more on day 14 is considered as adequate/protective. The RVNA is a surrogate marker of protection against rabies. However, the facility to test for RVNA is available at very few centres in the country like at National Institute of Mental Health and Neurosciences, Bangalore & others. As current rabies PEP has been found to be highly efficacious hence, it is recommended not to do RVNA testing on a routine basis.

27. Is rabies transmitted from human-to-human?

The risk of transmission of rabies from a human rabies case to other humans is very minimal and there has never been a well documented case of human-to-human transmission, other than the few cases resulting from organ transplant like cornea, etc. However, people who have been exposed closely to the secretions of a human rabies patient may be provided PEP as a precautionary measure.

28. Are there any contraindications to rabies post-exposure prophylaxis?

As rabies is practically 100% fatal, there are no contraindications to PEP.

29. Are pregnancy, lactation, infancy, old age and concurrent illness a contraindication to PEP?

Pregnancy, lactation, infancy, old age and concurrent illness are no contra indications for rabies PEP. Post-exposure rabies prophylaxis takes precedence over any other consideration since it is a life saving treatment. Moreover, rabies vaccine does not have any adverse effect on fetus, mother to be, the course of pregnancy and lactation. Hence, complete PEP should be given depending on the category of exposure.

30. What is the potency of rabies vaccines?

The rabies vaccines have a potency of 2.5 IU or more per vial. The same vaccine is used for ID administration irrespective of reconstituted volume of 0.5mL or 1 mL. However, cost-wise a 1 mL vial will be more beneficial for ID use.

7. References

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8. Suggested further reading

1. WHO, Rabies vaccines: WHO position paper – April, 2018, Weekly epidemiological record, no.16, 93, Geneva, Switzerland.

2. WHO, WHO expert consultation on rabies, Technical Report Series, 1012, 2018, Geneva, Switzerland.

3. Government of India, National rabies control programme, National guidelines on rabies prophylaxis, National Centre for Disease Control, 2015, Delhi, India.

4. Association for Prevention and Control of Rabies in India (APCRI) vide www.apcri.org

9. List of members of the committee

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