

Does India's Zero by 30 Strategic Plan Need the Addition of the Rabies Vaccine to the Universal Immunisation Programme?

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Dear Editor,

We just heard the awful news that a teenager had died from rabies. Because of his anxiety, the victim did not tell his parents that he had been bitten by a neighbour's dog and died a few days later. This incident and similar situations in the past have caused us to consider the value and necessity of the rabies vaccine. If the child had told his family members and received post-exposure prophylaxis, he could have been rescued.¹ Is there any way to prevent rabies? Although a pre-exposure rabies vaccine regimen is available, is there anything we can do to avert rabies in children?

Edward Jenner developed the small pox vaccine, and as a result of his efforts, small pox was eradicated from the world. Small pox was destroyed since there was only one human reservoir, but rabies cannot be eradicated due to the widespread dispersion of canine reservoirs and the persistence of the sylvatic cycle.² In India, any animal bite, even a rat bite, is considered a possible source of rabies infection. A full vaccine course is suggested and administered to all victims, which is a very important attempt to prevent post-exposure infection. Rabies virus causes acute viral encephalitis with a 100% fatality rate. Fortunately, with this disease, vaccination alone can completely avoid mortality. There are no exact data on mortality, but according to WHO reports, India accounts for 36% of global deaths, or approximately 18000 to 20000 deaths per year, owing to rabies, with 30% to 60% of those deaths occurring in children under the age of 15 as bites, which are frequently underreported and unrecognised.³

The dog is a very honest animal and a faithful companion to people. Every country dog is the first option for a pet. Owners in several countries register their pets under their names and take care of them in addition to regular health checkups and vaccinations. In India, these regulations are exclusively implemented in metropolitan cities; they are not implemented in rural or semi-urban areas. People adopt stray dogs or puppies, feed them and then abandon them. There are no records kept by the owner indicating exposure and pre/post vaccination for those dogs. According to research, India has about 1.53 crore stray dogs.⁴ Children enjoy playing with puppies and dogs. As we know that puppies are more susceptible to rabies compared to the adult dogs. Likewise for children, they are more prone for dog bites due to shorter stature and lower resistance power as compared to adult humans.

To prevent the death due to rabies into children, we have to initiate the vaccination either to all dogs including stray dogs and pets or children. We are unable to vaccinate the dogs owing to their enormous numbers and untraceability, but it's possible to vaccinate the children.

In India, a universal immunisation programme (UIP) is currently being carried out to vaccinate newborns and children. Several vaccines are administered to provide protection against an array of endemic or sporadic infectious diseases such as Diphtheria, Tetanus, Hepatitis B, Japanese Encephalitis and many more.⁵ Infants and children can be protected from future rabies attacks if the Indian government incorporates rabies vaccine into UIP. Although a single vaccination is not a perfect preventative measure, a complete course plus booster doses at regular intervals will undoubtedly assist to reduce rabies-related deaths caused by dog bites. When compared to post-exposure, the dosing schedule shows that fewer doses are necessary. Post-exposure has a higher risk of death due to delayed therapy administration for a variety of reasons, as in the current case. Out of fear, victims conceal the exposing incidence from their parents.¹ Many times, individuals do not take dog bites, licks, abrasions or contact with mucus membranes seriously because of their busy schedule, fear of vaccination and lack of awareness about rabies.

The only way to prevent this type of fatal catastrophe is to incorporate the rabies vaccine into UIP. Every vaccination does not have the ability to prevent disease, but it does have the potential to lower disease severity and fatality.^{6,7} We are aware that adding it to UIP is difficult due to challenges with vaccine manufacture, storage, administration and post-vaccination adverse events, as well as with government policies and regulations, but we are certain that if the government implements it, the number of fatal instances of rabies would decline within a few years. After introducing any vaccination into the community, the benefits will become apparent after 5 years or so. Previously, pregnant women were just given Tetanus toxoid, eventually this was changed to Tetanus and Diphtheria combination.⁸ Their effects are evident in the lowering of newborn mortality after a few years. Also, one of the most cost-effective approaches is to use 2-site intradermal shorter Pre-exposure regimens which reveals a significant reduction in deaths and Disability adjusted life years in School-aged children and more over less expensive when compared to Post exposure



prophylaxis alone.⁹ To meet the Rabies Zero by 30 target, this issue must be addressed immediately.¹⁰ We expect that the Indian government would launch a new initiative on World Rabies Day (September 28, 2023), in order to fulfil the theme 'All for One, One Health for All'.¹¹ Pilot trials can determine the efficacy of universal rabies vaccine, which can then be expanded Pan India and in endemic areas globally as well.

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