Title: TREATMENT FAILURE IN A CATEGORY III DOG BITE WITH IDRV AND ERIG

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Keywords Rabies immunoglobulin, intradermal rabies vaccination, treatment failure to ARV

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Case Report

TREATMENT FAILURE IN A CATEGORY III DOG BITE WITH IDRV AND ERIG

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ABSTRACT:

The purpose of this case study is to find out (1) Importance of cold chain maintenance of Anti-rabies vaccine and immunoglobulin. (2) Proper infiltration of anti-rabies immunoglobulin to all the sites of wound (not leaving a single small scratch mark also). (3) Efficacy of intradermal regimen of ARV. A 30 years old female presented herself with multiple lacerated dog bite over left leg. She had taken anti-rabies vaccine on day 0,3 and 7 by intradermal regimen and immunoglobulin one day after the dog bite at the ARC of MKCG Medical College, Berhampur. Inspite of all the treatment she died on 27th day following dog bite.

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INTRODUCTION

Rabies is one of the dreadful Zoonotic disease that occurs in many countries including India and poses a potential threat to more than 3.3 billion people worldwide.[1] The virus is found in domestic animals and wild animal and is transmitted to other animals and to humans through their saliva (i.e. bites, scratches, licks on broken skin and mucous membrane). In India, the disease is mainly transmitted by dogs, which is responsible for 95% of animal bite cases and it is the source of 99% of human rabies infections.[2] There are reported cases of treatment failures following treatment with IDRV or non-administration of RIG or inadequate infiltration of RIG to all sites of the wounds.[3,4]

CASE PROFILE

This is a case study of a woman named Kasturi Pradhan, W/O Rajib Pradhan, of aged 30 years who had multiple lacerated bites due to a stray dog over left leg, ankle and left footon 20.4.2015 and reported to the Anti Rabies Clinic of MKCG Medical College, Berhampur with the OPD Regd. No 913/21.4.15. She had come from a rural area Phasiguda, P.O. Bhismagiri, Block Digapahandi of Ganjam district, Odisha state. She was diagnosed as Category III dogbite and started treatment with ARV as per intradermal regimen and Equine Rabies Immunoglobulin (ERIG) on local wound area and IM over gluteal area as per body weight.

Previous treatment taken at local place:

1. Tetanus toxoid and antibiotic injection
2. Swabbing of wound with povidone iodine solution

Treatment offered at ARC, MKCG Medical College Hospital:

1) Anti Rabies vaccination (Inj. INDIRAB)- 3 doses was taken on the following dates
   Day 0 on 21.4.2015, Day 3 on 24.4.2015 and Day 7 on 28.4.2015 by Intra-Dermal regimen, (Indirab vaccine-BN-62CS14016A,MFG date 12/14 and Exp dt 11/17)
2) Rabies immunoglobulin of Equine origin manufactured by VINS BIO PRODUCTS LIMITED, Hyderabad, India with Batch No 021R14004, MFG dt 12/2014 and EXP dt 11/2016.

According to her body weight (36kg) the required dose of ERIG (36 × 40IU) was calculated to be 1440 IU which is 4.8ml in amount. This calculated dose was administered locally over the wounds by the trainee staff nurse.

On that particular day at the ARC, 5 cases of category III dog bite (due to same dog) with multiple bite markings had reported. Out of which 3 cases were of adults and 2 cases were of children.

The patient had come to medicine OPD complaining of fever, malaise and sorethroat on 24th day following the dog bite, where she was prescribed with antibiotics. However she returned to casualty OPD i.e on 26th day (18.5.15) with complaints of unable to take solid food & water for last two days. As there was history of dog bite, the casualty doctor referred the case to Anti Rabies Clinic. In the ARC OPD, when a current of air was blown on the face of the patient, a violent spasm of pharyngeal muscles took place and by attempting to drink a glass of water, she was unable to drink and there was spasm of muscles of throat. By history taking, it was known about tingling sensation of the dog bite area at the time of fever. Assessing all these symptoms and signs it was provisionally diagnosed as a case of

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Clinical Human Rabies and was referred to the Infectious Disease (ID) ward of the Hospital.[1]

TREATMENT AT ID WARD:

The patient was admitted in the ID ward at 3.30 pm vide regd.no 2476/18.5.2015. She was not able to take neither solid food nor any liquid food even water.The patient was given IV fluid (Ringer lactate solution) and injection ceftriaxone along with metronidazole. Till midnight of 18.5.15, patient was conscious and oriented to time, place and person. At last the patient succumbed to death on 19.5.2015 at 9.40 AM.

DISCUSSION

Unprovoked bite by stray, rabid dog in human leads to infection by rabies virus, if left untreated leads to disease called rabies. Incubation period in man is highly variable, commonly 1-3 months following exposure to rabid animal bite but may vary from 7 days to many years.[5]Incubation period depends on the site of bite, severity of bite, number of wound, amount of virus injected, protection provided by clothing and treatment undertaken. About the wound dressing, there is a gap of knowledge regarding thorough wound cleaning with soap and water for 10 minutes which decreases the viral load of wound and it is a very important procedure to avoid chances of development of disease. Animal experiments have shown that local wound treatment can reduce chances of developing rabies by upto 80%.[6] **In our case study, the patient did not wash the wound with soap and water for long hours, after the exposure.**

A study conducted by Satapathy D.M et al at MKCG College Hospital, Berhampur, Odisha found 62.5% of rabies cases attending the ARC were under 15 years of Age. The study revealed that 87.5% of cases had been exposed to stray dog, without any provocation and the animal either had become untraceable or had been killed due to its abnormal behaviour.[7]

Another study by Behera T.R *et al* found 37 cases of clinical rabies registered at the ARC of MKCG Medical College Hospital, Berhampur, Odisha from April 2001 to March 2007 (six year period) and among them 30 cases (81%) were due to bite of stray dogs.[8]

A study by Nupur Pattanaik *et al* at SCB Medical College, Cuttack reported a rare case of rabies in a child of 2 years of age who was bitten by a stray dog over right middle and ring fingers and developed rabies 45 days following the bite but without any ARV treatment.[9]

A similar type of study was reported by M. Mohanty et al from SCB Medical College, Cuttack in a woman of 30 years who despite of taking three doses of IDRV at Nayagarh District Hospital but without Rabies Immunoglobulin and subsequently the woman succumbed to Rabies 20 days following dog bite.[10]

Active immunization needs 7 days to induce production of antibodies, thus Rabies immunoglobulin (RIG) is injected on local site to prevent viral spread. Neutralization of virus is effective when RIG is injected directly into wounds, where as RIG given only intramuscularly at a distant site increases the risk of virus reaching Central Nervous System.

Worldwide less than 3% of at risk dog bite cases receive RIG and it is often still not injected into the wound properly.[11,12]

CONCLUSION

So it is advisable to inject RIG as much as possible in and around the wound according to body weight. This case study has raised some practical issues to be addressed at the Anti-Rabies Clinic like improper maintenance of reconstituted ARV for long time, decrease potency of ARV with IDRV or non infiltration of all the bite wounds with RIG. Hence training and reorientation programs should be carried for staffs engaged in treating animal bite on regular basis with focusing on RIG administration.

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