

## Guest Editorial

# Issues and Challenges in Prevention and Control of Rabies in India



**Dr R L Ichhpujani,**

Additional Director, National Centers for Disease Control [NCDC], Delhi.

Twenty first century witnessed major advances in field of information and technology. Enigmatic changes in scientific developments and lifestyle were brought about by use of computers followed by portable laptops, notebooks and now handheld i-pads and technology carried in pockets in form of i-phones. However, in 21<sup>st</sup> Century, elimination of rabies, a disease of antiquity, remains a major public health challenge not only in India but in most parts of South East Asia and Africa.

Considerable developments in form of knowledge gained in epidemiology and patho-physiology have helped in development of effective prevention and control tools. It is now well understood that elimination of rabies would involve preventing human deaths due to rabies through timely and appropriate Post Exposure Prophylaxis (PEP) and control of canine rabies through mass vaccination and animal birth management for population control of stray dogs. Hence, Rabies is a typical example of a Zoonotic infection which does not fit into the domain of a single agency that can be entrusted with the task of controlling it. There is lack of ownership which is the major issue for control of rabies in the country.

India has made considerable progress in some aspects of preventing human deaths due to rabies in last two decades. Reactogenic Nerve Tissue Vaccine (NTV) has been phased out since December 2004. India has capability and infrastructure for **producing modern rabies cell culture vaccines to meet its own requirements and more. Over 15 million doses of human rabies vaccines are being produced in the country annually. Other countries are importing human rabies vaccines from India. The country is also self sufficient in production of purified ERIG which is very vital for treatment of category III bites. In addition, introduction of intradermal (ID) route of inoculation of cell culture vaccines has** helped in improving accessibility, availability and affordability of modern rabies vaccine to needy bite victims and provided an opportunity to phase out production and use of NTV.

Studies support that most patients are victims of rabies due to negligence, ignorance or the inadequate availability of primary health care services. Rabies is a disease of both rural and urban areas. However, the accessibility of the rural population to anti-rabies vaccines is poor. It is another challenge to improve accessibility to post-exposure rabies prophylaxis to the rural poor.

There is also lack of awareness amongst the medical doctors and health professionals about the importance of wound washing, appropriate use of anti-rabies vaccines and utility of Rabies Immunoglobulin (RIG) in saving the life of the victim of a rabid animal bite. Studies have shown that passive immunization is still not being practiced even in category III bites except in metro cities. Continuous medical education of medical and health professionals on post-exposure rabies prophylaxis is a challenge to provide quality medical service to animal bite victims.

Globally it has been shown that immunization of dogs against rabies shall result in breaking of the chain of transmission, if at least 70% of the dogs are covered with effective vaccines on a sustained basis. Most of the Municipal corporations follow an *ad hoc* approach and immunize a limited number of dogs with the available resources and are unable to sustain the level of immunization. Though this provides individual protection to the animal, it has no bearing upon the epizootiology of the infection.

Similarly, surgical sterilization of dogs in small numbers and at erratic intervals does not yield any benefits in reduction of dog population. Control of canine rabies depends heavily on management of the dog population to sustain its acceptable levels. The efforts towards dog population management are limited and disjointed in the country. Many countries have tried depopulation of dogs without any tangible effect in the long run.

The progress in preventing human rabies through control of the disease in its animal reservoir has been slow due to technical, intersectoral, organizational and financial obstacles, together with poor implementation of efficient dog rabies control campaigns including controlling dog population. Whereas the reservoir is in animals, mortality

and morbidity mainly affect human beings. Dog bite is the primary source of human rabies and it is not a food animal. On the other hand, there is no surveillance system for animal rabies. As a result, the impact of rabies in livestock is unknown and the Ministry dealing with animal health is focused on economically important animal diseases which affects livestock productivity. Dog rabies control and dog population management are often neglected by the concerned Ministry and local governments have to take responsibility. There is a need that that two or three Ministries take ownership to deal with rabies viz Ministry of Health, Ministry of Agriculture and Local Civic Bodies. It is the usual scenario that there is a lack of consensus on who should take responsibility of dog rabies control and dog population management. There is a growing recognition that Ministry dealing with animal health has a social responsibility of controlling rabies in animals in order to prevent human rabies and to bring about this change is a major challenge.

The success of any programme depends on accurate assessment of the ground realities, morbidity and mortality data as well as understanding of the epidemiological trends. These require a strong epidemiological surveillance mechanism. Unfortunately such mechanism for animal or human rabies is practically non-existent in the country. In the absence of an efficient surveillance mechanism, it would be impossible to generate evidence based rabies data and information to convince policy makers and decision makers and to assess the impact of any control activities. The timely sharing of rabies data and information among animal health, wildlife health and human health authorities is essential to analyze evolving rabies situation and to develop strategic action accordingly.

Though an efficient laboratory system can support rabies control activities, the clinical and epidemiological features of rabies in humans are not dependent on laboratory support. Most human rabies cases are reported on the basis of clinical observation. The available tools for the control of human rabies, if applied effectively, can produce remarkably cost-effective results even in the absence of an extensive laboratory support. However, minimum laboratory services for rabies diagnosis in humans and animals need to be established to strengthen control activities. The laboratory services can be shared for diagnosis of human and animal rabies.

The epidemiological dynamics of rabies with profound socio-economic and cultural parameters warrant active involvement of nongovernmental organizations (NGOs) and the communities. This relationship has generally not been forged nor explored to galvanize communities in

actively participating in the rabies control campaigns. Initial management of animal bites, timely, adequate and complete post-exposure prophylaxis of victims of animal bites and educating communities in regular immunization of dogs are some of the activities where NGOs, civic society and local community groups can play a crucial role. There are success stories of animal birth control/animal rabies (ABC/AR) vaccination in limited urban areas by leading NGOs but it is location specific and has not been replicated at rural levels with community participation. It is a challenge to forge partnership among NGOs and professional organizations to sustain such activities.

