

SOUVENIR 2009



Apcricon 2009
THIRUVANANTHAPURAM

11th National
Conference of
Association for Prevention
and Control of Rabies in
India

THEME
Intra Dermal
Rabies Vaccination
The Challenges
Ahead



VENUE
Taj Residency,
Thiruvananthapuram
on 4th & 5th July 2009



11th National Conference of Association for Prevention and Control of Rabies

THEME:
*Intra Dermal Rabies Vaccination
The Challenges Ahead*

4th & 5th July 2009

VENUE
Taj Residency, Thiruvananthapuram



Shri. R.S. Gavai
Governor of Kerala



Address : Raj Bhavan,
Vellayambalam,
Trivandrum. 695099
Fax : 0471-2720266

MESSAGE

I am happy to know that the 11th National Conference of the Association for Prevention and Control of Rabies in India [APCRI] is being held on 04 and 05 July 2009 at Thiruvananthapuram.

The theme of the Conference, 'Intra Dermal Rabies Vaccination - the Challenges Ahead/ is indeed topical and significant that will go a long way towards our goal of a 'Rabies Free Kerala by 2015 and India by 2020.'

I wish the Conference as well as the Commemorative Volume all success.

[R.S. Gavai]



V.S. Achuthanandan
Chief Minister of Kerala



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MESSAGE

It gives me immense pleasure to know that the 11th National Conference of the Association for Prevention and Control of Rabies in India is being held at Thiruvananthapuram, Kerala. Government of India views with pride the health standards developed over the years by Kerala, I hope that the initiatives taken towards achieving a rabies free environment by the government of Kerala, serves as a model for the rest of the country.

I would like to use this opportunity to remind each one of you regarding the importance of intersectoral coordination and team work in fighting this menace. I hope this conference will be an ideal platform to launch such a coordinated effort by all the major stakeholders. Let us work together to make our dream of a Rabies free Kerala by 2015 and Rabies free India by 2020.

V.S. Achuthanandan
Chief Minister of Kerala



Smt P.K Sreemathi Teacher
Minister for Health & Social Welfare



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Government Secretariat

Thiruvananthapuram

MESSAGE

I am delighted to know that the 11th National conference of the Association for Prevention and Control of Rabies in India is being held at Thiruvananthapuram, Kerala from 4th to 5th July, 2009. The world Zoonosis Day is being observed on July 6th, 2009 and hence this is a very crucial gathering for all who are working in the field of rabies control. Our commitment towards rabies control in the state took a new direction with the implementation of IDRV in the state last year.

IDRV has been made available in all the major hospitals in Kerala, including the five medical colleges and is being extended to entire district and taluk hospitals of the state. We are also working towards providing antirabies vaccine free of cost to all the people. I am happy with the way the public has responded and also impressed with the immunogenicity results. But, we still have a long way to go to achieve our goal of a **“Rabies free Kerala by 2015”** and our ultimate dream of a **“Rabies free India by 2020 ”**. APCRI has always supported us in this venture and I take this opportunity to congratulate the organizers of this workshop who are working tirelessly, all the delegates of the conference and wish the conference tremendous success.

P.K. Sreemathi Teacher



Dr Vishwas Mehta I.A.S
Secretary (Health)



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MESSAGE

I am extremely happy to see that the "Association for Prevention and Control of Rabies in India", is organizing their 11th annual conference at Thiruvananthapuram. Approximately 3 million people receive post exposure prophylaxis in our country annually and the financial burden that this creates on the public is huge. This led to the introduction of IDRV which is cost effective and has been implemented successfully in various countries.

The theme of the conference is very much relevant to Kerala scenario now as we are actually in the process of implementing it in the State. I strongly believe that the knowledge gained by the delegates will go a long way in addressing the problem of rabies in our country. I would like to take this opportunity to congratulate the organizing secretary and his team who have put in some real hard work for the successful conduct of this conference.

I wish the conference all success.

Dr Vishwas Mehta I.A.S
Secretary (Health)



Dr Dinesh Arora I.A.S
Joint Secretary (Health)
State Mission Director (NRHM)
& Managing Director (KMSCL)



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MESSAGE

First of all, I would like to welcome you to the 11th National conference of the Association for Prevention and Control of Rabies in India. Rabies with a crucial mode of transmission from animals to humans and case fatality rate of 100%, is a major public health problem, especially in India, with more than 20,000 deaths being reported each year. Kerala has always been a forerunner in the field of health with indicators at par with international standards. It is hence distressing to learn that approximately 100 lives are lost due to rabies in Kerala every year. With the intention of combating the deadly disease, we implemented the IDRV programme in Kerala last year. But if we have to realize the dream of a Kerala free of rabies, we need to do much more than that. Therefore, I feel there is an urgent need for effective combination between prevention and control measures aimed to eliminate rabies from both animals and humans.

I hope that this conference will provide an opportunity to assess the state of research, the latest discoveries and new prevention, control, and surveillance techniques for this disease. I take this opportunity to congratulate the organizing committee, who have worked tirelessly over the past few months to make this a memorable and informational experience for all.


Dr Dinesh Arora I.A.S



Dr K Shylaja MD, LLB
Director, Health Services (i/c)



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Directorate of Health Services,
Thiruvananthapuram - 695 037

MESSAGE

I am glad to know that the 11th National Conference of the Association for Prevention and Control of Rabies in India is to be held on 4th and 5th of July, 2009 at Thiruvananthapuram. Kerala was the first state to shift from nervous tissue vaccine (NTV) to cell culture vaccine (CCV) way back in 1993. The new technique of Intradermal Rabies Vaccination, helps to make the prophylaxis more economical and reach out to a wider population.

Kerala State Health Services department has been actively involved in the initial phases of IDRV implementation in the state and this conference will be a booster and encouragement for us to scale up the current IDRV implementation programme in the state

I take this opportunity to wish the organizing secretary and the members of the organizing committee the very best of luck, to make this conference a grand success.

Dr K Shylaja MD, LLB
Director, Health Services (i/c)



Dr V.Geetha MD
Director, Medical Education



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Directorate of Medical Education

Medical College, P.O

Thiruvananthapuram – 695 011

MESSAGE

Spread of information is the best guarantee against the spread of rabies. The 11th National conference of the Association for Prevention and Control of Rabies in India, held at Thiruvananthapuram, will help in generating awareness about rabies and stemming its alarming spread. Department of Health Education of Kerala had actively participated in the workshop on developing guidelines for the implementation of IDRV. Based on the NICD document, revised guidelines for animal bite management including correct technique of intradermal inoculation of CCV's were developed.

The ARCs attached to the Medical Colleges play a crucial role in the successful implementation of the programme in Kerala. More and more of such interactions will strengthen the effort to curb this disease. This would be an excellent opportunity for us all to gather insights from the vast knowledge and experience of the international and national speakers which will help us a lot in overcoming the challenges and will make the IDRV programme in Kerala a huge success.

I wish the conference all the best !

Dr V.Geetha MD

Director, Medical Education



Dr. M K Sudarshan, MD [BHU], DIH, DHM, FAMS
President, Rabies in Asia (RIA) Foundation
Principal and Professor of Community Medicine
Kempegowda Institute of Medical Sciences, Bangalore

FOREWORD

Human rabies is virtually 100% fatal, but is vaccine preventable. In India, every year about 20,000 persons are estimated to die of rabies. In December 2004, following a Supreme Court order the production of sheep brain (Semple) vaccine was stopped and was replaced by modern rabies vaccines. But the state of Kerala way back in 1993 itself had switched over from Semple vaccine to modern vaccines. However, like rest of India, Kerala too found it difficult to provide the rabies vaccines by intramuscular route due to paucity of funds and consequently launched intradermal rabies vaccination [IDRV] in September, 2008. But the programme was meticulously planned and implemented in a phased manner. Dr. Thomas Mathew, Professor of Community Medicine, was appointed as the nodal officer and initial training programmes for medical officers were held in Hyderabad. A guide book on operationalizing IDRV was published in November, 2008 and in February, 2009 the second edition was brought out.

Now the eleventh national conference on rabies under the aegis of Association for Prevention and Control of Rabies [APCRI] is to be held on 4th & 5th July, 2009 focusing on the implementation of IDRV in the country. It is hoped that the deliberations of this meeting focuses on issues related to procurement of vaccines, administration of vaccines by the ID route, scope of IDRV in the private sector, etc. It is hoped that the results of the deliberations benefit the common man and help in reducing the burden of rabies in Kerala and the country. I wish the conference all success.

S/d
Dr. M K Sudarshan

APCRI PRESIDENT'S MESSAGE



The 11th National Conference of APCRI is being conducted in God's Own Country and I congratulate Dr. Thomas Mathew and his team for organizing the same at Thiruvananthapuram on 4th and 5th July, 2009.

Rabies continues to be a disease of public health importance in our country and Kerala has recently taken an important step in the prevention of this disease by implementing Intra Dermal Rabies Vaccination in the government sector.

I am happy to know that experts and delegates from different parts of India and abroad are participating in this conference and hope that the scientific deliberations will help in strategizing the future course of action to achieve the goal of "Rabies Free India".

I wish the organizers the very best for the success of the Conference.

S/d
Dr. G. Sampath
President, APCRI

SECRETARY GENERAL'S REPORT



It is my privilege to apprise you of all the activities of APCRI since my last report.

- I am proud to inform you that our membership is growing and at present our strength stands at, Founder Life Members (FLM)- 43, Life members (LM) - 425, Honorary Members (HM) - 06 & (AM)- 07.
- APCRI published & distributed “Manual on RIG administration” to all its members & corporates to facilitate the increased use of RIG.
- APCRI organized a “National seminar on Rabies Vaccines” at Vizag, AP on 1st March 2009. Many issues related to rabies vaccines viz. Potency, regulations on import of rabies vaccines, status of IDRV implementation in the country etc, were discussed in this seminar.
- Many of our APCRI members observed “World Rabies day” on 28th September, 2008 & some of them even got the appreciation from Alliance for Rabies Control (ARC), UK .
- APCRI is supporting “Pilot project on Prevention of human rabies” initiated by Government of India/NICD, Delhi.
- APCRI is successfully brining two issues of Journal & Newsletter annually.

After the last conference at Lucknow, UP (APCRICON 2008) organized by Dr MN Siddique, Dr Thomas Mathew is organizing this 11th conference of APCRI (APCRICON 2009) at Thiruvananthapuram, Kerala. He has rightly chosen the theme for this conference as “Intra dermal rabies vaccination (IDRV)” as Kerala has successfully implemented IDRV. I congratulate him for organizing this conference in spite of his busy work schedule at State Diseases Control & Monitoring Cell (SDCMC, Kerala).

S/d

Dr. D.H. Ashwath Narayana
Secretary general, APCRI



DR. S.N. MADHUSUDANA
Director, WHO Collaborating Centre for
Reference and Research on Rabies
National Institute of Mental Health & Neurosciences Bangalore

MESSAGE

I am very happy that the 11th national conference of the Association for Prevention and Control of Rabies in India (APCRI) is being held at Thiruvanthapuram, Kerala under the able organizing capacity of Dr. Thomas Mathews, Nodal Officer, IDRV Kerala. The theme of the conference is very relevant under the present circumstances when intradermal rabies vaccination (IDRV) has been implemented in several states with reasonable success. But the benefit should reach poor and underprivileged of the entire country. For this to happen, we need to work out useful strategies.

We are now almost in the middle of our time frame after we declared “ Make India rabies free by 2020”. We have still a long way to go in achieving our goal and the only way we can achieve this is to conceive and implement a National Rabies Elimination programme with coordination between both medical and veterinary services of the country. We have all the tools and weapons and also dedicated people to make this dreaded disease a history Our neighbor countries have almost done it and I see no reason as to why we cannot do it..All we need is commitment. Let us work together to make it happen.

I wish the conference a grand success and hope that the young and energetic people who have joined our hands will continue to work hard in achieving our goal

Dated:3-7-2009

Dr. S.N.Madhusudana



Dear Dr Thomas Mathew,

I was very happy to note that you and your team are organizing APCRICON – 2009. I am confident that you will succeed to bring to the forefront the issues pertaining to this dreaded disease. I am aware of the organizing capabilities of you and your team and hence I know the conference will be a grand success.

I take this opportunity to wish the participants fruitful deliberations and exchange of ideas. I hope the recommendations from this conference will help the authorities in tackling the problem more effectively.

