Why Are We Not Able to Combat Rabies in India Despite Several Plans?

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Introduction

Rabies, one of the oldest documented diseases, remains a significant zoonotic concern in India. It is a vaccine-preventable viral disease that targets the central nervous system. Dogs account for nearly 99% of human rabies transmissions, with children aged 5 to 14 being the most frequent victims. The virus can infect mammals such as dogs, cats, livestock, and wildlife, and is primarily transmitted to humans or other animals through saliva, typically via bites, scratches, or contact with mucous membranes like the eyes, mouth, or open wounds. Once clinical symptoms manifest, the disease is almost invariably fatal (WHO, 2024).

Rabies remains a significant public health challenge in India, despite numerous efforts and plans to control and eliminate the disease. The persistence of rabies can be attributed to several factors:

Inadequate Vaccination Coverage

One of the primary reasons for the continued prevalence of rabies is the low vaccination coverage for dogs. Dogs are the main reservoir for the rabies virus, and the disease continues to spread without widespread vaccination. The National Action Plan for Rabies Elimination (NAPRE) aims to achieve 70% vaccination coverage for dogs by 2030. This will in turn directly diminish human exposure (Acharya et al., 2020).

Limited Access to Post-Exposure Prophylaxis (PEP)

Timely administration of PEP is crucial for preventing rabies after a potential exposure. However, access to PEP is limited, especially in rural areas. Issues such as shortages of storage facilities, cold chain maintenance, and imprecise forecasts of the required amount in rural areas are significant barriers (Abela-Ridder et al., 2016).

Public Awareness and Education

Public awareness about rabies and its prevention is still lacking. Efforts to replicate successful initiatives in developing nations in Asia and Africa are hampered by several obstacles, including a lack of awareness about the disease among pet owners and the large free-roaming dog (FRD) populations. Additionally, there is insufficient research on dog population dynamics, movement, and behaviour that govern the ecology of disease transmission in FRD (Lembo et al., 2010).

High Population of Stray Dogs

India has a large population of stray dogs, particularly in urban areas. By 2024, the dog population in India was estimated at 10.2 million, with approximately 62 million being strays (World Population Review, 2024). The pack behavior and movement of dogs also play a crucial role in determining the combination of oral and parenteral vaccinations required to achieve 70% inoculation, as the inaccessibility of FRD for vaccination is a significant barrier to reaching the appropriate level of immunization (Tiwari, 2019).

Animal Birth Control (ABC) Programs

Animal Birth Control (ABC) programs aim to control the stray dog population, but these programs face funding, logistics, and public cooperation challenges. As per Reece (2007), initial challenges included involving local communities and municipalities in the ABC program. Over time, these relationships were established, but it took considerable effort. One of the major hurdles was the lack of a truly multidisciplinary approach involving medical, veterinary, and civic hygiene authorities. There was insufficient integration of public health professionals into ABC programs, which animal welfare organizations often drove. This limits the recognition and support for the public health benefits of such programs.

Management within shelters involved determining methods for recording data, tracking each dog's origin and history, and addressing staff responsibilities. The unknown health status of street dogs posed a risk of high post-operative losses. Procedural queries, such as staff incentives, dog-

catching times, and welfare aspects like the duration for holding operated dogs, required ongoing adjustments. Financial resources and infrastructure constraints, efficient dog identification methods, and assessing operational rates and costs also presented challenges resolved through trial and error as the program progressed (The Animal Birth Control Programme report, Help in Suffering, Jaipur, 2003).

Co-ordination and Collaboration

Effective rabies control requires coordination and collaboration among various stakeholders, including government agencies, veterinary services, and public health departments (Acharya et al., 2020). Previous efforts have been decentralized and sporadic, leading to limited long-term impact. The One Health approach recognizes the interconnectedness of human, animal, and environmental health and is crucial for a coordinated response.

Conclusion

To improve rabies control in India, mass dog vaccination campaigns targeting free-roaming dogs and innovative solutions like oral vaccines are crucial. Access to PEP should be expanded with decentralized clinics, mobile units, and robust cold chain infrastructure. Public awareness campaigns, personalized messaging, and school programs can educate communities on rabies prevention and responsible pet ownership. Scaling up Animal Birth Control (ABC) programs with multi-sector collaboration and effective monitoring will help manage stray dog populations. Strengthening the One Health approach, inter-agency coordination, and surveillance systems can ensure a cohesive response. Technology-driven innovations like digital platforms, drones, and AI tools should optimize resource allocation. Sustainable funding, legislative support, and global partnerships are essential to achieve the goal of rabies elimination by 2030. With continued efforts and a holistic approach, India can move closer to achieving the goal of zero human deaths due to dog-mediated rabies by 2030.

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