Community participation is an essential element of any disease control programme. Information, Education and Communication (IEC) activities are few and far between. Inadequate efforts are being made to educate the public about the epidemiological features of rabies and simple "Dos and Don'ts" that can protect them as well as help in bringing about a reduction in the incidence of rabies. Community has to be made aware of responsible dog ownership and proper washing of wounds after animal bite.

Experience gained in implementation of pilot project on prevention and control of human rabies carried out in five cities as New Initiative during XI Five year plan indicates that strategy for prevention and control of human rabies including **enhancing awareness in general community, developing trained health manpower, strengthening diagnostic facilities, strengthening surveillance and maintenance of continuous surveillance and sensitization of other sectors is feasible, reproducible and implementable. However there is need to develop intersectoral coordination for control of rabies in dogs. The main challenge is country wide implementation of rabies control programme.**

There is need to revisit the national guidelines as shorter schedules have been approved by WHO. There is need to revisit and undertake studies to assess disease burden to have insight into the real magnitude of the problem of the country.

Successful elimination of human rabies needs prevention of animal rabies, public awareness and people's access to cost-effective and high quality rabies vaccines in a coordinated fashion. Leaving any of these three components out of the equation will fail to deliver the desired results. We are today approaching the 12<sup>th</sup> Plan. There is expected to be greater emphasis on control of Zoonoses in this plan. There is need to have implementable, effective strategies. I am sure; by better

inter sectoral co ordination we can develop a consensus control strategy, particularly to cut down transmission in the reservoir. By doing this we shall be able to prevent

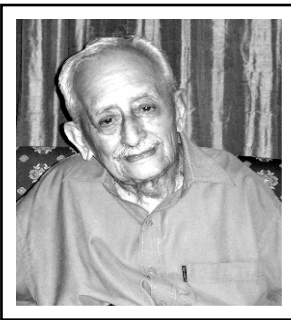
every single death due to Rabies, as why should any one be dying due to Rabies in the 21<sup>st</sup> century when we have all the means to defeat Rabies.

**Dr. R.L. Ichhpujani**, Additional Director, NCDC has a long association in the field of Rabies control. He has headed the WHO Collaborative Centre on Rabies Epidemiology at NCDC for over 5 years. He has also been actively involved with the activities of APCRI, Rabies in Asia Group and has represented India in many International meetings. He has been recipient of Louis Pasteur Oration of APCRI. He was one of the experts for latest WHO TRS on Rabies. He has very successful association with implementation of Pilot Project on Rabies in the country and an advocate of a National Rabies Control Programme building on the successful implementation of the Pilot project.

His contributions towards the discontinuation of the use of Nervous Tissue Anti Rabies Vaccine and introduction of cost effective intra-dermal route of Rabies vaccine in the country are well known.

He has actively participated in the formulation of National/Regional guidelines and participated in many CMEs on Rabies.

## OBITUARY



Dr. C. V. Subramaniam, an Honorary Member of the APCRI and the Second Guest Editor of the APCRI Journal, has left for his heavenly abode on March 2011. Just prior to that date he was very sick and died of multi organ failure and other geriatric problems.

Dr. C. V. Subramaniam was born in Kerala in 1928. He had his preliminary education in the town of Trichur up to Intermediate and then joined the Madras Veterinary College in 1947 and took the B.V.Sc degree in 1952. Immediately after qualifying he went to the Federation of Malaya and joined the Veterinary Department as Veterinary Officer in the State of Kedah and worked until 1955. Then he joined the services in the British Colony of Sarawak and retired as Chief Veterinary Officer in 1965 when Sarawak joined Malaysia. He was immediately appointed in the next door Sultanate of Brunei as Head of Veterinary Services and served there until 1988. He had

post graduate training in London in 1968. He obtained the Membership of the Royal College of Veterinary Surgeons when he was in service as head of the Veterinary Services of the Sultanate of Brunei. During his service period he attended several FAO meetings on Animal Health especially the one mainly on Rabies in Singapore in 1956 and Bangkok in 1970.

At the start of his service Dr. Subramaniam, was grossly involved in the Rabies eradication in Malaya which was plagued by Canine Rabies and Hydrophobia. Under the advice and direction of the Chief Veterinary Officer U.K. the Rabies eradication campaign went on in full swing with mandatory vaccination of all pet dogs and compulsory elimination of all unvaccinated and stray dogs. Rabies was eliminated from Malaya in 1956 and remains so till date, he was promoted and transferred to Sarawak in 1956 and although the country was Rabies free thousands of stray dogs which were eliminated because the adjoining country was Rabies endemic. Similar procedure was followed in Brunei and these countries still remains Rabies free.

After returning to India he was very active in the "Fight against Rabies". He was the Founder President of an NGO, called "Stray Dog Free Bangalore". He used to contribute with "Articles" and "Letters to the Editor" in both the "APCRI Journal" and the "APCRI News Letter". He used to participate very actively in APCRI conferences and Meetings and Workshops, which he could manage to attend, considering his advanced age. He always made it a point to express his views on topics under discussion in conferences, meetings and workshops, which were of interest to him. We at APCRI will certainly miss him at our conferences, meetings, workshops, Journals and News Letters.

We pray to god for peace to the departed soul. We, the members of the Association for Prevention and Control of Rabies in India [APCRI] and everyone who came to be associated with him in the field of "Rabies Prevention" deeply mourn the sad demise of our respected Dr. C. V. Subramaniam, Honorary Life Member of APCRI and Guest Editor of the APCRI Journal. Our last salute to him is through this Obituary.