Regards and best wishes.

Dr B J Mahendra

Executive Director

Rabies in Asia Foundation



PATRON

Smt. P. K. Sreemathi Teacher
Hon'ble Minister for Health
& Social Welfare, Kerala

ORGANIZING COMMITTEE

Chairperson

Dr. Vishwas Mehta IAS
Secretary (H&FW), Kerala

Co - Chairperson

Dr. Usha Titus IAS
Secretary, Health & Social Welfare

Vice Chairpersons

Dr. K. Shylaja, MD, LLB
Director of Health Services (i/c)

Dr. V. Geetha, MD
Director of Medical Education

Member Secretary

Dr. Dinesh Arora IAS
State Mission Director, NRHM
& Managing Director, KMSCL

Organizing Secretary

Prof (Dr) Thomas Mathew
Nodal Officer, IDRV, Kerala

ADVISORY COMMITTEE

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Prof (Dr) S. N. Madhusudana
Prof (Dr) B. J. Mahendra

Prof (Dr) M. K. Sudarshan
Dr. D. H. Ashwath Narayana

MEMBERS

Prof (Dr) K. Vijayakumar
Prof (Dr.) Prabhakumari
Dr. Sairu Philip

Prof (Dr.) Sara Varghese
Prof (Dr.) Thomas Bina
Dr. Nileena Koshy

Prof (Dr.) Jose Joseph
Prof (Dr.) Lucy Raphael
Dr. Anuja. U (Treasurer)

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Dr. Saju C.R, Dr. Indu D., Dr. Althaf A., Dr. Sandhya. G. I., Dr. Ajith Chakaravarthy,
Sri. S. Venukumar, Sri Asokan N., Sri. Abhilash R., Sri. Praveen Lal C.J.

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Dr. Karthika M., Dr. Divya Bhagianadh, Dr. Aopaa Lucas, Dr. Mohammed Asheel,
Mr. UnniKrishnan. R, Ms. Preetha. K ,Dr. Amrita Geevearghese, Dr. Jagan Kumar B.

SOUVENIR COMMITTEE

Mr. Baby Prabhakaran, Ms. Sandhya Haridas, Mr. Firozkhan K.P,
C.T. Kabee (HLFPPT Team)

WELCOMEand thanks!



I am extremely happy to welcome you all to the 11th Annual Conference of APCRI, **APCRICON 2009**. I am indeed privileged to organize this conference for the first time in Kerala, on behalf of our association. Kerala has started implementing IDRV since February 2009. I believe this has materialized due to the synergistic support of three A's:

- Academic inputs and advocacy from dedicated members of APCRI, which shows the commitment of the association towards the achievement of its organizational goals.
- Administrative support from the Department of Health, Govt. of Kerala led by the Hon'ble Minister, Smt P.K. Sreemathi Teacher, and Respected Secretary, Dr. Vishwas Mehta IAS
- Artistic strategies actualized by SDCMC and the HLFPT team, who are now working 24 X 7 to make APCRICON 2009 a reality!

I extend my sincere gratitude to Dr. M.K Sudarshan, Dr. G. Sampath, Dr. S.N.

Madhusudana, Dr. D.H. Ashwath Narayana and Dr. B.J. Mahendra who guided me through the process of IDRV and APCRICON.

I am deeply indebted to Dr. Dinesh Arora IAS, Jt. Secretary, SMD, NRHM & MD KMSCL, Dr. K. Shylaja, Director of Health Services and Dr. V. Geetha, Director of Medical Education who extended all support in terms of man power and logistics.

I am humbled by the support rendered by Dr. Sairu Philip who took up the challenge of conducting the elections and *all the members of the organizing committee* who have toiled tirelessly for the mega event.

I sincerely wish your visit to 'God's own country', with the warmth of the tropical sun and the bliss of the monsoon rains will rejuvenate your thoughts, colour your dreams and recharge your potential, enabling a successful onward journey in tackling the challenges in prevention and control of rabies .

A warm welcome to Thiruvananthapuram for two days of fulfilling experience.

A handwritten signature in black ink, appearing to read 'Thomas Mathew', with a long horizontal line extending to the right.

Prof (Dr). Thomas Mathew
Organizing Secretary,
APCRICON 2009



Dr.T. Sri Ranga Sai, MD, DNB, DPH,
Vice-Principal & Professor and Head of the Department,
President Indian Public Health Association,
S.V. Medical College, Tirupati- 517 507.

Message

I am very glad to note that the “National Conference of Association for Prevention and Control of Rabies in India” (APCRI) is going to be held at Thiruvananthapuram under your dynamic leadership.

I have no doubt about the Success of the Conference.

I wish all the delegates will enjoy the scenic Kerala state and her rich Hospitality.

I hope the conference will address all the core issues of Rabies and come out with useful and practical suggestions.

I wish the conference a Grand success!

Sd. /-

Dr. T.S.R. Sai, MD, DNB,
President Indian Public Health Association.

To,
Dr. Thomas Mathews,
Organizing Secretary,
APCRICON 2009

| | | |
|-----------------------------|---|---|
| 08.00 - 9.30am | Registration | |
| 09.30 - 09.35am | Welcome Address | Prof. (Dr) Thomas Mathew Secretary, Organizing Committee |
| 09.35 - 09.40am | Introductory note | Dr. G. Sampath President APCRI |
| 09.40 - 09.45am | Key note address | Dr. Dinesh Arora IAS, SMD, NRHM & MD KMSCL, Kerala |
| 09.45 - 10.00am | Louis Pasteur Oration - Burning issues in rabies control | Dr. Veena Mittal, Joint Director & Head, Zoonosis Division & Head, WHO Collaborating centre on Rabies, NICD, Delhi |
| 10.00 - 10.20am | Implementation of a Road Map for Global Rabies Control | Dr. Deborah J Briggs, Executive Director, Alliance for Rabies Control, France |
| 10.20 - 10.50am | Tea / Coffee Break | |
| Scientific Session I | | |
| 10.50 - 11.10am | Rabies Prevention and Control in India: Developments in the past decade | Dr. S. N. Madhusudana, Director, WHO Collaborating Center for research on rabies, NIMHANS, Bangalore |
| 11.10 - 11.30am | Pilot Project on Prevention & Control of Human Rabies - Progress made so far | Dr. Mala Chhabra, Joint Director, Zoonosis Division, NICD, New Delhi & Co-ordinator, Pilot Project |
| 11.30 - 11.50am | Challenges for an effective National Rabies Control Programme | Dr Narendra K Arora, Executive Director, INCLN, New Delhi |
| 11.50 - 12.10pm | Role and Importance of pre exposure schedule in Rabies prophylaxis | Dr. R. L. Ichhpujani, Additional Director of Health Services, NICD, GOI, New Delhi |
| 12.10 - 12.30 pm | Implementation of IDRV in Kerala | Dr. Thomas Mathew, Nodal Officer, IDRV, Kerala |

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| 12.30 - 12.50pm | Intradermal rabies vaccination in pre & post exposure prophylaxis: A review of clinical trials with Rabipur (PCECV) World wide | Dr. Claudius Malerczyk, Head, Medical Affairs Middle East and Africa, Novartis Vaccines and Diagnostics , Germany |
| 12.50 - 01.10pm | APCRI Multi-Centric IDRV Study | Dr. D. H. Ashwath Narayana, Secretary General-APCRI |
| 01.10 - 01.40pm | Lunch | |
| Scientific Session II | | |
| 01.40 - 01.55pm | ID Delivery Systems | Dr. Michael Royals, CSO, PharmaJet, USA |
| 01.55 - 02.10pm | Role of Intramuscular vaccination in India | Dr. G Sampath, IPM, Hyderabad |
| Scientific Session III | | |
| 02.10 - 02.25pm | Elimination of Rabies in dogs is the optimal control method for prevention of rabies in humans | Dr. R Jayakumar, Professor & Head Dept, Biotechnology, PMU, Thanjavure, TN |
| 02.25 - 02.40pm | Oral Rabies Vaccine, ORA-DPC: Dose-finding studies confirms vaccine efficacy in challenge experiments | Dr. S. Kilari, Head, R&D, Intervet India Pvt Ltd., Pune |
| 02.40 - 02.55pm | The importance of primary prevention of rabies in reducing the burden of bites | Dr. Rozario Menezes, Paediatrician, Goa |

| Scientific Session –IV | | |
|-------------------------------|--|--|
| 55 - 03.10pm | An overview of clinical trials with Vaxirab PDEV | Dr. D H Ashwath Narayana, KIMS, Bangalore |
| 10 - 03.25pm | The Future of Rabies Prevention in India: Human Monoclonal Antibody Cocktail for Post-exposure Prophylaxis against Rabies | Dr. Subodh Bhardwaj Sanofi Pasteur, India Dr Christophe Python Crucell Diagnostics, Switzerland |
| 25 – 03.40pm | Current scenario in the field of rabies prophylaxis in India | Dr. Amlan Goswami, Consultant Physician, Kolkata |
| 40 - 03.55pm | Safety & Immunogenicity of Indirab (Chromatographically Purified PVRV) | Dr. V. Krishna Mohan President, Bharat Biotech, Int. Ltd / Dr. Santhosh Kumar. M Bharat Biotech |
| 55 - 04.15pm | Presentation by Young Scientist Award | |
| 15 - 05.15pm | AGM and Elections to EC | |
| 30 - 07.00pm | Inaugural Programme | |
| | Inauguration Smt. P.K. Sreemathi Teacher Hon'ble Minister for Health & Social Welfare, Kerala | |
| 30pm wards | Banquet Dinner and Cultural Programme Chief Guest : Dr. Vishwas Mehta IAS Secretary (H&FW) , Kerala | |

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| 08.30 – 09.30am | Free paper Session-I | |
| 09.30 - 10.30am | Free paper Session-II | |
| 10.30 - 10.45am | Coffee / Tea Break | |
| 10.45 - 11.00am | A Survey of hospitals managing human rabies cases in India | Dr. M. K. Sudarshan, Principal & Professor of Community Medicine, KIMS, Bangalore |
| 11.00 - 11.30am | Success of Intra dermal Regimen of Anti Rabies Vaccination in Sri Lanka | Dr. Omala Wimalaratne, Head , Dept. of Rabies and Vaccines, Medical Research Institute, Ministry of Health, Sri Lanka. |
| 11.30 - 11.45am | Survival after exposure to laboratory confirmed rabid animals: The Rabipur (PCECV) experience | Dr. Hoshang B. Vakil, Medical Director, Novartis Vaccines, Mumbai |
| 11.45 - 12.00 Noon | Enabling Rabies Post-Exposure Prophylaxis In India: Intradermal Vaccination Devices | Dr. Satish Kaipilyawar, State Manager (AP) PATH, Hyderabad |
| 12.00 - 01.00pm | Free Paper Session-III | |
| 01.00 - 01.30pm | Valedictory | |
| 01.30pm onwards | Lunch | |

Free Paper session-I

Day & Date: Sunday, 5.7.2009

Time: 8.30 AM to 9.30 AM

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| 1 | Analysis of prescriptions referred to ARC, MKCG Medical college. | Tapas Ranjan Behera, MKCG, Medical College, Berhampur, Orissa |
| 2 | Demographic characteristics of animal bite cases attending the anti rabies clinic of G.R Medical College Hospital, Gwalior (MP) | Agarwal A K, Mishra A, GMC, Gwalior, MP |
| 3 | An analysis on late reporting of animal bite victims to the ARC clinic, Berhampur | D.S. Malini, D.M Satapathy, T.R Behera, R.M Tripathy, S.S.S. Reddy, MKCG, Medical College, Berhampur, Orissa |
| 4 | A study of factors Influencing compliance to IDRV at anti-rabies clinic of Mandya Institute of Medical Sciences, Mandya | Mahendra B J, Harish B R, Vinay M, MIMS, Mandya, Karnataka |
| 5 | Clinical profile of children attending ARC, MKCG medical college, Berhampur | Ashwini Kumar Pratap, MKCG, Medical College, Berhampur, Orissa |
| 6 | Rabies, a disease with no discrimination. | K.S. Prasanna, College of Vet. & Animal Sciences, Wayanad, Kerala |
| 7 | “Drop-out” in IDRV: A cause of concern. | Durga Madhab Satapathy, MKCG, Medical College, Berhampur, Orissa |
| 8 | A Study on Sex and Age Related Differences in Rabies Immunoglobulin Hypersensitivity in a Tertiary Care Centre of Western Orissa | Dr.D.Goswami VSS Medical college Burla, Orissa |

