



ZERO BY 30-RABIES FREE -'INDIA': AN ACHIEVABLE REALITY IN FUTURE , WITH PRO-ACTIVE STATE ACTION.

Community Medicine

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KEYWORDS

Rabies is 99.9% fatal disease but 100% preventable with optimal community awareness and pre or post exposure vaccine administration. Worldwide, it is estimated that about 59,000 people still die from the disease every year. Out of these 40% are children from Africa and Asia. A multi centric epidemiological survey in 2003, reported 20,000 deaths every year due to Rabies in India . Dog bite accounts for majority of human cases of Rabies. In year,2017 World Rabies day(28th September) was observed with theme of, “Zero by 30” thereby, setting optimistic goal of achieving zero deaths due to dog-mediated human rabies by 2030 globally. Achieving this enormous goal of zero deaths in India, situation warrants mammoth efforts from all stakeholders including policy makers, health care professionals and community members as such for eliminating Rabies from this part of world.

“In India, the animal bite incidence rate is 17.4 million bites every year. The frequency of animal bite is 1 every 2 seconds and that of death is 1 in 30 minutes . It is documented that the cost of one complete course of Cell Culture Vaccine is around USD 44.5 when given through an intramuscular (IM) route and comes down to USD 7.5 or less if administered through an intra-dermal route. Intra-dermal route has been proven to be cost beneficial for health systems in country like ours with constrained financial resources. Contextual settings of India reflects major barriers in controlling disease in animal reservoirs and densely populated habitations also enhance risk of exposure in all. Empirical evidence indicates that rapid urbanization & rising human animal conflicts also play their role in viral transmission across population.

However, recently published newer guidelines of Rabies prophylaxis and treatment by WHO can catalyze the efforts of Government of India (GOI) in control and elimination of Rabies in near future. In our country, rabies affects mainly people of lower socio-economic status and children between the ages of 5 and 15 years¹. Multitude of socio-cultural factors are cited for increased risk in these group of individuals for animal bite. This window of opportunity must be utilized by policy makers to provide mandatory pre exposure prophylaxis in children from 0 to 15 years of age under immunization programme for Rabies. In literature it is well established that if an individual is vaccinated previously any further vaccination will produce adequate amount of antibodies due to anamnestic response nature of Anti Rabies Vaccine (ARV) . To elaborate further, as per position paper ,in previously immunized individuals of all age groups , WHO had recommended administration of **only two** doses of 1 site intra dermal(ID) vaccine administration on **days 0 and 3** respectively. Moreover, in these subset of patients , administration of Rabies Immunoglobulin (**RIG**) **is also not further indicated** for concurrent administration. Simultaneously, WHO maintains similar schedule of 2 site ID cell culture vaccine administration on days 0 & 7 for pre exposure prophylaxis(PEP). Omission of subsequent 2 doses of ARV along with RIG in Category II & III patients will help immensely in reducing costs incurred following any exposure to suspected Rabies animal bite in previously vaccinated individuals. As Rabies is a fatal disease, most of the times costs incurred by families are forcible and catastrophic in nature particularly with regards to immunoglobulin's. Even when ARV and RIG are provided free of cost to its patients by state health , burden incurred on respective government health finance are extreme in nature. By

introduction of ARV in routine immunization or campaign form a significant step can be taken to address this concern. To add further it is documented that 2 site 0,3,7,28 schedule usually costs approx 7.5 USD but with recent guidelines, post exposure prophylaxis in previously vaccinated individuals would incur costs even less than 2 USD as costs attributable to RIG will be zero in near future.

Government of India(GOI), in recent past had included number of vaccines in National Immunization programme to address burden of Vaccine Preventable Diseases. Few of the examples are introduction of Rotavirus, Pneumococcal vaccine and MR vaccine. These recent recommendations by WHO can pave a suitable platform for GOI to include Anti Rabies Vaccine (ID) for PEP primarily under Universal Immunization program (UIP) . This pro-active state action from GOI can further strengthen its efforts of achieving “Zero Death in Rabies By 2030” and could shape up as an achievable “**reality**” in near future.

References

1. Re-evaluating the burden of rabies in Africa and Asia.Knobel DL, Cleaveland S, Coleman PG, Fèvre EM, Meltzer MI, Miranda ME, Shaw A, Zinsstag J, Meslin FX *Bull World Health Organ.* 2005 May; 83(5):360-8.
2. Sudarshan MK, Madhusudana SN, Mahendra BJ, Rao NS, Ashwath Narayana DH, Abdul Rahman S, et al., et al. Assessing the burden of human rabies in India: results of a national multi-center epidemiological survey. *Int J Infect Dis*2007; 11:2935 <http://dx.doi.org/10.1016/j.ijid.2005.10.007> pmid: 16678463
3. Bharti, Omesh & Van Damme, Wim & Decoster, Kristof & Isaakidis, Petros & Appelmans, An & Ramachandran, Vidya & Phull, Archana. (2012). Breaking the Barriers to Access a Low Cost Intra-Dermal Rabies Vaccine Through Innovative “Pooling Strategy”. *World Journal of Vaccines.* 2012, 2, 121-124. 121-124. 10.4236/wjv.2012.23016.
4. Rohi KR. Intradermal antirabies vaccination: a cost-effective method. *Int J Res Med Sci* 2017;5:1039-41
5. Kessels JA, Recuenco S, Navarro-Vela AM, et al. Pre-exposure rabies prophylaxis: a systematic review. *Bulletin of the World Health Organization.* 2017;95(3):210-219C. doi:10.2471/BLT.16.173039.