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Rabies Day Special: Bridging the Gap between Science and Safety

Popular Article

Rabies Day Special: Bridging the Gap between Science and Safety

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Introduction:

Dogs hold significant importance and are revered for their loyalty, protection, and association with various deities. They symbolize fidelity and faithfulness, protection, vigilance, devotion, and unwavering commitment. Therefore, dogs are considered as a member of a family in the present society. To keep them healthy it is mandated to vaccinate as it guards them against several infectious diseases and prevents us from acquiring zoonotic infections. The most important fatal zoonotic disease is rabies, which is mankind's oldest known disease. It is caused by single-stranded, negative-sense RNA viruses of the Lyssavirus genus, family Rhabdoviridae. The term is derived from the Latin rabies, madness. This in turn may be related to the Sanskrit Rabhas, to rage. The Greeks derived the word lyssa from violent; this root is used in the genus name of the rabies virus, Lyssavirus. Rabies has been known since 2000 B.C. Rabies is transmitted through the bite of animals infected with rabies, primarily dogs. All warm-blooded creatures, including humans, dogs, cats, foxes, wolves, vampire bats, cattle, horses, sheep, and goats are the hosts. Symptomless carriers and reservoirs of infection are vampire bats. Before 1885, there was a high mortality rate which was 100% fatal due to rabies. The development of the first efficacious rabies vaccine by French scientist and Microbiologist Louis Pasteur in 1885 revolutionized the prevention and treatment of rabies significantly reducing mortality rates. In recognition of his pioneering work, World Rabies Day is observed worldwide on September 28, the anniversary of Pasteur's death.

According to WHO, globally dog-mediated rabies causes an estimated 59,000 human deaths annually. India accounts for 36% of the global deaths due to rabies. India also accounts for 65% of the deaths due to rabies in the South-East Asia region. The National Rabies Control Program reported 6644 clinically suspected cases and deaths of human rabies between 2012 and 2022. In India, the sudden spike in the number of cases of rabies is a major public health concern. To safeguard public health, the global community has launched an ambitious initiative, "Zero by 30," aiming to eradicate human deaths from dog-mediated rabies by 2030 through a concerted effort to vaccinate dogs, enhance awareness, and improve access to post-exposure prophylaxis.

The global initiatives to eradicate rabies adopted are;

- World Health Organization's (WHO) Rabies Elimination Program,
- World Organisation for Animal Health (OIE) Rabies Control Program
- Global Alliance for Rabies Control (GARC)
- United Nations Food and Agriculture Organization (FAO) Rabies Control Program

Global initiatives have outlined the following key strategies to achieve worldwide rabies eradication,

- Improve access to rabies vaccines and post-exposure prophylaxis (PEP)
- Enhance surveillance and reporting of rabies cases
- Strengthen animal vaccination programs
- Promote community awareness and education
- Develop and implement effective rabies control policies

The aforementioned efforts have resulted in the total elimination of rabies in various nations, notably:

1. Japan: Rabies-free since 1954
2. Australia: Rabies-free since 1990
3. Mauritius: Rabies-free since 1992
4. Western Europe: Rabies-free since 2001
5. Singapore: Rabies-free since 2003
6. Canada: Rabies-free since 2007
7. Bali, Indonesia: Rabies-free since 2013
8. Sri Lanka: Rabies-free since 2016

National Rabies Eradication Efforts:

In India the two main initiatives taken up by the government to combat rabies are,

1. The National Rabies Control Programme (NRCP)
2. The National Action Plan for Dog Mediated Rabies Elimination by 2030 (NAPRE)

National Rabies Control Programme (NRCP): The NRCP was approved in 2013 to address rabies in India. Its objectives include:

- Training health care professionals on rabies post-exposure prophylaxis and animal bite management
- Strengthening the human rabies surveillance system
- Strengthening regional laboratories for rabies diagnosis
- Creating awareness in the community

National Action Plan for Dog Mediated Rabies Elimination by 2030 (NAPRE): The NAPRE was conceptualized in 2018 and unveiled on September 28, 2023. Through this partnership, 2023 witnessed remarkable achievements in rabies prevention: the vaccination of over 1 million dogs safeguarded human and animal health, while

investigations into 25,000 suspected rabid animals ensured prompt detection and response.

Rabies has been declared as a Notifiable Disease in Karnataka from December 5, 2022. In this regard, all medical officers are directed to provide ARV and RIG free of cost as per requirement to all animal bite victims.

One Health Approach:

The One Health approach necessitates a tripartite collaboration among veterinarians, healthcare professionals, and environmental experts, encompassing three pivotal components:

- (1) Human Health:** enhancing public awareness, education, and access to post-exposure prophylaxis (PEP);
- (2) Animal Health:** implementing mass dog vaccination, animal surveillance, and monitoring; and
- (3) Environmental Health:** ensuring effective waste management, stray animal control, and ecosystem balance.

In an interview, Professor Loui Nel, GARC's Executive Director, emphasized that World Rabies Day, established by GARC in 2007, has significantly boosted global awareness and facilitated partnerships among diverse organizations, highlighting the critical need for a coordinated, community-driven approach to rabies prevention.

Line of thinking; Ways to reduce the gap between Science and Safety:

The rabies crisis persists in India and other countries due to freely roaming stray dogs and rabid animals. Local authorities need resources and funding to control the situation. Despite laws protecting stray animals, mass killings occur. Stricter policies are necessary to safeguard innocent strays. To interrupt rabies transmission, research recommends vaccinating at least 70% of the canine population. When resources are scarce, a targeted approach focusing on vaccinating in areas with a high incidence of rabies, referred to as corridors or source areas (Compartmentalization system) is effective. A single 3-year vaccination covers a dog's lifetime in endemic zones. Traditionally, puppies under 3 months weren't vaccinated due to maternal antibody interference. However, excluding puppies leaves a significant proportion of dogs susceptible, as they may never receive vaccination otherwise. Failing to vaccinate puppies, which make up to 39% of rural dogs, has severe implications: they may never receive vaccination, leaving them susceptible and contributing to ongoing rabies transmission. Urgent action is required to promote widespread awareness of prompt dog bite reporting and implement a national rabies elimination program, preventing devastating economic consequences and human rabies transmission.

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