Free Paper session-II

Day & Date: Sunday, 5.7.2009

Time: 9.30 AM to 10.30 AM

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| 1 | Assessing the relationship between antigenicity & immunogenicity of IDRV: Results of Meta-analysis | M K Sudarshan, Gangaboraiah, Ravish H S, D H Ashwath Narayana, KIMS, Bangalore |
| 2 | Is death in rabies related to specific neuro anatomical pathology? A study in human, canine and rodent brains. | Suja M S, Mahadevan A, Madhusudhana S N, Shankar S , NIMHANS, Bangalore |
| 3 | Effectiveness of ‘Awareness Sessions’ For Enhancing knowledge regarding rabies among college students | Mahendra B J, Harish B R, Vinay M, MIMS, Mandya |
| 4 | Study of profile of animal bite cases managed with PDEV (VaxiRab) at a private ARV clinic in rural Gujarat | Bankim K Modi, Gujarat |
| 5 | Safety of giving Equine rabies immunoglobulin to category III Animal Bite Cases- A Cross-sectional study. | Panigrahi. SK S.C.B. M. C Cuttack (Orissa) |
| 6 | Safety and immunogenicity of PVRV : imported by Synergy diagnostics | G. Sampath, IPM, Hyderabad D.M. Satapathy, MKCG, Berhampur |

Free Paper session-III

Day & Date: Sunday, 5.7.2009

Time: 12.00 PM to 1.00 PM

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| 1 | Basics In Antirabies Treatment And Antibody Reponses Of Different IDRV and Intramuscular Schedule | Sumit Poddar. Critical Care and anti- rabies Consultant attached to Anti-rabies Clinic, S.N.P Hospital, Kolkata |
| 2 | Study on cases with exposure to animal with abnormal behavior | S. Siddhrtha Sankar Reddy, MKCG, Medical College, Berhampur, Orissa |
| 3 | Utility of a new cell line HEK 293 in rabies diagnosis and research | Subha,Ullas PT, Madhusudana.SN NIMHANS, Bangalore |
| 4 | Role of skin testing in administration of equine rabies immunoglobulin in category III animal bite cases. | Biswas Mohua, Monoj Ku Dash, Bijayeeni Mahapatra, SCBMC, Cuttack |
| 5 | Evaluation of direct rapid immuno histo-chemical test (DRIT) for diagnosis | Subha, Ullas PT, Madhusudana. SN, Michael N, Rupprecht C, NIMHANS, Bangalore |
| 6 | Evaluation the economic benefits of intra dermal administration of cell culture rabies vaccine in comparison to intramuscular schedule in a tertiary hospital of North Kerala. | Asma Rahim, Kumaresan, Thomas Bina, Lucy Raphael, GMC, Kozhikode, Kerala |
| 7 | Guillain-Barre syndrome v/s paralytic rabies: at the spinal level. | Mahadevan A, Suja M S, Madhusudana S N, Shankar K, NIMHANS, Bangalore |
| 8 | Intra Dermal Vaccination at ARVOPD Grant Medical College, Mumbai – A review of 1 st year | Ranjit Mankeshwar, Grant MC, Mumbai |
| 9 | Challenges in Rabies control-A descriptive study in Kerala | S.S.Rani Dept of Animal Husbandry Trivandrum |
| 10 | Comparative evaluation of human embryonic kidney cell line (HEK 293) and neuro 2 a and BHK 21 cell lines for rapid isolation of street and fixed rabies viruses. | P.T Ullas, S. Subha NIMHANS, Bangalore |

LOUIS PASTEUR ORATION

BURNING ISSUES IN RABIES CONTROL IN INDIA



Dr. Veena Mittal*

Joint Director & Head, Zoonosis Division
and Head, WHO Collaborating Centre for
Rabies Epidemiology, National Institute
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Rabies is probably the most feared of all human diseases of mankind. It has pained man since ancient times and is believed to be as old as our civilization. The disease finds its description in our Vedas and its association with dogs is mentioned in various Holy Scriptures. This most dreadful and gruesome of all the communicable diseases is still one of the most important zoonotic diseases which confronts us today. The development of first vaccine by Louis Pasteur surely has been hoped to eliminate or at least drastically reduce its incidence. However, this goal has not been achieved. Multiple issues in rabies control have made the goal seem difficult.

Are we reaching to all those bitten by animals?

Even today every year 55000 people die due to rabies all over the world. India contributes a major chunk to human rabies mortality. APCRI survey (2003) estimated 20,000 deaths and 17.4 million animal bites annually. While vaccine utilization data indicates that only about 5 million people receive post exposure prophylaxis. This clearly indicates that many more are not seeking post exposure treatment which is the key to prevention of human deaths due to rabies.

Prevention of human deaths Is the awareness amongst masses adequate?

To prevent human deaths due to rabies it is important that awareness be created in general community regarding timely post exposure prophylaxis and prevention and control of Rabies. Globally emphasis is being laid on enhancing awareness amongst masses. Observance of World Rabies Day on 18th Sept every year is an initiative of Alliance for Rabies Control in this direction. Each year events are organized on this day to sensitize the masses and Policy makers.

Need of trained manpower development

Multiple studies have indicated that although the doctors managing animal bite victims have inadequate knowledge regarding animal bite management. There is need for continuous medical education programmes for updating the knowledge of the doctors.

Issues regarding availability and use of vaccine

As per WHO recommendations country bid farewell to reactogenic nervous tissue vaccine. Its production was stopped in December 2004. Modern, safe and effective cell culture vaccines are being produced in the country both in public and private sector. Total production

capacity is approx. 284 lakh doses. Is the quantity enough to provide post prophylaxis to all animal bite victims? 17 million animal bite would require around 88 million doses, which indicates shortage of vaccine! To overcome this problem WHO recommended use of ID route of inoculation of cell culture vaccine. This would also make the post exposure prophylaxis economical and cost effective. Multiple international & national studies confirm safety, efficacy and feasibility of this route. DCG(I) after expert consultation has approved the use of ID route in the country.

Alternative strategies for cost effective use of ARV

Despite its approval by regulatory authorities this has not been widely implemented in the country. Doctors and administrators are apprehensive to use ID Route. Allaying the apprehension and restoring confidence is major issue in implementation of ID route. This can be done by generating continuous post marketing data and discussing success stories. Various pharmaceutical issues need to be judiciously resolved. "For ID Use" should appear in the package insert of the vaccines. Pharmaceutical Firms should resort to ethical practice. Training should be imparted to paramedical staff in ID administration & management of open vials. ACIP recommended use of 4 doses of vaccines by intra muscular route for post exposure prophylaxis in their meeting held on 23rd June 2009. Can we adopt it in our national guidelines?

Issue of use of Immunoglobulins:

India has an installed capacity to produce approx. 10.4 lakh vials of Equine rabies immunoglobulin combined in public & private sector. Human rabies immunoglobulins are being imported in small quantities in the country. However, only about 6lakh vials were in demand last year. Why was the demand low? Various studies indicate that fear of anaphylaxis inhibit the doctors from using it extensively. More over immunoglobulins are not available in peripheral health settings. It should be repeatedly emphasized that currently available immunoglobulin are highly purified and have no/minimal side effects. Pilot project on prevention control of human rabies focuses on appropriate animal bite management and funds have been allocated to procure Immunoglobulins. This has increased the use of immunoglobulins in pilot project cities.

Develop consensus on rabies control strategy

Cutting down disease transmission in Animals/ reservoirs forms an integral part of rabies control programme. Unfortunately, it is not a priority disease as there is no loss of livestock. Prevention and Control of Rabies involves several sectors viz. local civic bodies, animal husbandry department, department of wild life, non governmental organizations etc. Work is being carried out by different agencies without any tangible results as there is week intersectoral coordination. There is no legislature on licensing or import/ export of animals. No concensus strategy exists on stray animal management whether it is pre-exposure immunization, animal birth control or culling. Use of rabies oral vaccines for dogs in domestic settings is debatable.

Efforts should be made to formulate consensus strategy on these issues. Disease should be made notifiable. **Surveillance** needs to be strengthened to collect factual epidemiological data. Laboratory based studies should be intensified for reservoir surveillance, virus characterization and maintaining rabies free areas free.

Strengthening Laboratory based surveillance

Laboratory diagnosis aids in measuring success of any control programme. Laboratory should be strengthened to undertake post market surveillance of vaccine, efficacy trials of newer vaccines and routes of administration. Referrals laboratory should perform molecular characterization of the virus and undertake studies to understand pathogenesis of the disease. Referral laboratories should also be able to provide Quality assurance of vaccines and immunoglobulins. Number of laboratories undertaking rabies diagnosis should be increased and network be developed for quality assurance.

Rabies Control Programme – Where Are We?

Good quality vaccines and immunoglobulin are available in sufficient quantity in the country. There is a need to use them judiciously and effectively. Economical and efficacious intradermal route of vaccination is being implemented in some parts of the country. There is a need to train the doctors and alley apprehensions and use it more extensively to give wider coverage of post-exposure prophylaxis to all animal bite victims. Technical expertise of doctors (Health and Veterinary) and paramedicals is available. There is a need to utilize this expertise to stream line the efforts being made by different organizations and build up intersectoral coordination to conceive a National Programme of rabies control. Dedicated professional body - Association of Prevention and Control of Rabies in India exists which conducts annual conferences to deliberate on health & veterinary issues. There is need to use this conglomeration of scientists to build up consensus, establish intersectoral coordination and make a National programme of Rabies Control in India a reality.

Government of India as “New Initiative” has approved a **Pilot Project on Prevention & Control of Human Rabies** under 11th Five Year Plan, which focuses on training health professionals about rabies and animal bite management, timely and adequate post exposure treatment to all animal bite victims, implementation of ID route, creating awareness about timely and adequate post exposure treatment in the community and sensitization of veterinarians. The project is being piloted in five cities across the country viz. Ahmedabad, Bangalore, Pune, Delhi and Madurai. This would be prelude to a National Rabies Control Programme.

Conclusion:

With combined efforts from health and veterinary sector, NGOs, associations like APCRI and international associations like Alliance of rabies control I’m sure we would be able to control rabies in India and achieve the goal set by Louis Pasteur.

IDRV- THE CHALLENGES AHEAD

IDRV-FROM PERCEPTION TO PRACTICE AND PERSPECTIVES



Dr. Sairu Philip,
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The implementation of IDRV and its supply free of cost to all patients in Kerala will go down in history as a landmark towards Rabies free Kerala by 2015.

PERCEPTIONS

The concept of IDRV and its cost effectiveness was discussed since the 1990's. However it was initiated in India only in 2006 and in Kerala in 2009. There is an evident time lag between established scientific knowledge and its practice for the benefit of the masses. This chasm can be bridged and knowledge translated to practice only by timely marketing of concepts to policy makers, ensuring political commitment and instituting appropriate change management strategies including networking and collaboration with a single minded purpose.

PRELUDE

The friendly link with APCRI was initiated in March, 2006 with the conduct of CME on Rabies at Alappuzha by Dr. Thomas Mathew. It was cemented during the subsequent mega events-memorable conference hosted in a houseboat at Alappuzha in December 2006 and the National conference on IDRV at Thiruvananthapuram in 2009. This led to the development of guidelines for IDRV in Kerala and training of stakeholders at the Institute of Preventive Medicine, Hyderabad.

THE PROGRESS OF IDRV – THE ALAPPUZHA STORY

- **March 12, 2009;** A CME on Rabies was conducted by the Community Medicine Department of T.D. Medical College, Alappuzha. A total of 232 participants including doctors, nurses, veterinarians from private and government sector including medical college from 3 districts- Alappuzha, Pathnamthitta and Ernakulam district participated.
- **March 16, 2009;** IDRV implemented at Preventive Clinic of Community Medicine, Alappuzha and the clinic converted to Model Antirabies Clinic with the help of State Disease Control and Monitoring 11 Cell.
- **April to May 2009;** Training imparted at Antirabies clinic to nurses and doctors from the district health services of Alappuzha, Pathanamthitta and Ernakulam.
- **May 16, 2009-** IDRV started at General Hospital, Alappuzha.
- **July 1 & 3, 2009-** IDRV to be started at General Hospitals, Pathanamthitta and Tiruvalla respectively.

