

## Knowledge, Attitudes and Practices regarding Rabies among general practitioners of Belgaum City

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**Abstract:** *Introduction:* Rabies in humans is highly fatal and ends in an extremely painful and tortuous death. Unfortunately we still have highest number of deaths due to rabies, ironically a disease preventable by modern prophylactic measures. The post-exposure prophylaxis is a life saving treatment in a definite rabid animal bite. General Practitioners (GP's) act as first line care-givers for the treatment of dog bite and they are also easily approachable by the victim for the treatment to prevent rabies. *Objective:* To assess the knowledge, attitude and practices regarding rabies among general practitioners. *Methodology:* This cross sectional survey was carried out from July – August 2011 in Belgaum city among 100 general practitioners using a pre tested questionnaire. Data was entered and analyzed using SPSS 18 trial version. Frequencies were tabulated for demographic variables and association between variables was tested using Chi-square test. *Results:* Out of the total 100 general practitioners interviewed, 93 were males and 7 were females. The mean age of GP's was 42.89 years. The mean duration of practice for MBBS doctors was 19 years and for other doctors (BAMS, BHMS, RMP's) was 11 years. Knowledge about various aspects of rabies was comparatively better among MBBS doctors. The knowledge regarding vaccine was very poor among the general practitioners. *Conclusion:* The major issue was lack of hands on training or updating the knowledge of general practitioners regarding the newer vaccines and their administration. We recommend continued medical education for general practitioners, both (MBBS and non MBBS) on prevention of Rabies.

**Keywords:** Knowledge, rabies, general practitioners

### Introduction

Rabies is one of the oldest recognized diseases affecting humans and one of the most important zoonotic diseases which is endemic in India. It is primarily a disease of terrestrial and airborne mammals including dogs, wolves, foxes, jackals, cats, lions, mongooses, bats, monkeys and humans. In India, dog is still the main reservoir of rabies [1]. Rabies in humans is highly fatal and ends in an extremely painful and tortuous death [2]. Human rabies has been eradicated in some developed countries but still present in South-East Asian region. Some countries like Sri-Lanka have a National programme for the control and eradication of Human and animal Rabies [3]. In India about 15 million people are bitten by animals, mostly dogs (91.5%) every year and need post-exposure prophylaxis.

A person sustains an animal bite every 2 seconds and someone dies from rabies every 30 minutes. According to WHO, the deaths from rabies per

year in India is 20,565 as against 55,000 deaths worldwide [2]. In Karnataka the death rate of rabies is 0.51-1.5 / lakh population [4]. Unfortunately we still have highest number of deaths due to rabies, ironically a disease preventable by modern prophylactic measures. The post-exposure prophylaxis is a life saving treatment in a definite rabid animal bite. General Practitioners (GP's) constitute important individuals for providing first hand treatment and they are also easily approachable by the victim for the treatment to prevent rabies [5].

Many community studies have been carried out to know the knowledge, attitude and practices of people regarding rabies but studies among health care professionals are very few. Hence the present study has been undertaken to study the knowledge, attitude and practices among general practitioners regarding rabies.

**Material and Methods**

This cross sectional survey was carried out from July–August 2011 in Belgaum city. The study population comprised of 42 MBBS doctors and 58 others (BAMS, BHMS, RMP). The list of all practicing MBBS doctors in Belgaum was procured from the IMA register which came to 42. Equal representative of other AYUSH doctors practicing in the same locality were selected and the sample size was rounded to 100.

All the general practitioners were approached at their clinics by the researchers at the end of their practice hours to minimize interruption to their practice. Consent was taken before administering the questionnaire. The doctor had the right to withdraw at any stage of data collection and confidentiality of participation was assured. Data was collected on a pre-tested questionnaire comprising of 22 questions. Both open and closed ended type of questions were included. The practitioners were asked to fill the questionnaire on the spot without consulting books and electronic media.

Data was entered and analyzed using SPSS 18 trial version. Frequencies were tabulated for demographic variables and association between variables was tested using Chi-square test.

**Results**

Out of the total 100 general practitioners interviewed, 93 were males and 7 were females

[Table 1]. The mean age of GP’s was 42.89 years (ranged between 22-72 years).The mean duration of practice for MBBS doctors was 19 years and for other doctors (BAMS, BHMS, RMP’s) was 11 years.

