



IJCRR

Section: Healthcare

ISI Impact Factor
(2019-20): 1.628

IC Value (2019): 90.81

SJIF (2020) = 7.893



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A Cross-sectional Descriptive Study to Understand Knowledge and Attitude of Japanese Encephalitis Among Health Professionals in a Tertiary Care Hospital of Pune

Dipendra Singh¹, Jyoti A. Landge^{2*}

¹Undergraduate Student, Dr DYPMC, DPU Pimpri Pune, India; ²Associate Professor, Department of Community Medicine, Nootan Medical College and Research Centre, Visnagar, Gujarat, India.

ABSTRACT

Background: Japanese encephalitis distribution all over India is not uniform, and there is diversity about incidence, occurrence and prevention strategy in different state of the country. Health care professionals are graduated differently in different parts of the country about managing health problems depending on local health needs so knowledge and perception towards Japanese encephalitis may not be uniform among them all over the country.

Objective: Present study was carried out to assess the knowledge and perception about JE among Health care professionals in a tertiary care centre.

Methods: A cross-sectional study carried out involving 103 health professionals working in various departments above the rank of first year junior residents in the same hospital for six months. Study was conducted after taking consent from participants using preformed self-administered questionnaire.

Results: There were participants of position from junior resident of 2&3 year (64.1%) to faculty (35.9%) and many (57.3%) were from clinical departments. Overall knowledge (68%) of study participants was good and perception was positive (58.3%). There was no variation in knowledge and perception across gender, clinical and para-clinical department (chi-square $P < 0.05$). Regarding perception towards disease, there was no much difference in resident doctors and faculty as well duration of experience.

Conclusion: Health care professionals have optimized JE knowledge, but there is a need to improve their perception of JE.

Key Words: Doctor, Faculty, Japanese encephalitis, Knowledge, Perception, Resident

INTRODUCTION

Japanese encephalitis (JE) is a mosquito-borne encephalitis caused by Group B arbovirus (Flavivirus). It is a zoonotic disease i.e., infecting mainly animals and accidentally man. The vast majority of cases occur among children less than 15 years of age. Nearly 10% cases among those above 60 years perhaps reflecting waning protective immunity.¹ The high fatality rate and frequent residual neuropsychiatric sequelae in survivors make JE a considerable health problem.²

According to World Health Organization (WHO) report, in Southeast Asia and Western Pacific region approximately 3 billion people are living in countries, which are at risk of JE.³ In India also JE is a serious pediatric problem. its epidemic has been reported from many places of the country since 1952. However it was first detected in 1952 through sero-

epidemiological surveys in Nagpur district of Maharashtra and Chingleput district of Tamil Nadu.⁴ Till 2001, there was no problem of JE in Maharashtra State. But during 2002 & 2003 JE infection was introduced in eastern districts such as Bhandara, Gondiya, & Nagpur. After that in 2004, three focal outbreaks of JE occurred in districts of Gadchiroli, Parbhani & Wardha. In the year of 2005 there were 6 focal outbreaks of JE in districts of Amravati, Yeotmal & Nagpur.⁵

Social, cultural, agricultural and occupational practices, health-seeking behavior, gender roles, and human interaction with animals are all important factors that have failed to grab the attention of researchers and program managers and hence not suitably informed the intervention strategies for prevention and control of JE. Furthermore, the vast diversity of these ecological and social factors has led to different patterns of epidemiologic risks associated with

Corresponding Author:

Dr. Jyoti Landge, Associate Professor, Dept of Community Medicine, Nootan Medical College and Research Centre, Visnagar, Gujarat, India.
Mobile: 08087649980; Email: jlandge11@gmail.com

ISSN: 2231-2196 (Print)

ISSN: 0975-5241 (Online)

Received: 22.09.2020

Revised: 14.11.2020

Accepted: 03.01.2021

Published: 04.06.2021

JE incidence in different states and districts. Thus, JE is not merely a zoonotic disease, but a greater developmental issue with multiple linkages to several social and cultural drivers.⁶

The healthcare professionals are important members of the society to combat the disease outbreaks like JE. Additionally, they are important source of information to the general public to provide counselling, education and prevention measures for disease. Therefore, the knowledge and perception of JE among Health professionals needed to be uniformly standardized as it will be critical in educating and protecting communities. In view of this, and due to the paucity of published data in the study area, we conducted this study to assess the knowledge and perception about JE among Health care professionals in a tertiary care centre of Pune city, Maharashtra.

MATERIAL AND METHODS

A cross-sectional study was carried out in tertiary care hospital at Pimpri, Pune, Maharashtra from April 2018 to October 2018. Study participants were physicians working in various departments above the rank of first year junior residents in the same hospital. From previous study it was found that 40.4% participants exhibited good knowledge of JE⁷ considering same proportion calculated Sample size using formula for proportionate sample size with 10% allowable error at 95% confidence interval was 93 (Open epi software). A total of 103 study participants were included. A convenience sampling, method was applied, and participants were approached on a continuous basis until the required sample size achieved. Intern doctors, visiting doctors, and doctors not willing to participate were excluded from the study.