PRACTICE OF IDRV AT ANTIRABIES CLINIC, ALAPPUZHA

The patients with animal bites from the district and adjacent areas are referred to antirabies clinic, Alappuzha for passive immunization.

The experience since initiation of IDRV

- 632 patients given IDRV
- Mean interval between bite and seeking treatment is 1.6 days.
- 26% belonged to 0 to 10 years of age group.
- 27% belonged to Category III
- 88% of Category III took ERIG/HRIG
- Overall drop out rate was 25%. Of them, 27% dropped out on day 3, 22% on day 7 and 51% on day 28 (Common reason cited were the live status of dogs)

PERSPECTIVES REGARDING IDRV IMPLEMENTATION

Strengths

- A broad base of ownership build for IDRV in government medical colleges and district health services
- Political commitment for IDRV leading to conducive government policies to help IDRV implementation.
- Single minded devotion of nodal Officer for IDRV

Weakness

- Non involvement of the Private Sector
- Apprehension of personnel to administer equine rabies immunoglobulin at centers other than Medical Colleges and the concomitant cost of human Rabies Immunoglobulin.
- Lack of IDRV facility at PHC level.
- Inability to provide IDRV round the clock at some centers.

Opportunity

- Government policy to give IDRV free of cost to all patients.
- Acceptance of the IDRV by the patients coming to the clinic

Threats

- Sustaining trained staff/ensuring continuous training at initiated centers in the face of transfers and other events
- Drop outs in the initial stages

The strengths could be reinforced to address weaknesses and the opportunities utilized to overcome threats. Only then one can ensure implementation of Antirabies prophylaxis including IDRV at as many centers as possible and achieve Rabies free Status in our cost constrained community.

ABSTRACTS

ROLE OF INTRA MUSCULAR VACCINATION IN INDIA

Dr.G.Sampath

IPM,Hyderabad

Simple type Nerve Tissue Vaccine (NTV) was used for nearly a century in India. Cell Culture Vaccines (CCVs) were introduced in the 80s in our country and administered intramuscularly as per Essen Regimen. Various types of Cell Culture Rabies Vaccines are available in India and are used through the IM Route.

Cell Culture Vaccines (CCVs) are being administered through IM route for the past 25 years in the private sector and in some public sector institutions.

After discontinuation of NTV in 2005, CCVs are being used in the Government Sector in all states of the country. In the few states which have started IDRV, ID Route of administration is being used in some centers. In the remaining centers of these states and also in other states IM Route of administration of CCVs is being continued.

The usage of IM Route of administration is discussed in this presentation.

ELIMINATION OF RABIES IN DOGS IS THE OPTIMAL CONTROL METHOD FOR PREVENTION OF RABIES IN HUMANS

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Rabies is a vaccine preventable disease (in both humans and animals); a disease of poverty affecting very vulnerable often remote/isolated rural populations. To day more people die from rabies than yellow fever, dengue and Japanese encephalitis combined. Rabies is a highly neglected and underreported zoonotic disease in developing countries. More than 55,000 people die of rabies each year. About 95% of human deaths occur in Asia and Africa. Most human deaths follow a bite from an infected dog. Between 30% to 60% of the victims of dog bites are children under the age of 15. Blue Cross of India found that a steady decrease in human rabies cases in those places where a proper Animal Birth Control and antirabies vaccination programs is being carried out. Dog population programs in India should not remain polarized on the “kill or no kill” issue. Both human and dog populations can only benefit if the right method is applied to the right segment of the dog population. In developing countries the dog is the ponomical and ecological reasons, the OIE advises against trying to control and eradicate rabies by killing potentially infected animals, as a sole method. WHO recommends in addition to mass antirabis canine vaccination, Oral Vaccine Delivery (OVD) for effective rabies control. Such a networks/system is also expected to increase the number of dogs vaccinated annually because we would then be looking for a person rather than chasing after a dog.

ORAL RABIES VACCINE, ORA-DPC: DOSE-FINDING STUDIES CONFIRMS VACCINE EFFICACY IN CHALLENGE EXPERIMENTS.

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Rabies remains one of the most dreadful infectious zoonotic diseases affecting human and animals despite significant scientific advances in prevention and control. It remains an important public health problem, causing 60,000 annual deaths worldwide. In many part of the world, mainly in Asia and Africa, the dog continues to serve as the primary reservoir of the rabies virus, thereby contributing greatly to the number of human deaths caused by rabies each year. To achieve rabies control in dogs, vaccination programs should ideally combine mass parenteral rabies vaccines with population control measures. The prevention of human rabies by parenteral vaccination of dogs has revealed its insufficiency in numerous countries where stray dog accessibility to parenteral vaccination is the major obstacle. Oral vaccination of dogs against rabies may be useful in combination with parenteral vaccines to improve dog population vaccination coverage, especially in areas having large populations of non-accessible dogs. In Europe and North America they have successfully implemented in wildlife. If ORA-DPC vaccine efficacy can be established in captive dogs, could be a useful tool for canine rabies control program. In such situation, oral rabies vaccine strain, ORA-DPC has a greater role to play.

By genetic manipulation, SAD B19 (established wildlife vaccine strain) has been transformed to a safe and an effective ORA-DPC vaccine strain by altering G and P protein genes with an additional glycoprotein G insertion through reverse genetics. Thus modified ORA-DPC vaccine strain has shown extreme degree of attenuation even in immunosuppressed dogs and there is no virus excretion. The present study is to evaluate the effective dose required to protect dogs against rabies by oral vaccination of ORA-DPC strain in Indian stray dogs to develop efficient bait vaccine.

Healthy sero-negative stray dogs were divided into 4 groups and are vaccinated orally with different dose of ORA-DPC vaccine virus. Oral swab samples were collected after vaccination at different time intervals to check virus excretion and blood samples for analyzing post-vaccinated antibody titers. All the vaccinated dogs along with unvaccinated control group were challenged with virulent rabies virus and observed for rabies related clinical symptoms. At the end of the experiment, all the challenged (survived) animals were euthanized. Brain impression smears were examined for the rabies virus presence by FAT and further the results are confirmed by virus isolation and PCR by testing brain tissue samples.

100% protection against rabies virus challenge was observed in vaccinated groups with vaccine dosage of 10^{8.0} and 10^{9.0} FFU, whereas protection was 60% in the animals vaccinated

with $10^{7.0}$ FFU. 80% of the unvaccinated control group dogs died of rabies. All the animals died with rabies clinical symptoms confirm the virus presence and none of the survived animals have shown virus in the brain tissue. Prior to the challenge, post-vaccinated sera was analysed for rabies antibody titers. 100% of the animals in the group vaccinated with $10^{9.0}$ FFU dosage have shown seroconversion ($e^{-0.5}$ IU); whereas in the group vaccinated with $10^{8.0}$ FFU dosage, 80% of animals have shown seroconversion. Even the group vaccinated with low dose of $10^{7.0}$ FFU, 40% of animals have shown seroconversion and none of the unvaccinated controls have shown rabies antibody titers. None of the vaccinated animals have shown excretion of infective vaccine virus particles indicates that ORA-DPC is of no risk to animal or human exposure. An anamnestic humoral response was usually demonstrated after challenge in protected dogs, which had not seroconverted after vaccination *i.e* one each in the groups vaccinated with $10^{8.0}$ and $10^{7.0}$ FFU dosage. This suggests that an immunological priming and memory response have been triggered and it has also been observed following administration of the SAG-2 and V-RG oral rabies vaccine. Better part with ORA-DPC is the strain gives excellent seroconversion too unlike other attenuated rabies vaccine strains, which is a good indicator to monitor the vaccinated animals in the field as always advised by WHO. To conclude dose-finding studies, ORA-DPC vaccine strain with a titre of $e^{-10^{8.0}}$ FFU confirms its efficacy for oral vaccination of dogs.

A WHO expert consultation meeting on Rabies has identified mass immunization as the single most effective tool for dog rabies control whereas dog culling alone is ineffective. In addition, it has also been recommended the use of oral vaccines as a complementary measure in dogs in addition to i/m and s/c routes. In the light of this, the oral rabies vaccine strain, ORA-DPC would offer a major opportunity for rabies control. Better part with ORA-DPC is that the strain elicits seroconversion too unlike other attenuated rabies vaccine strains, could be a good indicator to monitor the vaccinated animals in the field as always required by WHO.

THE IMPORTANCE OF PRIMARY PREVENTION OF RABIES REDUCING THE BURDEN OF BITES

Dr Rozario Menezes

M.D., GOA

“Government must assume responsibility for the protection of children and adults in public places such as streets, from animal bites “ wrote Dr T. Jacob John, Professor Emeritus Of Pediatrics, CMC Vellore, Medical College, in an article titled “Ethical issues in rabies prevention” in Dec 12, 2005

As per the findings of the APCRI-WHO study on Rabies in India:

- a) Approximately 17 millions people are bitten by animals (80% by stray dogs) and need post exposure treatment, every year.
- b) 1% to 2% of the population suffer animal (mainly stray dog) bites each year
- c) Frequency of bite is one bite every 2 seconds
- d) One death from rabies every thirty minutes
- e) Annual man days lost due to animal bites 38 million
- f) Annual medical cost for animal bites treatment is Rs. 2 Billion
- g) India contributes the highest number (80%) of rabies death in the whole world, approximately 30,000 per year as per WHO/NICD sources.
- h) Of the 17 million victims bitten, only 3 million receive the post-exposure anti-rabies vaccine, leaving 14 million to survive by “Luck by Chance”

The worst affected are the underprivileged, deprived, weaker, defenseless segments of society”

Not a day passes without newspapers reporting on the increasing numbers and danger of rabies and stray dogs in public areas. Stray dogs have threatened every sector of society, endangering mainly the young, the poor the defenseless, the weaker sections of the society. Children are attacked, bitten, mutilated, even mauled to death in Mumbai, Pune, Nagpur, Hyderabad and else where.

Hospital staff on night duty is terrorized by stray dogs, including at the Goa Medical College .A judge of Dombili-Kalyan court complained to the government of Maharashtra that the court premises have been taken over by stray dogs hampering court proceedings. Civil aviation safety is threatened by dogs on the runways. Recently a Kingfisher flight from Bangalore suffered sever damage due to a stray dog on the runway. A couple of years ago, President A.P. J. Kalam’s plane could not land on schedule because of dogs on the runway at Mumbai.

This is because since the year 1998, Municipal Corporations have discontinued the control of stray dog populations and instead have handed over the responsibility, on a trial basis, to some dog lover’s NGO, who claim to be practicing “Animal Birth control - Rabies Vaccination “ (ABC-ARV) programme. This has led to an exponential rise in the stray dog population.

Although there are many adequate laws enacted by Parliament to protect the citizens from the twin danger of stray dog bites, and consequences of stray dog transmitted disease, including rabies, these are not being implemented at all. Instead a set of misguided rules titled the Animal Birth Control (Dogs) Rules, 2001, which have been declared unconstitutional by the High Court in Ernakulam are being religiously implemented, to the detriment of the citizens.

As this issue concerns the health, safety and survival of each and every citizen in our country, it is most appropriate that the APCRI, which is in the fore front of the struggle to reduce, and eradicate deaths from rabies, must take up ADVOCACY and support the demand for the adoption of a logical vector (dog) control policy and the implementation of the provision of the constitutional and municipal laws which require that all public places should be free from the dangerous stray dogs .

This will go a long way in saving of lives and reducing suffering and deaths from rabies and dog bites and will be a leap forward in the effort to make India one among the elite group of nations that are free from the dreaded diseases of rabies.

AN OVERVIEW OF CLINICAL TRIALS WITH VAXIRAB

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Rabies is a fatal but preventable disease. Cell culture vaccines (CCV) and Purified duck embryo vaccines (PDEV) are currently recommended by WHO for post exposure prophylaxis. In India, PDEV (Vaxirab) is being manufactured by Zydus Cadila, Ahmedabad, Gujarat from 1998, after a successful transfer of technology from Berna Biotech, Switzerland. The last batch of PDEV (Lyssavac) was produced by Berna Biotech, Switzerland in 2003. Presently, India is the only country where a highly purified PDEV is being manufactured.

This presentation will highlight on some of the clinical studies done to demonstrate the safety and immunogenicity of this vaccine among the Indian population.

