

**Title:** PROFILE OF RABIES IMMUNOGLOBULIN RECEIPIENTS OF ANTI RABIES CLINIC, MIMS, MANDYA

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**Keywords** Animal Bite, Rabies Immunoglobulin, ERIG, IDRV, Compliance

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## Original Article

## Profile of Rabies Immunoglobulin Recipients of Anti Rabies Clinic, MIMS, Mandya

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### Abstract

This study was conducted to describe the profile of bite victims who were administered RIG at the ARC of MIMS, Mandya, and to determine their compliance to IDRV.

A total of 4101 reported to the Anti Rabies Clinic of MIMS, Mandya, in the one year period of the study. Of these, 3373 (82.2%) of the bite victims belonged to category III and of these only 278 (8.2%) received RIG.

Among the 278 victims receiving RIG, 127 (45.7%) were aged less than 15 years, 194 (69.8%) were males and 206 (74.1%) were urban residents. 160 (57.6%) were having monthly per capita income of 2501-5000/-.

Dogs bit majority 259 (93.2%) of the victims. Most of the biting animals 222 (79.9%) were stray. 187 (67.3%) of the bites were unprovoked. The common site of bite was on the lower limb, 175 (62.9%). 209 (75.2%) victims reported within 24 hours of exposure.

208 (74.8%) had washed the wound with soap & water. 23 (8.3%) had applied irritants. 124 (44.6%) victims received RIG completely to the wound.

The average amount of RIG required for those aged less than 15 years was  $2.46 \pm 1.16$  ml and  $7.36 \pm 1.62$  ml for those aged more than 15 years. 169 (60.8%) completed the 4 dose IDRV schedule which was significantly more than those who had not received RIG (36.2%).

**Key Words:** Animal Bite, Rabies Immunoglobulin, ERIG, IDRV, Compliance

### Introduction :

Rabies is a virtually 100% fatal disease that can only be prevented. Prevention of rabies is possible by providing the exposed person with the proper post exposure prophylaxis (PEP). PEP in rabies exposed persons includes wound toilet, post exposure vaccination and administration of rabies immunoglobulin (RIG)<sup>1</sup>. While the provisions of wound toilet and post exposure vaccination have vastly improved, the use of RIG remains a grave concern<sup>2</sup>. Studies have pegged RIG use at 2% of the indicated cases<sup>3</sup>.

Anti Rabies Clinic of Mandya Institute of Medical Sciences, Mandya. (ARC-MIMS) caters to PEP needs of around 350 new bite victims every month. Of these around 82% are category III exposures<sup>4</sup>. They need RIG as per the WHO recommended PEP and 0.1 ml of Intradermal Rabies Vaccine on each arm on days 0-3-7-28<sup>5</sup>. The present study was taken up at the ARC-MIMS.

### Objectives :

1. To describe the profile of bite victims who were administered RIG.
2. To determine the compliance to IDRV schedule amongst RIG acceptors
3. To compare the compliance to IDRV amongst RIG acceptors and non-acceptors.

### Materials & Method :

This study was conducted at the ARC-MIMS. 3373 category III exposure victims reported to the ARC-MIMS between 1<sup>st</sup> May 2009 and 30<sup>th</sup> April 2010 (One year period). Of these 278 received RIG.

Variables like age, sex, residence, education, income, occupation, type of animal, details of bite, time since bite, details regarding wound toilet, administration of immunoglobulin and vaccine of these 278 bite victims were studied.

Chi square test was used to find out if any statistically significant difference existed in the compliance to IDRV amongst the bite victims who received RIG and those who did not.

### Results :

4101 bite victims reported to the ARC-MIMS between 1<sup>st</sup> May 2009 and 30<sup>th</sup> April 2010 (One year period). Among these, 3373 (82.2%) bite victims belonged to category III and were advised RIG. 278 (8.2%) of the category III victims received RIG. Cost was a major factor that led to the other victims not accepting RIG. The other reasons included exposure to pet dog, lack of seriousness, unwilling to sign consent.

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**Table 1**  
Profile of RIG recipients of ARC-MIMS (n = 278)

	RIG Recipients	%
<b>AGE</b>		
<15 years	127	45.7
15-60 years	138	49.6
>60 years	13	4.7
<b>EDUCATION*</b>		
Illiterate	99	35.6
Primary †	60	21.6
Secondary	37	13.3
College	41	14.7
<b>INCOME</b>		
≥ 5001	23	8.3
2501 – 5000	160	57.6
1501-2500	82	29.5
≤1500	13	4.7
<b>OCCUPATION*</b>		
Unskilled	25	9.0
Semiskilled	103	37.1
Skilled	16	5.8
Professionals	7	2.5
<b>ANIMAL</b>		
Dog	259	93.2
Cat	11	3.96
Monkey	6	2.16
Leopard	2	0.72
<b>TYPE</b>		
Pet	48	17.3
Stray	222	79.9
Wild	8	2.8
<b>TIME SINCE BITE</b>		
<1 day	209	75.2
1-3 days	58	20.9
3-7 days	11	3.9
<b>SITE OF BITE</b>		
Lower limb	175	62.9
Upper limb	88	31.7
Chest & abdomen	22	7.9
Head & neck	16	5.8

Note: a) 41 (14.7%) victims aged less than 6 years do not have any formal education

b) 127 (45.7%) victims aged less than 15 years were not employed.