**Table-1: Distribution of General practitioners according to their qualification**

| Qualification | Sex   |         | Total |
|---------------|-------|---------|-------|
|               | Males | Females |       |
| MBBS          | 42    | None    | 42    |
| BHMS          | 21    | 06      | 27    |
| BAMS          | 22    | 01      | 23    |
| Others        | 08    | 00      | 08    |
| Total         | 93    | 07      | 100   |

Ninety percent of MBBS doctors managed cases of dog bite compared to 60 % of other doctors (p= 0.001). Among these, 42 % of MBBS and 17% of non – MBBS doctors attended approximately more than 10 cases in the last year (p = 0.000). The differences were statistically significant.

Dog as a source of infection was known to most of the doctors. Spread of rabies from other animals was known to only 11% of MBBS and 1% of other doctors. Only 63% of other doctors knew that rabies was caused by a virus. Some of the doctors were of the opinion that rabies could be transmitted through blood transfusion [Table 2]

**Table-2: Distribution of general practitioners based on their knowledge about rabies**

|                                 | MBBS |         | Others |         | Chi-square | Df | p-value |
|---------------------------------|------|---------|--------|---------|------------|----|---------|
|                                 | No.  | Percent | No.    | Percent |            |    |         |
| <b>1. Source of Infection</b>   |      |         |        |         |            |    |         |
| Only dog                        | 36   | 85.71   | 55     | 94.82   | 4.523      | 2  | 0.104   |
| Other animals                   | 05   | 11.90   | 01     | 1.72    |            |    |         |
| Don’t know                      | 01   | 2.38    | 02     | 3.44    |            |    |         |
| <b>2. Causative Agent</b>       |      |         |        |         |            |    |         |
| Virus                           | 40   | 95.23   | 37     | 63.8    | 17.208     | 3  | 0.001   |
| Others                          | 01   | 2.38    | 18     | 31.03   |            |    |         |
| Don’t know                      | 01   | 2.38    | 03     | 5.17    |            |    |         |
| <b>3. Modes of Transmission</b> |      |         |        |         |            |    |         |
| Correct                         | 34   | 80.95   | 40     | 68.95   | 6.642      | 3  | 0.84    |
| Incorrect                       | 08   | 19.04   | 18     | 31.03   |            |    |         |

| <b>Table-3: Distribution of General Practitioner's based on their Attitude / practice regarding treatment of dog-bite wound</b> |             |                |               |                |                   |           |                |
|---|-------------|----------------|---------------|----------------|-------------------|-----------|----------------|
|   | <b>MBBS</b> |                | <b>Others</b> |                | <b>Chi-square</b> | <b>df</b> | <b>p-value</b> |
|   | <b>No.</b>  | <b>Percent</b> | <b>No.</b>    | <b>Percent</b> |                   |           |                |
| <b>1. Primary Treatment of wound</b>  |             |                |               |                |                   |           |                |
| Soap+ water   | 28          | 66.66          | 53            | 91.37          | 14.164            | 2         | 0.001          |
| Soap+ water + antiseptic  | 14          | 33.33          | 03            | 5.17           |                   |           |                |
| Apply irritant  | 00          | 0              | 02            | 3.44           |                   |           |                |
| <b>2. Suturing of wound</b>   |             |                |               |                |                   |           |                |
| Yes   | 14          | 33.33          | 11            | 18.96          | 4.470             | 2         | 0.107          |
| No  | 28          | 66.66          | 44            | 75.86          |                   |           |                |
| Don't know  | 00          | 0              | 03            | 5.17           |                   |           |                |
| <b>3. Bandaging of wound</b>  |             |                |               |                |                   |           |                |
| Yes   | 31          | 73.80          | 26            | 44.82          | 9.214             | 2         | 0.010          |
| No  | 11          | 26.19          | 29            | 50.0           |                   |           |                |
| Don't Know  | 00          | 0              | 03            | 5.17           |                   |           |                |

Majority of doctors (> 95%) practiced cleaning of wound as a first aid measure. Seventy four percent of MBBS doctors and 45 % of others preferred to bandage the wound while 33% of MBBS and 17% of other doctors preferred suturing [Table 3]. TT injection was used by 97% MBBS doctors and 89% of other doctors.