- 1) After registration of the product, post marketing, phase IV, multi-centric study (IPM, Hyderabad; KIMS, Bangalore & PII, Kolkata) conducted among 150 animal bite cases showed Vaxirab was safe & produced adequate rabies virus neutralizing antibody (RvnAb) titres from day 14 to day 365.
- 2) A study was conducted among 220 adult healthy volunteers to compare the indigenously manufactured PDEV (Vaxirab) with the PDEV (Lyssavac) manufactured by Berna Bio tech. This study was conducted at KIMS, Bangalore & IPM, Hyderabad. The results of the study showed that the indigenously produced PDEV (Vaxirab) was found to be equally safe and immunogenic as the original PDEV (Lyssavac) manufactured at Switzerland.

Recent another study was conducted to assess the safety, immunogenicity and tolerance of this vaccine with two other WHO approved CCVs viz: Purified chick embryo cell vaccine (PCEC, Rabipur) and Purified vero cell rabies vaccine (PVRV, Verorab). This was a multi centric study done at IPM, Hyderabad, KIMS, Bangalore, MKCG Medical College, Berhampur, Orissa & J J Hospital, Mumbai. This study was an open label, randomized, phase IV comparative clinical trial involving a total of 120 subjects with animal bite. All the subjects had neutralizing antibody titers by day 14 (>0.5 IU/mL) and geometric mean titers (GMT) observed for different vaccines on all days tested (days 14, 28, 90 and 180) did not vary significantly. Side effects were minimal and did not vary significantly among the groups. Hence, we concluded that PDEV (Vaxirab) is as safe, tolerable and immunogenic as both PCEC (Rabipur) and PVRV (Verorab).

CURRENT SCENARIO IN THE FIELD OF RABIES PROPHYLAXIS IN INDIA

Dr. Amlan Goswami,
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Kolkata.

In India, Intra Dermal Rabies Vaccination (IDRV) started on 19th May, 2006. We must give credit to Dr. M. N. Siddiqui and the Health Department of the Govt. of Uttar Pradesh for making it possible. In fact, there were no official guidelines available at the time when it was started. In fact, the history of mankind has numerous examples of pioneering acts by very courageous persons. Dr. M. N. Siddiqui is a pioneer and he is our hero. Then onwards IDRV has been implemented in Orissa, Andhra Pradesh, Karnataka, West Bengal, Tamilnadu, Himachal Pradesh and Kerala. IDRV is being given in some ARCs of Govt. hospitals and Autonomous Institutes only.

The availability of adequate amount of TCVs for use in Govt. Hospitals and Health centers in India has been a problem at present, and will remain a problem, in the immediate future, in many states. If only, the ESSEN [IM] schedule is used for post-exposure prophylaxis against rabies then the crisis will be more acute. **The number of vials of vaccine required for a full course of vaccination will be more, if the ESSEN [IM] schedule of vaccination is used. If, the modified “TRC ID” schedule [2-2-2-0-2-0] is used then the total requirement of vaccine vials will be less than that for the “ESSEN” schedule.** Not All, vaccines produced in INDIA are at present fit for ID usage as per facts revealed in some studies, and the “WHO Expert Consultation on Rabies” , Technical Report Series 931, and the directives from the DCGI. The WHO had approved IDRV in 1992, about 17 years ago. It is considered as an ethical and cost-effective replacement of NTV.

The Drugs Controller General of India [DCGI] has issued directives regarding the regulatory guidelines for Intra Dermal Rabies Vaccination [IDRV] in India after detailed consultations with Experts Group, the Competent Authority, and the ICMR. **The Drugs Controller General of India [DCGI] has allowed the use of only five of the eight commercially available vaccines against rabies [which can be used by IM route], to be used by the ID route also.**

The modified “TRC ID” schedule [2-2-2-0-2-0] is the only route approved by the DCGI. The dose of each ID shot has been specified to be of 0.1 ml of the permitted vaccines.

The ID route has been permitted to be used in selected anti-rabies clinics having an appropriate number of adequately trained staff for ID inoculation. These centers should be able to maintain cold chain for vaccine storage and be able to ensure adequate supply of suitable syringes and needles for administration by the ID route. These centers should be well versed in the management of open vial and safe storage practices.

In the race to start ID vaccination it is very important to remember that the **Intra Muscular (IM) route is the preferred route for anti-rabies vaccination using modern TCVs or modern Avian vaccines in the immune compromised persons, persons on immunosuppressant drugs or therapy and on chloroquine therapy.** Persons suffering from Diabetes Mellitus of a long duration, persons having malnutrition, and many other medical illnesses, **where the patients are expected to have a poor immune response, the use of ID route for post-exposure prophylaxis against rabies, can be very risky.**

If ID dose is given sub-cutaneously (SC) then there is a possibility of poor immune response due to low antigen load. This may be life threatening. **WHO recommends in cases where the characteristic change in the skin over the injection site has not appeared, the patient should receive another dose of vaccine at a site nearby where the characteristic change in the skin over the site of the shot, appears. It has come to the notice of many experts that this is not being implemented in many ARCs using IDRV. This is very dangerous.**

In the race to bid for the Govt. supply tenders, some manufacturers, whose registered packs contained only ONE 0.5ml ampoule of diluent, started supplying TWO ampoules of 0.5ml diluents, overnight. They did it to mislead the tender committees, that their vaccine also comes with ONE ml of diluent and as a result, its use should be economical. This is an unscientific act, and is not permitted by law. **Whenever, the diluent's volume is increased or decreased, some characteristics of the vaccine changes. It becomes a new drug, and as a result has to undergo fresh clinical trials, before it can be accepted as being safe for human use.**

Currently, some pharmaceutical companies are importing & marketing rabies vaccines without carrying out an appreciable number of authentic clinical trials in reputed centers in the country. Some of these vaccines are being procured by some State Govt. institutions for use in their ARCs. **This means that unsuspecting patients are being treated with untried vaccines. This is very dangerous.**

As an offshoot of the IDRV program, certain faulty implementation of Rabies Post-exposure prophylaxis is going on in some hospitals and its surrounding areas. In the ESSEN [IM] protocol of one vial of rabies vaccine to be administered by IM route on D0, D3, D7, D14 and D28, the D14 dose is omitted. This becomes a new schedule, being used to treat actual patients, without any clinical trial, and without any regulatory approval, and not recommended by any one of the manufacturers in their package inserts. This is a very dangerous act.

The use of Rabies Immunoglobulins [RIGs] has not picked up to the desired level. RIGs are being used in only some centers. The use of RIGs is also not proper. There is a deficiency in the training of doctors and staff manning ARCs. **The recently published APCRI's Manual on Rabies Immunoglobulin (RIG) Administration, February, 2009 will be very useful for the doctors working in the ARCs.**

All changes are very good if they can provide more safety and efficacy to the patients. However, changes which endanger the lives of the unsuspecting patients seeking treatment, or are tools for ego boosting or lobbying among the various groups involved in power play, are not desirable. I believe that in the long run truth will prevail.

“SURVIVAL AFTER EXPOSURE TO LABORATORY CONFIRMED RABID ANIMALS: THE RABIPUR (PSECV) EXPERIENCE

Dr. Hoshang B. Vakil,

Medical Director, Novartis Healthcare Pvt .Ltd.,
Novartis vaccines, Mumbai

The case fatality rate for rabies is virtually 100%. While immunogenicity studies on rabies provide very valuable information, rabies virus neutralizing antibody concentrations >0.5 IU/ml are considered indicative of protection but remain surrogate end-points as they do not directly assess protection against rabies deaths.

Efficacy studies on the other hand, measure survival rates after immunization of persons exposed to laboratory proven rabies animals. Protection from rabies is considered a hard end-point since such studies evaluate the survival of vaccines.

Indian and international survival data will be presented from published efficacy studies in over 650 cases after post-exposure prophylaxis with Rabipur (PCECV), by both the intramuscular and intra dermal routes. Not a single fatality was reported from any of the studies.

ENABLING RABIES POST-EXPOSURE PROPHYLAXIS IN INDIA: INTRADERMAL VACCINATION DEVICES

Dr. Satish Kaipilyawar,
PATH

Introduction: In India approximately 3 million bite victims seek post-exposure prophylaxis (PEP) every year and millions more do not seek treatment or do not have access to PEP due to the high cost and vaccine supply shortages. Intradermal (ID) delivery of rabies vaccine is dose sparing and the WHO has recommended this method since 1991 (WHO, 2007). The conventional ID injection technique is difficult to use and inconsistent in accurately delivering ID injections. New ID delivery technologies could enable health care personnel to deliver rabies vaccine intradermally, thereby reaching more people exposed to rabies in a timely manner.

Methods: PATH, a non-profit public health organization headquartered in Seattle, WA and with multiple offices in India, collaborated with a network of academic and industry partners, including the Institute of Preventative Medicine (IPM) and Indian Immunologicals, Ltd (IIL), to identify and qualify dose-sparing ID vaccination devices and demonstrate their clinical feasibility. Two ID injection devices, a needle adapter and a needle-free jet injector, were included in preclinical device mechanics and immunology studies, as well as a in a user acceptability field assessment conducted among public-sector Indian health care workers.

Results: Preclinical studies demonstrated that these devices can successfully deliver liquid to the intradermal layer of the skin and that rabies vaccine produces adequate levels of antibodies, similar to ID delivery by a conventional needle and syringe. The user acceptability field assessment demonstrated that both devices are generally acceptable to Indian health care workers and that the devices have the potential to benefit the Indian health care system by enabling ID dose-sparing regimens.

Conclusion: PATH plans to conduct additional evaluations of these ID vaccine devices for delivering rabies PEP in India. In collaboration with IPM and IIL, a Phase II safety and immunogenicity clinical trial is anticipated to begin in November 2009. In order to determine the economic and commercial feasibility of these devices, PATH also plans to conduct a value proposition analysis.

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INDIRAB: AN ANTI-RABIES VACCINE MANUFACTURED BY A NOVEL CHROMATOGRAPHY TECHNIQUE

*Dr.V.Krishna Mohan & Dr.M.Santhosh.Kumar, MD
Bharat Biotech International Limited, Hyderabad, India.*

ABSTRACT: Purified Vero cell Rabies Vaccine INDIRAB manufactured by Bharat Biotech International Limited is a Chromatographically Purified Vaccine developed from original Pitman Moore strain obtained from CDC, Atlanta, USA. This presentation highlights the salient features of this unique chromatographically purified product, clinical development studies and product advantages. This product is manufactured using disposable cell factories for first time in the world and also uses robotic technology in vaccine production. Multi-centric clinical studies for both Intramuscular and Intradermal routes of administration have been carried out. All subjects in these studies were administered with either the Test or the Reference Vaccines as per WHO approved pre- and post- exposure regimens. Two different commercially available WHO recommended rabies vaccines were used as Reference Vaccines in these studies. The healthy volunteers and post bite cases vaccinated showed very few Adverse Events. The common local symptoms in these studies both in Test and Reference Vaccine groups were redness, pain, itching & swelling at injection site; the rare general symptom was fever. The typical Geometric Mean Titers of rabies neutralizing antibodies by day 28 were significantly higher in all studies (around 10 IU/ml), greater than the minimum protection level (0.5 IU/ml). These studies indicate that the human rabies vaccine, INDIRAB manufactured by novel chromatography technique is found to be Safe & Immunogenic when administered by both Intramuscular and Intradermal routes.

Keywords: INDIRAB; Anti-rabies vaccine; Chromatographically Purified; Intramuscular and Intradermal.

DAY TWO: 5th July, 2009

Free Paper Session 1

ANALYSIS OF PRESCRIPTIONS REFERRED TO ARC, MKCG MEDICAL COLLEGE.

Author: *Dr. Tapas Ranjan Behera, Assistant Professor, Dr. D. M. Satapathy, Associate Professor, Dr. A. K. Pratap, Resident, Dr. R. M Tripathy, Professor & HOD*

Presenting Author: *Dr. Tapas Ranjan Behera, Assistant Professor, Dept. of Community Medicine MKCG Medical College (trbehera@rediffmail.com)*

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- Objectives:**
1. To study the prescription habits of the prescribers about categorisation of animal bites.
 2. To know the wound washing practices from the patients/ prescriptions.
 3. To know about the practice of RIG administration in category III exposures.
 4. To asses about the administration of Anti Rabies Vaccine.

