NATIONAL SYMPOSIUM ON RECENT ADVANCES IN RABIES
25TH March, NIMHANS, Bangalore, India

Organized by:
Rabies in Asia - India Chapter
In collaboration with
NIMHANS, Bangalore.
KIMS, Bangalore.

Organizing Committee:

Patrons: Dr. P. Satish Chandra, Director, NIMHANS, Bangalore.
Dr. M. K. Sudarshan, Dean and Principal, KIMS, Bangalore.

Organizing Chairman: Dr. S. N. Madhusudana, NIMHANS, Bangalore.

Organizing Secretary: Dr. Reeta Mani, NIMHANS, Bangalore.

Treasurer: Dr. N. R. Ramesh Masthi, KIMS, Bangalore.

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Scientific Programme: Dr. S. N. Madhusudana, NIMHANS, Bangalore.
Dr. Ravish. H. S., KIMS, Bangalore.

Advisors: Dr. M. K. Sudarshan, KIMS, Bangalore
Dr. B. J. Mahendra, MIMS, Mandya
Dr. D. H. Ashwathnarayana, KIMS, Bangalore

Registration: Vijayalakshmi, NIMHANS, Bangalore
Transport: Dr. Ramesh Masthi, KIMS, Bangalore
Hall arrangements and Anchor: Dr. Anita Desai, NIMHANS, Bangalore
Scope of the Symposium

Animal bites and rabies in humans still continues to be serious public health problem in India. In recent times, lots of new initiatives have been taken both at National and International levels to reduce human deaths and eventually eliminate it by 2020. We just have about 7 years to achieve this task. A time has come to reassess the existing situation, ground realities, recent research findings, political commitments and governmental policies towards this disease. Simultaneously, we need to involve next generation of public health specialists, infectious diseases experts including microbiologists and virologists, appraise them of the current situation including the state of the art modern prophylactic measures and advances in laboratory diagnosis. Keeping this in mind, this one day symposium was organized at NIMHANS, Bangalore under the leadership of Dr. S.N. Madhusudana who heads the WHO collaborating centre for reference and research on rabies and working in this field for over 25 years. The main aim of the symposium was to enhance rabies awareness among young generation medical and veterinary scientists, make them interact with senior rabies experts from across the country and show them the way to move forward for eliminating this ancient scourge from our country. The scientific programme was designed to share the experiences of known rabies experts from the country and also give opportunity to young scientists to share their new research findings.
Inaugural Ceremony

The Symposium was inaugurated on 25th March (Monday), 2013 between 9.30AM & 10.30AM. The following dignitaries were present for the inaugural ceremony:

1. **Dr. P. Satish Chandra**, Director - Vice Chancellor, NIMHANS, Bangalore.
2. **Dr. F. –X. Meslin**, WHO, Geneva (Retd.)
3. **Dr. V. Ravi**, Registrar, NIMHANS, Bangalore.
4. **Dr. Venkatesh**, Representative, DGHS, Government of Karnataka.
5. **Dr. M. K. Sudarshan**, Dean & Principal, KIMS and President, RIA foundation.
6. **Dr. S. N. Madhusudana**, Professor & Head, Dept. of Neurovirology, NIMHANS & Chairman, RIA - India Chapter.

**Inaugural ceremony:** (from left to right) Dr. S. N. Madhusudana, Dr. Venkatesh, Dr. F.-X. Meslin, Dr. P. Satish Chandra, Dr. V. Ravi and Dr. M.K. Sudarshan

**Dr. Anita Desai** invited all the dignitaries to the stage & the programme began with an invocation song by Manasi Oza, NIMHANS, Bangalore.

**Dr. S. N. Madhusudana** welcomed the chief guests, senior rabies experts from different parts of the country and the participants. He then mentioned the scope of the symposium and hoped that the young participants will be benefited by the scientific deliberations.

**Dr. M.K. Sudarshan** briefed the audience about the Rabies in Asia (RIA) Foundation and its activities.

The symposium was inaugurated by lighting of the lamp by all the chief guests.
Dr. F.-X. Meslin inaugurating the symposium by traditional lighting of the lamp. Also present are Dr. Madhusudana, Dr. P. Satish Chandra, Dr. Venkatesh, Dr. M.K. Sudarshan and Dr. V. Ravi.