The anti-rabies vaccine was used by only 50% of other doctors compared to 95% of MBBS doctors, which was statistically significant (p=0.000). Though many of the GP's used

purified chick embryo vaccine, the concepts of the type of vaccine was not known to about 60% of other doctors. Knowledge regarding route of administration of vaccine was fairly good in both the groups. Only 50% of doctors in both the groups knew the correct site of administration. Correct schedule of vaccination was practiced by only 69% of MBBS doctors and 22% of other doctors. This difference was statistically significant (p= 0.000) [Table 4].

| <b>Table-4: Distribution of general practitioners according to their practice regarding Use of Anti Rabies Vaccine</b> |             |                |               |                |                   |           |                |
|--|-------------|----------------|---------------|----------------|-------------------|-----------|----------------|
|  | <b>MBBS</b> |                | <b>Others</b> |                | <b>Chi-square</b> | <b>df</b> | <b>p-value</b> |
|  | <b>No.</b>  | <b>Percent</b> | <b>No.</b>    | <b>Percent</b> |                   |           |                |
| <b>1. Use of Vaccine</b>   |             |                |               |                |                   |           |                |
| Yes  | 40          | 95.24          | 29            | 50.0           | 23.30             | 1         | 0.000          |
| No   | 02          | 4.76           | 29            | 50.0           |                   |           |                |
| <b>2. Type of Vaccine</b>  |             |                |               |                |                   |           |                |
| Tissue culture vaccine   | 25          | 59.52          | 12            | 20.68          | 26.40             | 2         | 0.000          |
| Nervous tissue vaccine   | 13          | 30.95          | 12            | 20.68          |                   |           |                |
| Don't know   | 04          | 9.52           | 34            | 58.62          |                   |           |                |
| <b>3. Route of administration</b>  |             |                |               |                |                   |           |                |
| Correct (i.m)  | 35          | 83.33          | 43            | 74.13          | 4.372             | 3         | 0.224          |
| Incorrect(s.c.)  | 05          | 11.90          | 10            | 17.24          |                   |           |                |
| Don't know   | 02          | 4.96           | 05            | 8.62           |                   |           |                |

|                                    | MBBS |         | Others |         | Chi-square | df | p-value |
|------------------------------------|------|---------|--------|---------|------------|----|---------|
|                                    | No.  | Percent | No.    | Percent |            |    |         |
| <b>4. Site of administration</b>   |      |         |        |         |            |    |         |
| Correct( deltoid)                  | 19   | 45.23   | 26     | 44.82   | 0.170      | 2  | 0.919   |
| Incorrect (gluteus,abdomen)        | 19   | 45.23   | 25     | 43.10   |            |    |         |
| Not sure                           | 04   | 9.52    | 07     | 12.05   |            |    |         |
| <b>5. Schedule of Immunization</b> |      |         |        |         |            |    |         |
| Correct                            | 29   | 69.04   | 13     | 22.41   | 26.729     | 2  | 0.000   |
| Incorrect                          | 10   | 23.80   | 16     | 27.58   |            |    |         |
| Don't know                         | 03   | 7.14    | 29     | 50.0    |            |    |         |

| <b>Table-5: Distribution of General practitioners regarding their knowledge about Rabies Immunoglobulin and PEP</b> |      |         |        |         |            |    |         |
|---|------|---------|--------|---------|------------|----|---------|
|   | MBBS |         | Others |         | Chi-square | df | p-value |
|   | No   | Percent | No     | Percent |            |    |         |
| <b>1. Immunoglobulin</b>  |      |         |        |         |            |    |         |
| Know  | 38   | 90.47   | 36     | 62.06   | 13.274     | 2  | 0.001   |
| Don't know  | 04   | 9.52    | 22     | 37.93   |            |    |         |
| <b>2. Indication for Ig</b>   |      |         |        |         |            |    |         |
| Know  | 02   | 4.76    | 04     | 6.89    | 16.371     | 3  | 0.001   |
| Don't know  | 17   | 40.47   | 21     | 36.20   |            |    |         |
| Not sure  | 23   | 54.75   | 33     | 56.89   |            |    |         |
| <b>3. Pre-exposure prophylaxis</b>  |      |         |        |         |            |    |         |
| Know  | 32   | 76.19   | 18     | 31.03   | 20.102     | 2  | 0.000   |
| Don't know  | 10   | 23.80   | 40     | 68.96   |            |    |         |
| <b>4. PEP schedule</b>  |      |         |        |         |            |    |         |
| Correct   | 17   | 53.12   | 04     | 22.22   | 4.353      | 2  | 0.113   |
| Incorrect   | 11   | 34.37   | 07     | 38.88   |            |    |         |
| Don't know  | 04   | 12.52   | 07     | 38.88   |            |    |         |