Result: The record based prescription analysis study was conducted at the ARC of MKCG medical College, Berhampur, Orissa for a period of 3 months. Majority (44%) of the referred cases were from PHC/CHC within Ganjam district, followed by Casuality of MKCG Medical College (15%) & some private practitioners. Some patients reported from other districts & state also. Nearly 69% of referred cases reported within 24-72 hours, still a few (3%) reported after 3 days. Nearly all prescribers mentioned Inj. Tetanus Toxoid to the patients but only 7% have mentioned the category of animal bite and the nature or site of bite. Majority of them have not prescribed RIG in their prescriptions; only 4% have mentioned ERIG but have not administered as it was not available at that PHC/CHC area. About 40% of them have prescribed antibiotics either injectable or oral to the patient even without any lacerated wounds. 71% of the prescribers have mentioned ARV (mainly Rabipur & Verorab) but 5% of them have administered ARV over gluteal region. Interesting to note that despite of availability of ARV (Intra Dermal Rabies Vaccination) at ARC of the College, the prescribers (Medical Officer/ Pharmacist) of casuality of MKCG Medical College have administered ARV and then referred. In 13% of cases (referred prescriptions) have stitched the wound without RIG administration nor even advised it.

DEMOGRAPHIC CHARACTERISTICS OF ANIMAL BITE CASES ATTENDING THE ANTI RABIES CLINIC OF G. R. MEDICAL COLLEGE HOSPITAL, GWALIOR (MADHYA PRADESH)

AK Agarwal¹ A Mishra²

Research Question: What is the Demographic Characteristics of animal bite of G. R. Medical College Hospital, Gwalior (Madhya Pradesh)?

Objectives:

- 1) To study the Demographical characteristics and seasonal trends of animal bites.
- 2) To study the practices regarding animal bites treatment.

Setting: Anti Rabies Clinic of G.R.Medical College, Gwalior

Participants: 2377 animal bite cases who attended the Anti Rabies Clinic to seek post exposure advice & treatment

Result: Of the 2377 cases, 61.97% were males & 38.02% were females; 52.9% from rural areas & 47.1% from urban. Majorities (82.9%) were up to the age of 45 years, whereas (32.9%) were in children below 12 years of age and accounted for 50% in the age group of 15-45 yrs. Category II animal bite cases were accounted for 65% while category III were 33.1% & 1.9% were category I who didn't require treatment. Lower limb and upper limb was the most common site of animal bites. The seasonal trend of animal bites showed a rise of incidence during winter month i.e., from early December to last of January & summer months i.e., early of May to last of June month. About more than half of the cases (58.8%) reported within 3 days of exposure & 13.9% reported after one week. 23.9% of cases practiced some form of first aid measures like cleaning the wound with soap & water and applied some antiseptic measures but many (46%) followed some traditional practices like using '*Oil & Mirchi mixture*'. Many 57.7% had received the ARV over gluteal region in those (5.9%) who taken treatment at other than ARC & no case had been administered RIG.

A STUDY OF FACTORS INFLUENCING COMPLIANCE TO IDRV AT ANTI-RABIES CLINIC OF MANDYA INSTITUTE OF MEDICAL SCIENCES, MANDYA

Mahendra B J¹, Harish B R², Vinay M³

Objectives:

1. To determine the drop out rate at IDRV-ARC of MIMS
2. To assess factors influencing the dropout rate at IDRV-ARC of MIMS

Study Setting: Anti-Rabies Clinic of MIMS, Mandya

Study Period: 1st March 2009 to 30th April 2009.

Study Subjects: All the bite victims who discontinued vaccination during the period of study and could be contacted or traced were included in the study.

Results: Of a total of 691 new cases of animal bite victims reported to the ARC of MIMS during the study period, only 38.5% completed the updated Thai Red Cross regimen and 61.5% discontinued vaccination (dropout) at various times. 140 of the dropouts were contacted or traced to elicit reasons for dropout.

Of the 140 dropouts, 52.9% were less than 15 years of age. 60.7% of the dropouts were from rural areas. 90% had category III exposure. 65% of the bite victims gave the history of exposure to stray dogs or community owned dogs. 74.3% of the dropouts had performed wound toilet. 52.9% of the dropouts had reported to the ARC within 24 hrs of bite. 34.3% had taken only one dose. 25% had received two doses, 40.7% had taken three doses.

The most common reason given for dropout was being out of station (32.1%). Other reasons included affordability (18.6%), not being able to recall the next date for vaccination (15%), dog alive and healthy (10%), and exams (6.4%).

1: Professor & Head, 2: Associate Professor, 3: Assistant Professor

Dept. of Community Medicine, Mandya Institute of Medical Sciences, Mandya, Karnataka

CLINICAL PROFILE OF CHILDREN ATTENDING ARC, MKCG MEDICAL COLLEGE, BERHAMPUR.

¹ Pratap AK, ²Behera TR, ²Malini DS, ³Satapathy DM, ⁴Tripathy RM.

Institute: Dept. of Community Medicine, M.K.C.G. Medical College, Berhampur.

Background: Rabies is fatal encephalitis transmitted by bite of warm blooded animals, of which Dog and cats are common animals. The children are more accessible to these animals hence more prone to animal bite hence risk of rabies.

Objectives: (i) To estimate the proportion of children with animal bites. (ii) To study the cause of bite in these victims. (iii) To assess the severity of exposure.

Materials & Methods: Type of study: Longitudinal study.

Study period: 1st October 2008 to 31st March 2009 (Six month).

Study place: Anti-Rabies Clinic, M.K.C.G. Medical College, Berhampur.

Study Population: 945 children (<15 yrs.).

Study analysis: Percentage, proportion & chi-square test.

Result: 2968 (99%) cases attended the ARC for Post Exposure Prophylaxis (PEP). In the age group of 0-15 years, 945 cases received PEP. The study population constitute of 721(76.2%) Boys and 224 (23.7%) Girls. 70 (7.4%) and 875 (92.59%) were having category II and III respectively. Dog bite accounts for 83.59% of cases followed by Cat (.4%), Monkey, Jackal etc. Provoked bite accounts for 60.3% of cases, more in 6-10 year age group. There is no significant difference in provoked bite in <5 years and >5 years age group. The behavior of animal (Dog and cat) was found to be normal in 89.6% & abnormal in 10.28%. Bite over lower limb was common (53.37%) followed by upper limb, trunk, face & perineum. 910 (96.29%) cases received one dose of Inj T.T. , 29.3% received irrespective of immunization status. 453 cases (47.9%) received ARV as IM over gluteal region.

Conclusion: Children less than 15yrs. accounts for nearly 1/3rd of the victims requiring Anti Rabies treatment. More than half of the cases had been exposed due to provocation of the animal and majority (92%) had Category-III exposure. None of the cases had received RIG and majority had received CCV over gluteal area.

Recommendations:

1. Awareness among community about the vulnerability of children to animal bite.
2. Awareness of health care providers regarding proper Post Exposure Prophylaxis.
3. Pre-Exposure Vaccination using IDRV for children.

“RABIES, A DISEASE WITH NO DISCRIMINATION”

***K.S. Prasanna**

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Rabies is an ancient and fatal disease that is responsible for the lives of millions of people around the globe. Researches are being conducted throughout the world on different aspects of rabies relentlessly from east to west, the fruits of which are also brought to us in terms of modified and effective immunization techniques and rapid diagnostic test devices. Even though knowledge has improved great a lot, the world is still under the fearful spell of the disease with many superstitions so much so many of the persons who are exposed to rabid dog bite don't go for proper treatments and succumb to terrible death. So the need of the hour is to create awareness about the disease, its spread, preventive and controlling measures among the public. It is an area where the medical and veterinary professionals need to work together since the disease has no discrimination if it is a man or an animal. The infected subjects have no other sequelae except death even when it is a completely curable disease with proper diagnosis and vaccination procedures. This paper tries to unravel the latest techniques in the diagnosis and control of rabies in animals along with throwing light on the latest findings on rabies research.

“DROP-OUT” IN IDRV: A CAUSE OF CONCERN

Satapathy DM, Reddy SSS, Behera TR, Malini DS,
Tripathy RM, Mahapatra HH.
Dept. of Community Medicine, M.K.C.G.
Medical College, Berhampur.

Background: Intra Dermal Rabies Vaccination (IDRV) has lead to a paradigm shift in the Anti Rabies treatment. Since its initiation from 27th April 2007 at the Anti Rabies Clinic of MKCG Medical College Hospital, Berhampur, Orissa, more than 11000 cases have been administered Intra Dermal Vaccination.

Objectives: To find out the “Drop Out” rate in Intra Dermal Rabies Vaccination.

Materials & Methods: **Type of study:** Longitudinal. **Study duration:** From 21st Jan to 20th March 2009. **Study place:** Dept. of Community Medicine, M.K.C.G. Medical College, Berhampur. **Study setting:** Anti Rabies Clinic of MKCG Medical College. **Study Population:** 20% cases requiring Anti Rabies Treatment (58 cases) were selected randomly as the study population. **Study analysis:** Percentage & proportion.

Result: Among the randomly selected 58 cases all had Category-III exposure. 45 were males & 40 were from rural areas. Dog was biting animal in 86.2% cases. Treatment with ERIG & IDRV regimen was initiated in all cases. The drop-out rate from Day ‘0’ to Day ‘3’ was 7 cases (n=58) and from Day ‘3’ to Day ‘7’ was 2 cases (n=51). The drop out rate from Day ‘0’ to Day ‘28’ was 23 cases (39.6%). There was no significant difference in the drop out rate and type of animal, sex, area of residence and distance from ARC.

Conclusion: Drop out in IDRV is more than 1/3rd from Day ‘0’ to Day ‘28’. This is a major concern in the present modified TRC regimen. Further studies should be initiated to achieve 100% coverage in IDRV.

FREE PAPER SESSION II

ASSESSING THE RELATIONSHIP BETWEEN ANTIGENICITY AND IMMUNOGENICITY OF HUMAN RABIES VACCINES ADMINISTERED BY INTRADERMAL ROUTE: RESULTS OF A META ANALYSIS.

M.K Sudarshan¹, Gangaboraiah², H S Ravish³, D H Ashwath Narayana⁴.

The data of 18 studies from four countries conducted over a period of 23 years (1986 - 2009) was used for metanalysis. The vaccines included purified chick embryo cell vaccine (Rabipur), purified vero cell rabies vaccine (Verorab & Indirab) & human diploid cell vaccine (MIRV). It revealed that an higher antigenicity of rabies vaccine viz: potency of e" 7 IU per (single intramuscular) dose did not result in significantly higher immunogenicity as measured by rabies virus neutralizing antibody titers in the vaccinees both on days 14($t=0.106$, $p>0.917$) and day 90 ($t=0.758$, $p>0.459$).

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IS DEATH IN RABIES RELATED TO SPECIFIC NEUROANATOMICAL PATHOLOGY? - A STUDY IN HUMAN, CANINE AND RODENT BRAINS.

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In spite of many studies in the area of research pertaining to rabies neuropathogenesis numerous questions remains unanswered, especially the pathomechanism of lethality is not known. Under natural conditions the clinical disease does not usually manifest for a varying periods and varying from host to host. The precise location of the virus during that period and its form remains amongst the most puzzling and intriguing aspect of rabies neuropathogenesis. Considering the above facts we tried to probe for consistent neuropathology in the brain during natural infection of humans and canines and experimental infection in mice by virulent street virus and laboratory CVS strain. In humans and canines following terminal natural infection it is expected that the viral antigen would be global and may not give insight into the progression of the disease. To address this limitation, in a rodent model virulent lab strain of virus was inoculated into mice peripherally and the animal brains were collected at different time points and were examined and compared to the viral load in human and canine brain. The sections from the nervous tissue from human (n= 10), canines (n=10) and mice (n= 6) was immunostained for rabies viral antigen by immunoperoxidase method and the neuroanatomical distribution was mapped. In all the brains, Human, canine and mice there was consistent involvement of thalamus, raphe nuclei and reticular formation in brain stem and vagal nuclei correlating with fatality. In mice, temporally there was a caudocranial spread of the virus from the peripheral nerve, sensory ganglia, spinal cord, brain stem and thalamus. The cerebellar and cerebral involvement was diffuse and did not appear to correlate with mortality. The critical neuroanatomical areas were found involved only terminally in the mice leading to death and could be applicable to humans and canines.