### Demographic profile

Of the 278 victims who received RIG, 127 (45.7%) were aged less than 15 years. 138 (49.6%) were aged 15 to 60 years and 13 (4.7%) were aged more than 60 years. 194 (69.8%) were males and 84 (30.2%) were females. 206 (74.1%) were urban residents and 72 (25.9%) were rural residents.

The education profile of the bite victims showed that 99 (35.6%) were illiterate, 60 (21.6%) had received primary education, 37 (13.3%) had attended high school. 41 (14.7%) had college education. 41 (14.7%) were children aged less than 6 years and were yet to receive any formal education.

The monthly per-capita income of 160 (57.6%) bite victims was 2501 to 5000/- while that of 82 (29.5%) was 1501 to 2500/-. Of the remaining 36 victims, 23 (8.3%) and 13 (4.7%) had monthly per-capita income of more than 5000/- and less than 1500/-

None of those aged less than 15 years were employed. Of the remaining 151 victims, 103 (68.2%) were semi-skilled, 25 (16.6%) were un-skilled, 16 (10.6%) were skilled and 7 (4.6%) were professionals.

### Biting animal and bite wound

259 (93.2%) victims were bitten by dogs while 11 (3.96%) were bitten by cats, 6 (2.16%) by monkeys, and 2 (0.72%) by leopards.

Stray dogs and cats had bitten 222 (79.9%) of the victims. 8 (2.9%) victims were bitten by wild animals and the remaining 48 (7.3%) by pet animals. 187 (67.3%) had unprovoked bites while the remaining 91 (32.7%) had provoked bites.

209 (75.2%) reported to the ARC-MIMS within a day of exposure, while 58 (20.9%) reported between 1 to 3 days. The remaining 11 (3.9%) reported between 3 to 7 days of exposure.

175 (62.9%) were bitten on the lower limb. 88 (31.7%) had bites on the upper limb, 22 (7.9%) on the chest and abdomen and 16 (5.8%) on the head and neck.

**Table 2**  
Post Exposure Prophylaxis of RIG recipients, ARC-MIMS (n = 278)

	RIG Recipients	%
<b>WOUND TOILET</b>		
Not washed	30	10.8
Water	36	12.9
Water & soap	208	74.8
Virucidal	4	1.4
Irritant	23	8.3
<b>RIG</b>		
To wound	124	44.6
To wound & IM	137	49.3
Intra-muscular	17	6.1
RIG dilution required	28	10.1
<b>RABIES VACCINE</b>		
1 dose	13	4.7
2 dose	21	7.5
3 dose	75	27.0
4 dose	169	60.8

**Post Exposure Prophylaxis**

The bite wound was washed with soap and water by 208 (74.8%) victims. 36 (12.9%) had washed the bite wound with water only, 30 (10.8%) had not washed the wound and only 4 (1.44%) had used a virucidal to the wound. 23 (8.3%) had applied irritants like jackfruit sap, lime, coffee powder, turmeric powder, talcum powder, leaf sap, and other irritants to the bite wound.

RIG was completely infiltrated into & around the wound in 124 (44.6%) victims. 17 (6.1%) received RIG intramuscularly, in cases of wounds in the face, tip of fingers, palm & sole, etc.

137 (49.3%) victims received RIG partly to the wound and part intramuscularly. Out of the total 990.7 ml of RIG, 413.5 ml was given to the wound and 577.2 ml was given intramuscularly. The ratio of wound to intramuscular RIG administration is 1:1.4.

The average amount of RIG required for those aged less than 15 years was  $2.46 \pm 1.16$  ml while  $7.36 \pm 1.62$  ml was required for those aged more than 15 years was. RIG had to be diluted for 28 (10.1%) victims as they had multiple or large bite wounds.

169 (60.8%) victims had completed the 4 doses of IDRV schedule, while 75 (27.0%) had received 3 doses. 21 (7.6%) had received 2 doses and 13 (4.7%) had taken only a single dose of rabies vaccine.

**Table 3**  
**Compliance to IDRV amongst RIG acceptors and RIG non-acceptors.**

No. of doses	RIG Recipients (n = 278) %	RIG Non Recipients (n = 3095) %
1	4.7	15.7
2	7.6	17.6
3	27.0	30.5
4	60.8	36.2

Among the 3095 victims who had category III exposure and did not receive RIG, 1120 (36.2%) had received 4 doses, 944 (30.5%) had received 3 doses of rabies vaccine, 545 (17.6%) had received 2 doses and 486 (15.7%) had taken only a single dose of rabies vaccine. Compliance to IDRV amongst RIG acceptors was significantly more than RIG non-acceptors ( $p < 0.01$ ,  $\chi^2 = 77.798$ ).

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