Among those who had used Ig, many preferred to use Human over Equine Ig. Most of the GP's (>90%) were unaware of the WHO categorization of animal bites. The indication to give Ig was known to only 5% of MBBS and 6% of other doctors. Knowledge regarding Pre-exposure Prophylaxis (PEP) [6] was also poor in both the groups. Seventy six percent of MBBS and 31% of non- MBBS doctors provided PEP to their clients , though the correct schedule was known to only 53% and 22% of them respectively ( p=0.000 & p=0.113 respectively) [Table 5].

Most of the doctors (> 90%) in both the groups preferred vaccination of pet dogs as one of the

way to prevent rabies in animals and hence advised their patients to do so.

### Discussion

In our study, most of the general practitioners were males with average duration of practice being 19 years for MBBS doctors and 11 years for other doctors (BAMS, BHMS, RMP). More than 90% of doctors were aware that dog is a major source for spread of rabies. Thirty percent of non MBBS doctors were still unaware that rabies is caused by a virus as against Jamnagar study [7] where 80% of doctors were aware. Other wild animals as

reservoir of rabies was known to only 13% of doctors in our study which was almost similar to Amritsar study (11%) [8]. About 51% of the total doctors in our study were of the view that rabies had other modes of transmission like blood transfusion and mother to child transmission. It was among 58% of doctors in Jamnagar study [7]. Majority (91.37%) of non-MBBS doctors and 66.6% of MBBS doctors in our study preferred to use soap and water as a first step in the management of dog bite wound while others preferred to use an antiseptic. Fifty seven percent of doctors in our study preferred bandaging the wound. In Jamnagar, Bangalore and Amritsar studies, 36%, 20% and 16.5% respectively thought so [7-9].

Knowledge regarding type of vaccine (nervous tissue vaccine and tissue culture vaccine) was very poor among both MBBS and non-MBBS doctors. The correct route of vaccine administration was known to 78% of doctors in our study. This knowledge was low in studies carried out in Pakistan (43.7%) [2] and Amritsar (43.7%) [10]. However only 45% of doctors in our study knew the correct site of administration of vaccine with similar findings in Amritsar study (45%). In contrast, only 23.8% of doctors in a Pakistan study were aware of the correct site of administration. Forty two percent of doctors in our study knew the correct schedule of immunization which was in contrast to other studies (24% and 11%) [7,10]. As far as pre-exposure prophylaxis was concerned, only 21% of doctors in our study knew the correct schedule of vaccination which was similar to a Haryana study (18.8%) [11]. Only 6% of the doctors in our study knew the WHO categorization of animal bites [12] and hence the indication to give

Rabies Immunoglobulin was known to very few doctors (4-7%) in our study. In Jamnagar study, none of the doctors knew the indications to administer rabies Immunoglobulin (Ig) [7]. 38% of doctors in Amritsar study knew about administration of rabies immunoglobulin (38.3%) [8].

### Conclusion

The knowledge and practice regarding management of dog bite was comparatively better among MBBS doctors than non MBBS doctors, but there was an apparent lack of awareness regarding appropriate guidelines for vaccine administration and also indications for Ig. This could be due to lack of hands on training or updating the knowledge of general practitioners regarding the newer vaccines and their administration. Therefore keeping in view the results of our study, we recommend continued medical education on rabies for both MBBS and non MBBS general practitioners, to equip them with current knowledge and skills of using appropriate vaccine, Ig and their schedule. This will help in prevention of rabies.

### Limitations of the study

The sample taken in our study was small and hence generalization would be difficult. Doctors practicing in urban area only were included.

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