This was followed by felicitation of Dr. F.-X. Melsin who had retired from WHO, Geneva in February, 2013. A citation was read about Dr. Meslin by Dr. Anita Mahadevan describing his achievements in his 30 years of service in WHO, Geneva, highlighting his contributions to the control of neglected tropical diseases, particularly rabies. Special mention was made of organizing several expert consultations on rabies, editing an extensive laboratory manual on rabies, constituting an international task force on rabies, working with Indian rabies experts for banning Semple vaccine from India and introducing intradermal rabies vaccination.

In recognizing the immense contribution made in the field of rabies and particularly to his contribution to control of rabies in India, Dr. F.-X. Meslin was felicitated and honored in the traditional Karnataka way which included garlanding him with a sandalwood garland, endowing him with a traditional shawl, Mysore turban and a plaque of citation.
Dr. F-X. Meslin was felicitated and honoured by the dignitaries 
Present in the photo are (left to right) Dr. S.N.Madhusudana, Dr. Venkatesh, Dr. M.K. Sudarshan, Dr. P. Satish Chandra and Dr. V. Ravi.

In response to his felicitation, Dr. Meslin recalled with emotion his collaboration with the experts from India and the two NGOs, APCRI and RIA. He complemented the work done by both the organizations and hoped that their relentless efforts will able to make India a rabies free country by 2020. He added that though he has retired from WHO, he will continue to work in other capacities and help India to achieve this task.

In his presiding address, Dr. Satish Chandra recalled the days of Semple vaccine and his work with patients developing neuroparalytic complications. He particularly mentioned that a new survey is very much essential to document the decline in human rabies deaths. He emphasized that the work done by senior experts from India should be a role model for the younger generation and they should move forward with their guidance to complete the task of making India a rabies free country in near future.

The inaugural ceremony ended with vote of thanks from Dr. B. J. Mahendra, Secretary, RIA - India chapter.
Scientific Session I: Plenary Session

Chairpersons: Dr. R.L. Ichhpujani, Additional Director, NCDC, Delhi.
                         Dr. Mala Chhabra, Joint Director, NCDC, Delhi.

The plenary session had presentations from senior experts in the field. Dr. G. Gongal, SEARO, WHO summarized the problem of human and animal rabies in SAARC countries and outlined the new initiative taken by the SAARC secretariat for control of human and animal rabies. He mentioned that the new simple and rapid diagnostic technique dRIT has been chosen for rabies surveillance in Bangladesh and Sri Lanka. He emphasized that the member countries should avail the services of the WHO CC at NIMHANS, Bangalore.

This was followed by a presentation of Dr. Veena Mittal, Additional Director, NCDC, Delhi. She summarized the implementation and success of the rabies pilot project in 6 major cities and how it has paved way to conceiving a national rabies elimination programme in the 12th 5-year plan.
Dr. S. N. Madhusudana in his presentation, specifically meant for the younger generation outlined the areas that need immediate research focus. He felt that there is still a lacunae in areas like rabies pathogenesis and pathology and hoped that the new scientific advances in assessing neuronal functions and proteomics could help understand rabies pathogenesis. He particularly emphasized the dual role played by the immune system in not only offering protection if timely intervention is done after exposure but also the harmful effects that may occur if improper immunization is administered. He stressed the fact that there is an urgent need to develop specific antivirals for treating rabies patients.

Dr. Manish Kakkar from PHFI, Delhi made a very interesting presentation on the gaps that exist between rabies research that is happening in India and the policy of the health sector in control and elimination of rabies. He particularly emphasized the enormous difference in the cost of prevention of human rabies alone V/s the cost of implementing a nation wide canine rabies control and animal birth control programme.

In the last presentation of the session, Dr. D. H. Ashwath Narayana from KIMS, Bangalore summarized the clinical trials with new indigenously produced PCEC (Vaxirab N) compared to the WHO prequalified PCEV (Rabipur). The results have clearly shown that the new PCEC (Vaxirab N) is as safe and immunogenic as Rabipur.
Scientific Session II (1):

Chairpersons: Dr. Abhay Chowdhury, Director, Haffkine’s Institute, Mumbai
Dr. B. Sekar, Director, Pasteur Institute, Coonoor.

This session was to know the new research trends among the younger generation. The first paper by Shradha Mehta from Haffkine’s institute was very interesting and dealt with the effect of recombinant human interferon alpha on rabies infected mice. It prolonged the morbidity and extended the life of experimentally infected mice. This was followed by a lucid presentation from Dr. Anita Mahadevan from NIMHANS on differences between furious and paralytic rabies at the spinal level. She also dealt with the pathology of rabies and changes in protein profile after rabies infection.

