**Need for Introduction of Anti Rabies Vaccine**

**in the National Immunisation Schedule**

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**ABSTRACT:**

*Rabies is the only disease that had a 100% death rate in Indiaeven though Rabies is 100% preventable by vaccines. Countries like UK have been declared rabies free from as early as 1922. US reports as little 1 to 3 cases annually. Peru has already introduced the PreExposure Prophylaxis as part of their National Programme and their death related to Rabies has dropped to zero. According to the Centers for Disease Control and Prevention (CDC) the stark reduction in the number of rabies cases is attributable to the elimination of canine rabies through vaccination, the vaccination of wildlife, education about the virus, and timely administration of post exposure prophylaxis. It has been suggested in this research article that the inclusion of the Anti Rabies Vaccine as part of the National Immunisation Schedule will be successful in bringing down the death rate to almost zero in India.*

1. **INTRODUCTION :**

India reports 36% of the world’s deaths due to Rabies, which accounts for about 25,000-30,000 deaths annually even though Rabies is 100% preventable by vaccines. Rabies is the only disease that had a 100% death rate in India in 2017, compared to 12% for Japanese Encephalitis and 6% for H1N1. Every year, about 15 million people are bitten by animals, mostly dogs, and need post exposure prophylaxis. A person is bitten every 2 seconds, and someone dies from rabies every 30 minutes.

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Because rabies is not a notifiable disease in India and there is no organized surveillance system of human or animal cases, the actual number of deaths may be much higher. In India, rabies affects mainly people of lower socio-economic status and children between the ages of 5 and 15 years. About 99% of human rabies cases result from dog bites and, once symptoms begin, the disease is almost invariably fatal.

1. **DISCUSSION:**

Experts say that the main constraint to rabies elimination in India is the lack of coordination and the lack of a comprehensive national programme. They agree that since India shares borders with six countries that are all rabies endemic, it is essential that India’s rabies control efforts are coordinated regionally. Other Asian countries, such as Sri Lanka and Thailand, have made progress by taking a nationally coordinated approach. Countries like the United Kingdom have been declared Rabies free from as early as 1922 after the introduction of compulsory quarantine for dogs. The United States as with other developed countries have seen a dramatic decrease in the number of human infections and deaths due to the rabies virus. According to the Centers for Disease Control and Prevention (CDC) the stark reduction in the number of rabies cases is attributable to the elimination of canine rabies through vaccination, the vaccination of wildlife, education about the virus, and timely administration of post exposure prophylaxis. Currently, in the U.S. only 1 to 3 cases of rabies are reported annually.

Human rabies is 100% preventable. Various methods include canine vaccination to eliminate rabies at its source, Post Exposure Prophylaxis (PEP), and Pre Exposure Prophylaxis (PreEP). PreEP involves giving a series of intramuscular or intradermal injections of rabies vaccine to prime the immune system. This enables fast recall of memory immune responses once a person is re-exposed to the virus.[4](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5328107/#R4) Moreover, people who have received pre-exposure prophylaxis require fewer doses of post-exposure rabies vaccine and can be treated without rabies immunoglobulin, which is costly and difficult to procure. As the majority of deaths due to Rabies occurring in India is in children below 15 years, introduction of the PreEP as part of the National Immunization Schedule in India would drastically reduce the mortality due to an otherwise fatal disease.

1. **Pre-Exposure Rabies Prophylaxis Regimens (PrEP) with Vaccines Fulfilling WHO requirements are as follows:**
2. **Intramuscular:**
* One intramuscular dose is given on each of days 0, 7 and 21 or 28;
* Site of injection: deltoid area of the arm for adults; anterolateral area of the thigh is recommended for children aged less than 2 years.
1. **Intradermal:**

One intradermal injection of 0.1 ml is given on each of days 0, 7, and 21 or 28

1. **Booster Vaccination and Monitoring of Previously Immunized Persons:**

Persons working with live rabies virus in diagnostic laboratories, research laboratories, vaccine production laboratories at permanent risk of exposure to rabies should have-

* One serum sample taken every six months;
* A booster dose when the titre falls below 0.5 IU/ml.
1. **Other professions (veterinarians, animal handlers, wildlife officers etc) working in rabies endemic areas should have**-
* One serum sample taken every two years
* A booster dose when the titre falls below 0.5 IU/ml
1. Routine booster vaccine doses after primary rabies vaccination are **not** required for the general public living in areas of risk.
2. **THE NEED FOR ANTI RABIES VACCINE IN THE NIS:**

One study confirms that the rabies pre-exposure vaccination protocol of three intramuscular injections significantly decreases the proportion of poor responders at 10 years. Moreover, their findings indicate that a routine booster injection at 1 year could significantly increase the levels and duration of antibody titers.

A number of Studies have been done on the safety and immunogenicity of pre-exposure prophylaxis in children aged 2 months to 15 years, all have found it to be safe, even when given in combination with other childhood vaccines such as those against Japanese encephalitis, diphtheria, tetanus, pertussis and poliomyelitis (both oral and inactivated vaccines).

PreEP has already been introduced in the national programme of Peru, where vampire bats are a common source of rabies: the life-time risk of a bat bite in rural Amazon basin populations is reported to be 41 to 88%. In 2011, pre-exposure prophylaxis was administered in 286 localities in the Amazonas Region: 86% were in Condorcanqui Province and 14% were in Bagua Province. In total, 13 986 people were immunized. In these areas, the number of rabies deaths dropped from 13 in 2010 and 20 in 2011 to **zero** child deaths and only two adult deaths (**both had refused vaccination**) in 2012.

In conclusion, addition of vaccine against the ever so fatal Rabies virus in the National Immunization Schedule could save thousands of lives. The mere vaccination of children against this disease with 100% fatality could bring down the number of deaths due to Rabies to almost zero in India. However, it is to be kept in mind that the death rates can be brought down even more efficiently and cost effectively if mass vaccination of all dogs and cats are done, as that remains the most cost effective way to curb Rabies till date.

**References:**

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