EFFECTIVENESS OF 'AWARENESS SESSIONS' FOR ENHANCING KNOWLEDGE REGARDING RABIES AMONG COLLEGE STUDENTS

Vinay. M*, Mahendra . B. J **,
Harish . B. R ***, Venu . R. P ****.

Rabies is a virtually 100% fatal disease. Globally 55,000 deaths are attributed to this disease. India contributes 20,000 deaths annually, of these 79% are among people who have not received Post Exposure Prophylaxis (PEP) which is an important tool available for prevention of the disease. One of the major factors for people not receiving the PEP is lack of awareness for the need for PEP. The current study was taken up with the following objectives;

- (i) **To assess the knowledge regarding various aspects of rabies and**
- (ii) **To determine the effectiveness of an educational intervention on the knowledge regarding rabies among college students**

1434 college students of **Maddur town in Karnataka state** participated in the study. The students answered a pre-designed and pre-tested questionnaire on various aspects of rabies including its transmission and prevention. Later an awareness session **was conducted, in batches of about 100 students each, using Power Point Presentation and Video Clips followed by a Question-Answer session. One month later the** students answered the **same** questionnaire. The answers of the Pre-session questionnaire and the Post-session questionnaire were compared and analyzed.

The knowledge of students before the intervention was as follows. 46.4% knew that rabies is caused by a virus. 97.6% knew that it is transmitted by dogs & knew that it is transmitted by 52.6% cats. 92.3% thought that the symptom of a rabid animal is excessive salivation and 33.5% thought that a rabid animal will bite without provocation. 42.6% knew that rabies is 100% fatal and 16.3% knew that symptom of rabies in man is hydrophobia. 44.0% knew that 5 doses of rabies vaccine by IM route is required. 53.1% knew that the bite wound should immediately be washed with soap & water. **After attending the 'Rabies Awareness Session' the knowledge of the students regarding etiology, fatality, transmission, symptoms in animals & man, wound toilet, and vaccination significantly increased.**

Key words = Rabies, Knowledge, Awareness, College students.

A STUDY ON SEX AND AGE RELATED DIFFERENCES IN RABIES IMMUNOGLOBULIN HYPERSENSITIVITY IN A TERTIARY CARE CENTRE OF WESTERN ORISSA

D. Goswami

OBJECTIVE

1. To find the age and sex related difference in case of Equine rabies immunoglobulin
2. *Evaluation of efficacy of Equine rabies immunoglobulin*

TYPE OF STUDY – Prospective Hospital based study

PLACE OF STUDY – VSS Medical College , Burla , Orissa

PERIOD OF STUDY – 15 Dec 2008 to 15 May 2009

MATERIALS AND METHOD

The test dose of 0.1 ml , Equirab (1:10 dilution with Normal saline) was given intradermally in one of the forearms and 0.1 mL of sterile normal saline was given to the opposite forearm, as control. Following this, all the patients were observed for 20-30 minutes . Reply paid post cards were given to all patients to be filled and returned after a fortnight to assess any delayed reaction. Patients who were exposed to confirmed rabid animals, were followed for 45 days.

RESULTS

Out of the 570 patients in the study , 366 (64.26%) were males and 76% were from urban area,. There were about 142(24.91%), 164(28.77%), and 264(46.42%) patients in the age group <10yrs, 10-20 yrs, >20 yrs respectively Positive reaction to skin test dose was seen in 53 (9.29 %) patients. None had severe systematic reaction. Only 42% of patients returned their reply paid postcards after a fortnight of receiving full dose of Equirab. Majority had no problems.

CONCLUSION

Females were at higher risk of exhibiting hypersensitivity to ERIG than males . None of the reactions was life-threatening. Majority of patients showing reactions belonged to the age group >20 yrs . Hypersensitivity reactions were rare under the age of 10 years .22 (4%) patients who were exposed to confirmed rabid animals, were followed up and all (100%) of them were found to be healthy and alive.

SAFETY OF GIVING EQUINE RABIES IMMUNOGLOBULIN TO CATEGORY III ANIMAL BITE CASES - A CROSS-SECTIONAL STUDY

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Mishra K***, Pani KC****

*PG 1st year ** Prof & HOD ***Asso Prof **** Statistician
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Research Question:

How safely can a category III animal bite case be given Equine rabies immunoglobulin without developing Immediate Hypersensitivity reaction?

Objectives of the study:

1. To determine the percentage of cases (negative skin test) developing type I hypersensitivity reactions following Equine rabies immunoglobulin injections.
2. To determine the percentage of cases (positive skin test) developing type I hypersensitivity reactions following Equine rabies immunoglobulin injections.

Research methodology:

- Ø **Type of study:** Cross-sectional study.
- Ø **Technique:** Total enumeration technique.
- Ø **Study instrument:** Pre-designed schedule.
- Ø **Study place:** ARV clinic, SCBMCH, Cuttack.
- Ø **Period of study:** 6 months (July to December 08).
- Ø **Analysis:** SPSS v 16.0.

Results:

The percentage of cases developing Type I hypersensitivity reaction following ERIG was 0 %. The same incidence was seen also in cases following skin reaction after skin testing. Thus ERIG can be given safely in all cases of Category III animal bites. Hence it is strongly suggested that further clinical trials may be undertaken to assess the requirement of skin test before administering equine rabies immunoglobulin.

SAFETY AND IMMUNOGENECITY OF PVRV IMPORTED BY SYNERGY DIAGNOSTICS.

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Dr.R.M.Tripathy***,Dr.S.N.Madhusudana******

*Institute of Preventive Medicine, Hyderabad

**Assoc. Prof. PSM Dept, MKCG, Berhampur ,Orissa

*** Prof. & HOD, PSM Dept, MKCG, Berhampur, Orissa

****Additional Professor of Neurovirology, NIMHANS, Bengaluru

PVRV manufactured by Changchun Changsheng Life Sciences Ltd of China and imported by M/s. Synergy Diagnostics Pvt. Ltd was subjected to clinical trial to assess safety and immunogenicity in the Indian population.DCGI and IEC approvals were obtained before conducting the trial.

A Pre-Exposure Vaccination study was conducted at MKCG, Berhampur. 60 healthy volunteers were enrolled in the study and administered the vaccine intramuscularly on days 0, 7 and 28. Blood samples were drawn on days 0, 14 and 35, serum separated and sent for estimation of RVNab by RFFIT at NIMHANS, Bengaluru.

Post Exposure study was done in patients exposed to animal bites. Study was conducted at two centers: MKCG Berhampur and IPM Hyderabad. 60 patients were enrolled at each center. Subjects were administered vaccine on day 0,3,7,14 and 28 as per Essen Regimen. All Category III Exposures were administered HRIG on day 0. Blood Samples were drawn on days 0, 14, 28 and 90 for estimation of antibody titers by RFFIT. The results of these studies are being presented.

FREE PAPER SESSION III

BASICS IN ANTIRABIES TREATMENT AND ANTIBODY REPCNCES OF DIFERENT IDRIV AND INTRAMASCCULER SHEDULE.

Dr.SUMIT PODDAR.

Critical Care and anti- rabies Consultant

Attached to Anti-rabies Clinic,

S.N.P Hospital, Kolkata.

More than 95 to 99% of all human rabies death occurs in the developing countries in spite of definitive and effective control of the disease protocol is available in the country. Treatment of all animal bites in this regard is the same throughout the world. Hence anti-rabies treatment has its own basic guidelines in their management. There are certain definitive steps in Anti-rabies management.WHO recommendations should be strictly followed.

The rabies virus always enters through the cut wounds or direct with the mucosal membrane. Hence, it has no impact on the intact skin. If the skin is broken, the virus then replicates in the non-nervous tissue or directly enters peripheral nerves and travels by retrograde axoplasmic flow to CNS, ultimately to brain developing rabies encephalitis which is 100% fatal. The speed of the virus migration is 15- 100 mm per day.

History taking is important. Animals status provoked or unprovoked bite, suspected rabid dog bite, pts immune status, hypersensitivity or allergic states. Pts socio economic status etc should be assessed at the time of communing treatment. Past history of any vaccination should be considered as re-exposure issues, where the protocol is different.

There are certain definitive steps in the anti-rabies management. The recent WHO recommendations should be strictly followed. The treatment should be initiated immediately after any exposure which includes through wound management for a minimum period of 15 minutes using water and soap. The author personally uses povidine iodine, scrub lotion, which is having also antiseptic, and disincentive properties. During wound toilet, to wash the wound it should be gently under running tap water. In case of critical and category III wound or lesser grade wound, should always been washed for more than 15 minutes. Wounds in corneal injuries, in place of soap only normal saline wash by continuous syringing for more than 30 minutes is needed.

Rig infiltration in cat III and suspected Rabid dog bite in eat II cases are important. Infiltration in figures is important as to avoid compartment syndrome. Wound toilet in proper way is much move important in corneal wound, eyes etc where RIG infiltration in possible.

Slandered protocol to be strictly followed in case of RIG infiltration and to be carried out in well equipped centre. Care must be taken in immune compromised patients and doses should have an option to convert PET into PREP schedule.

Antibody responses Day 12 to Day 14 and Day 28 NS Day 42 carries as in different schedule both in IDRIV (2 site and 8 site) and Essen and Zagreb schedule assessed where initial loading dose (8 site and Zagreb) \ shows high antibody response on Day 12–Day 14 Although the antibody response has done in Elisa, it always advisable to repeat the studies in RIFFIT which is on progress.

STUDY ON CASES WITH EXPOSURE TO ANIMALS WITH ABNORMAL BEHAVIOUR.

Reddy SSS*, Behera TR**, Malini DS**,
Satapathy DM***, Tripathy RM****.

Introduction:

Rabies is a disease transmitted from animals to man. The commonest mode of transmission is by dog-bite. Majority of the victims are due to provocation of the animal. At times a rabid animal due to its abnormal behaviour goes on a rampage and bites its victims without any provocations.

The present study was done with the following Objectives:

- 1) To know the type of Animal showing abnormal behaviour.
- 2) To assess the clinical profile of victims of animals with abnormal behaviour.
- 3) To know if there is any seasonal trend in animals to be rabid/shows abnormal behaviour.

Materials & Methods: Type of study: Longitudinal. **Study duration:** From 1st April 2007 to 31st March 2009. **Study place:** Dept. of Community Medicine, M.K.C.G. Medical College, Berhampur. **Study setting:** Anti Rabies Clinic of MKCG Medical College. **Study Population:** All the Animal bite victims, who complain of being exposed to animal with abnormal behaviour. **Study analysis:** Percentage, proportion.

Results:

During the study period 8881 cases had reported to the ARC, of whom 1652 (18.6%) were victims of animals showing abnormal behaviour. Stray dog accounted for the majority (96%) of the animals. All the cases had category III exposures. The average monthly attendance of cases with animal showing abnormal behaviour was 63±6.7. All the cases received both active and passive immunization against Rabies. None of the cases had developed rabies till 2 months of the end of the study period.

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COMPARATIVE EVALUATION OF HUMAN EMBRYONIC KIDNEY CELL LINE (HEK 293) AND NEURO 2 a AND BHK 21 CELL LINES FOR RAPID ISOLATION OF STREET AND FIXED RABIES VIRUSES

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Isolation of rabies virus is generally done using mice inoculation or infection of susceptible cell lines such as Neuro2 a , BHK 21 , CER or BSR . Isolation of rabies virus is necessary for confirmation of rabies in cases where rapid diagnostic technique is negative or doubtful. Virus isolation is also required for epidemiological surveillance and genetic characterization of isolates from different parts of the world. In this study we have evaluated a continuous cell line derived from kidney of human embryo . This cell line called HEK 293 was found to express several neuronal proteins including muscarinic acetyl choline receptors. Therefore , we postulated that this cell line could be highly susceptible for rabies virus infection . In this study we evaluated the utility of this cell line for rapid diagnosis of rabies in comparison with other cell lines such as Neuro2 a and BHK 21 which are already in use. We tested 75 animal brains belonging to different species and also 10 human brains. positive for rabies by FAT. We found that the isolation rate using both HEK 293 and Neuro2 a was 100% , while it was only 60% with BHK 21 cells. We conclude that HEK 293 cell line is as sensitive and specific as Neuro2 a cell line for rapid isolation of rabies virus . This cell line which is easy to grow and maintain could serve as an alternative cell line both for rabies diagnosis and research

ROLE OF SKIN TESTING IN ADMINISTRATION OF EQUINE RABIES IMMUNOGLOBULIN IN CATEGORY III ANIMAL BITE CASES.