Ms. Prerana dealt with the molecular epidemiology of rabies virus strains from the state of Maharashtra. It was interesting to note that apart from similarity to arctic strains some strains had close homology to archived strains from as far as Japan. Dr. Reeta Mani, from NIMHANS gave a overview of the role of molecular techniques in ante mortem diagnosis of human rabies with emphasis on Taq man
Real time PCR. She concluded that by combination of RNA detection in saliva and skin and antibody detection in CSF almost 95% sensitivity could be achieved for rabies diagnosis during life.

Dr. Reeta Mani receiving a memento from chairpersons after her presentation

**Dr. Manoharan** from Madras veterinary college, Chennai gave an overview of the rabies situation in Chennai and concluded that contrary to claims by certain NGOs, both human as well as dog rabies continue to occur in Chennai proper.

**Scientific Session II (2):**

**Chairpersons:** Dr. M. K. Sudarshan, Dean & Principal, KIMS, Bangalore.

**Dr. B. J. Mahendra**, Professor & Head, Dept. of Community Medicine, MIMS, Mandya

Dr. M.K. Sudarshan and Dr. B.J. Mahendra chairing the second scientific session
There were two interesting papers in this session. The first paper by Dr. Ravish. H. S., KIMS dealt with a practical day to day problem being faced in all anti rabies treatment centers i.e., the change in the route of administration: IM to ID and vice-versa and type/ brand of vaccine. He clearly showed that irrespective of change of route of administration or type/ brand of vaccine, the study population had more than adequate RVNA titers on day 14. This study needs to be reproduced in other centers in larger study group.

Dr. H.S. Ravish receiving memento from the chairpersons

In the second presentation Dr. N. R. Ramesh Masthi highlighted the use of global positioning system (GPS) for mapping incidence of animal bites in any particular area with all the relevant details. This is the first time that such a tool has been used to record the incidence of animals bites in different geographical areas. The paper highlights how best one can utilize the developing technologies to accurately measure incidence of dog bites and also rabies deaths.

Dr. Ramesh Masthi delivering his presentation
**General Discussion:**

An open house discussion was held after the scientific sessions, where the participants interacted with senior rabies experts. Some interesting and relevant questions was asked for which satisfactory answers were given by the experts. Mention should be made such as possibility of transmission of rabies if uncooked meat of a rabid animal is consumed, the disparity and confusing dosage of ID vaccination when reconstituted with 1 mL or 0.5 mL, storing of reconstituted vaccine, cold chain maintenance, etc. The type of questions asked reflected the interest participants showed during the symposium.

**Concluding Remarks:**

Dr. S.N. Madhusudana, Organizing Chairman summed up the proceedings of the symposium. He expressed his happiness over the overwhelming response particularly from the young microbiologists and public health personnel from different parts of India who attended the symposium on their own cost. He was particularly impressed by the type of interaction they had with senior rabies experts. He was very happy that the scientific session meant for the young scientists had interesting and quality papers. He mentioned that despite some drawbacks, the symposium was well attended and received. The felicitation of Dr. F. –X. Meslin was highly appreciated by the participants.

At the end Dr. Madhusudana thanked the Director, NIMHANS for permitting to conduct this event and also gracing the inaugural session. He thanked Dr. F. –X. Meslin and all other experts for having come from distant places and taking part actively. He thanked all his colleagues both from the Department of Neurovirology, NIMHANS and Department of Community Medicine, KIMS for helping him to make this event such a success. He thanked all the pharmaceutical companies such as Novartis, Zydus - Cadila, Serum Institute of India, Indian Immunologicals Ltd. & Bharat Serums and Vaccines Ltd. for their generous financial support.
A group photograph of NIMHANS volunteers with the chief guests of the symposium

A group photograph of KIMS volunteers with the chief guests of the symposium

Volunteers:

**NIMHANS**
- Dr. Nandita Hazra
- Dr. MV Manjunath
- Sampada Sudarshan
- Shaheen Taj
- Amita Kumari B
- Deepashri Rao
- Maria Thomas
- Shilpa KA
- Hema Priya
- Ayushman Ghosh
- Prachi Fhadnis
- Ramesh
- Thomas
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**KIMS**
- Dr Yannick P Puthussery
- Dr Madhusudan M
- Dr Shreyas
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