Dr. Biswas Mohua*, Dr. Monoj Ku Dash**,
Prof. Dr. Bijayeeni Mohapatra***,

Introduction

Rabies Immunoglobulin (RIG) is a life saving drug in all category III exposures. WHO-APCRI Indian Rabies Survey (2004) revealed that the use of RIGs was as low as 2 % in our country & one of the reasons for non use of RIGs by medical profession is the fear of anaphylaxis. However anaphylaxis is quite rare with currently available RIG preparations, as they are highly purified. The skin test acts as a window, which helps us to identify the possible immunological response that will be mounted by the immune system of an individual to an allergen. The skin testing may detect the rare case of IgE mediated (type I) hypersensitivity to equine serum protein. However, majority of reactions to ERIG result from complement activation and are not IgE mediated and will not be predicted by skin testing. The recent WHO recommendation states that there are no scientific grounds for performing a skin test prior to administration of ERIG, because testing does not predict reactions and ERIG should be given whatever the result of the test.

Objective

1. To assess the role of skin testing in administration of ERIG in category III animal bite cases
2. To study the factors responsible for anaphylaxis reaction.

Material & methods

1000 patients with category III animal bite attending the ARV OPD of S.C.B Medical College, Cuttack, during the period Jan 2009 to April 2003 was taken in to consideration as study subjects. All these patients were administered ERIG after skin testing. These patients were followed up for any anaphylaxis reaction. Detail history was elicited from those cases reported for anaphylaxis reaction.

Observation:-

Out of the 1000 patient reported with category III animal bite cases 70% were male and 30% were female. Most of them were in the age group 1-20 years age group. 97% cases skin test was negative & only in 3% of the cases skin test was positive. Out of the 97% patient with negative skin test three cases reported with anaphylaxis reaction. The factor that was common to all the three cases with anaphylaxis was that all the three case was exposed to sun heat exertion after receiving the ERIG.

Conclusion:- Skin testing in administration of ERIG in category III animal bite case is not mandatory and skin test does not predict anaphylaxis reaction.

Asst Prof, **P.G Students, *Prof. & HOD Department of Community Medicine, S.C.B Medical College, Cuttack, Orissa.*

COMPARATIVE EVALUATION OF A NEWLY DEVELOPED DIRECT RAPID IMMUNOHISTOCHEMISTRY TEST (DRIT) AND LUORESCENT ANTIBODY TEST (FAT) FOR THE DIAGNOSIS OF RABIES.

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The Fluorescent Antibody Test (FAT) remains as the gold standard for rabies diagnosis in animals and humans. Because of the cost involved in obtaining and maintaining a fluorescence microscope and commercial rabies conjugate, many laboratories in India and other developing countries still continue to rely on the demonstration of Negri bodies for the diagnosis of rabies. Investigators at the Centers for Disease Control and Prevention, Atlanta, GA, USA have developed a new rapid diagnostic technique for rabies diagnosis which is a simple and practical procedure intended enhancing local surveillance under field conditions and considers health economics for resource constraint developing countries. This technique is based on binding to rabies virus nucleoprotein (N) antigen after brief formalin fixation of brain smears by biotinylated N monoclonal antibodies and subsequent color development by adding streptavidin peroxidase and amino ethyl carbazole (AEC). The results can be visualized by an ordinary light microscope. In this study we have evaluated this test for the first time in India which has probably the highest burden of rabies cases in the world. In a preliminary comparison, we tested 75 animal brains and 10 human brains by this technique in our laboratory in parallel with the FAT. There was 100% correlation between the FAT and dRIT. We suggest that this new technique is both sensitive and specific for the diagnosis of rabies and should be considered for introduction and training in enhancing surveillance for rabies in developing countries.

EVALUATING THE ECONOMIC BENEFITS OF INTRADERMAL ADMINISTRATION OF CELL CULTURE RABIES VACCINE IN COMPARISON TO INTRAMUSCULAR SCHEDULE IN A TERTIARY HOSPITAL OF NORTH KERALA

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Objectives:

1)To assess the utilization of antirabies vaccine for a period of 3 years in the preventive clinic
2)To find out the total cost of ARV used in this period 3)To compare the cost of I.M.regimen with I.D. regimen in terms of cost benefits. **Design:** Retrospective study by analysis of Case Records. **Setting:** Preventive Clinic of Calicut Medical College. **Participants:** All cases that have undergone treatment with ARV irrespective of category of bite. **Main outcome measure:** Calculate the cost benefits of I/D regimen, if it had been implemented in this tertiary hospital for the past 3 Years. **Results:** The economic advantages of using ID regimen is obvious, as theoretically only 0.8ml of vaccine is needed for each patient resulting in use of less than 1vial/patient as opposed to 5 vials/patient that receive PEP using IM route In this regimen, only 4 visits are needed to complete vaccination. Day 14 is skipped here as compared to IM regimen. So by this, we are able to reduce the indirect cost involved in terms of man hour cost, travel time and expenses for that visit. **Conclusion:** ID route of antirabies vaccine administration may be accepted for its cost effectiveness and cost benefits and this no doubt a good option for our set up, since it significantly reduces the cost of vaccination and also more patients will be able to get modern cell culture vaccines, provided proper training is given to the staff.

GUILLAIN-BARRE (GB) SYNDROME v/s PARALYTIC RABIES AT THE SPINAL LEVEL.

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Rabies is an important public health problem in developing countries like India where an alarmingly high incidence of the infection is reported every year despite availability of highly effective, potent and safe vaccines. In clinical practice, diagnosis of furious (encephalitic) form of rabies poses little difficulty. In contrast paralytic form poses a diagnostic dilemma, as it closely mimics Guillain- Barre syndrome. The problem is further compounded in absence of history of dog bite. To understand the overlap between GB syndrome and paralytic rabies we analyzed the spectrum of neuropathological findings of 7 autopsy confirmed cases of paralytic rabies. The neuropathological examination of the spinal cord showed variable inflammation, microglial response forming nodules and neuronophagia signifying ongoing encephalomyelitis. Negri bodies were discernible within the ganglion cells of the dorsal root ganglion in one case. Neurons appeared surprisingly well preserved with minimal signs of degeneration. The radicals of spinal roots showed variable inflammation and focal demyelination reminiscent of Guillain-Barre syndrome. Demyelination was also seen to involve the posterior and lateral columns of the spinal cord corresponding to the clinical symptomatology. Immunohistochemistry revealed abundant viral nucleocapsid antigen within the neurons of anterior and posterior horns in diffuse or speckled patterns. Focal spread of viral antigen was also evident in spinal nerve roots. The histomorphologic features of inflammation and demyelination in spinal cord closely resembles the pathology seen in GB syndrome suggesting that the same immunopathogenetic mechanism underlies both disease processes.

INTRADERMAL VACCINATION AT ARV OPD, GRANT MEDICAL COLLEGE, MUMBAI: A REVIEW OF THE FIRST YEAR

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Background: Intradermal vaccination was initiated at the Anti Rabies Vaccination (ARV) OPD at Sir JJ Hospital, Mumbai on 1st July 2008

Objectives: To evaluate the performance of the ID route in terms of:

- Compliance
- Cost

Methodology: Hospital OPD based study. One year review of animal bite cases receiving TCV (PCECV) by the ID route was studied. All animal bite cases, who were prescribed the PEP schedule, comprised the study population. Data thus obtained was compiled and analysed. For comparison, a year's data of PCECV by the IM route was used.

Statistical Methods: Odds ratios and their 95% CI were calculated. Pearson's Chi square test was used. Data analysis was performed by Stata SE 10.1.

Results: A total of 1460 animal bite patients received TCV by the ID route. 84.24% of cases receiving the ID route completed the schedule as compared to 40.19% in case of those receiving TCV by the IM route, which is very highly significant (OR 7.96, 95%CI (6.61-9.59); $p < 0.0001$) In one calendar year, Sir J.J Hospital saved Rs. 12,79,030.

Conclusions: The use of the ID route has resulted in doubling of the compliance as compared to the IM route. This is however, only the first year and results need to be sustained. The immense cost savings have a positive public health implication. In perspective, choosing the ID route for immunization has been a revelation.

CHALLENGES IN RABIES CONTROL –A DESCRIPTIVE STUDY IN KERALA

Dr. S.S. Rani

Background: Dog bites and rabies threat continue to be a public health problem in Kerala though animal rabies control had been carried out under decentralised planning since 1996. Government spends huge amount from the health budget for post exposure prophylaxis but deaths are also not uncommon in the most literate state. This study aims to unveil the real challenges in rabies control and to make recommendation based on the findings.

Objective: to identify the major policy barriers in achieving rabies control in the state and to evaluate the current control programme under decentralised planning

Methods: Indepth interview with key stakeholders of the policy and Focus Group Discussion with implementing officers as key tools and to corroborate the findings with secondary data collection on rabies control under decentralised planning, analysis of epidemiological characteristics of animal bites in human, other secondary data from major stakeholder departments, document analysis & case studies.

Results: Dog bites and rabies threats are identified as important public health problems to be controlled by all stakeholders but none owned the control initiatives. Only 18% of Local Self Government Institutions provided funds and less than 15% purchased vaccine during the last three years (2005-2008) though there were no financial challenges with them. Main finding of this study is that rabies control programme under decentralised planning is not effective and needs urgent correction to control the disease in animals and man. There is no consensus among the stakeholders about the strategies. Post exposure prophylaxis (PEP) in man is not decentralised and gross inequity exists in access to the majority of bite victims, 70 percent being from rural areas.

Conclusion: Given the increasing public health expenditure for PEP, rabies control demands priority as a social welfare programme. There were no efforts taken for enforcement of a comprehensive and sustainable programme in the state. With strong policy decision and multistakeholder participation, an effective rabies control programme is possible in Kerala under decentralised planning through the wide network of transferred institutions.

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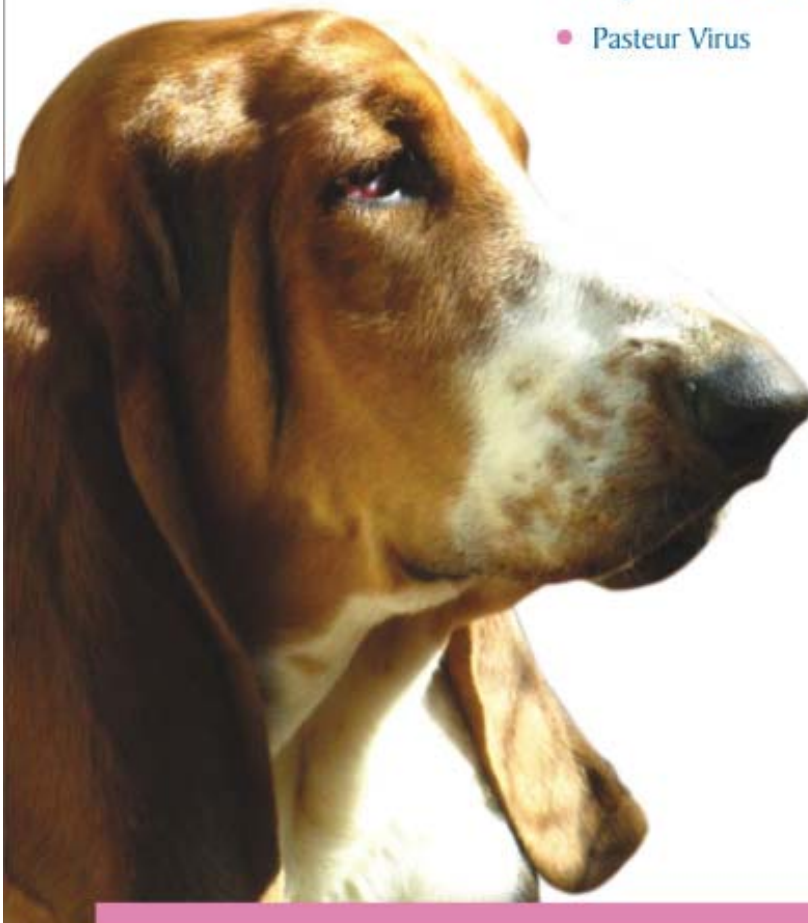
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