Knowledge and perception about JE were assessed with the help of preformed self-assessment questionnaire from existing literature.⁷ Knowledge assessment: there were total 17 questions to assess knowledge of study participants. Each correct response were given 1 score and wrong response zero score. Knowledge scores ranged from 0–17 and cut off level of <12 considered as poor knowledge and ≥ 12 as good knowledge. Perception questions consisted of 4-point Likert scale of agreement. A score of 1 was given to strongly disagree, 2 to disagree, 3 agree and 4 to strongly agree. The scale measured perception from maximum 52 to minimum 13. Scores of <40 were taken as negative perception, > 40 as positive perception.

Ethical clearance (Ref No. I.E.S.C/C-10/18) was obtained from Institutional Ethical Review Board before the start of the study. Verbal informed consent was obtained from the study participants and confidentiality was maintained.

Data Analysis

Data was entered in Microsoft Excel 2007. The responses of the participants were statistically analyzed using SPSS v.20. Descriptive analysis for categorical and continuous variable was performed. Categorical variable results expressed in frequency (percentages) and continuous variable results expressed in mean & standard deviation (SD) or Median and quartile depending on distribution of variable. Chi-square test was used to check any difference in knowledge and perception in relation to gender, department, designation, and years of experience after MBBS. P-value of less than 0.05 was reported as statistically significant at 95% Confidence interval.

RESULTS

Out of total 103 health care professional interviewed, 57.3% were male and 42.7% female participants. More than half (57.3%) were from clinical departments, and 64.1% were of junior resident of 2nd & 3rd year [Table 1]. Mean years of experience among professionals was 4.17yrs and range 1-40yrs. Based on the total score for knowledge, 68% had good knowledge about disease. About perception scoring 53.4% had positive perception toward disease concerned [table 1]. Surprisingly 25.2% professional responded antibiotics as a first line of treatment for JE and 43.7% responded antiviral drugs are highly effective against JE. Most of them (94.3%) said that precautions need to be taken when dealing with JE patients [Table 2].

Proportionately faculty (75%) had good knowledge of disease compared to resident doctors (60.6%). However, there was no statistically significant difference for knowledge and perception towards JE in relation to gender, designation, years of experience and working department ($P > 0.05$) [Table 4].

DISCUSSION

To the best of our knowledge, this is the first study that has evaluated the knowledge and perceptions of medical practitioners about JE in Maharashtra and India. The results of the study found that the overall knowledge and perception of participants in this study was good, but their knowledge about incubation period, role of antiviral in treating JE and role of antibiotics in treating JE, risk of JE for health worker were not satisfactory. Their knowledge was relatively better for disease transmission, symptoms of JE and vaccines. Similar findings were found when knowledge about JE was evaluated among health caregivers in a study at Shaanxi Province, China and One Indian study.^{7,8} Though Present study includes only medical practioner many were uncertain

about disease epidemiology as they use to handle very few JE cases in the study area.

Regarding JE case management-in spite of fact that JE is a viral disease and there is no role of antibiotics; also, there is no specific antiviral medication available in the treatment of JE⁹ participants showed unsatisfactory knowledge about pharmacotherapy, as one fourth of participants (25.2%) felt that antibiotics are the first line of treatment. These findings indicate the need to take essential measures to bridge this knowledge gap by implementing effective interventions such as intensifying educational programs in the form of continuous medical education activities and webinars, etc., as JE is a life-threatening disease. In educational Programme, there should be a focus on the case management aspect. These strategies were also supported by previous researchers in their report on the knowledge of Ebola virus disease (EVD) among HCWS in 2014.¹⁰

One fifth of participants (19.4%) in this study wrongly answered that JE is not seasonal in its occurrence. This possibly conclude that there was lack of literature reading habit or participation in workshops or symposia by health care professionals.¹¹ Such health care professionals will mislead diagnosis of Acute encephalitic syndrome (AES) and that will be life-threatening to patients and reduced notification of disease burden. Efforts should be made to address this issue by encouraging health professionals to attend and participate in continuous medical education Programme. Impact of continuous medical education Programme results were helpful to improve case management when a research was carried out at the time of swine flu epidemic in Saudi Arabia.¹²

It is noteworthy to mention that experienced senior doctors (faculty) were more knowledgeable as compared to junior ones. The results are in line with another study.¹⁴The possible reason for these findings could be due to administrative positions held by faculty, which allow them to participate in different educational forums, conferences, and discussion panels which may increase the overall knowledge of workers about healthcare issues associated with current epidemics. Our study findings are similar to a report which suggested that experienced workers are more effective in dealing with patients in healthcare settings.¹⁵ Our study suggests that junior doctors should also focus while conducting training and other educational programs to increase their knowledge about JE. There was no difference in relation to gender, pre and paraclinical department and years of experience for perception towards JE. Even perceptions of the resident doctors and faculty didn't show much difference towards JE. Study in north India found that the perceptions of the physicians were more positive as compared to nurses, while older participants also showed positive perceptions towards JE.⁷

In the present study perception concerning management part of disease like serious illness, its risk of transmission among

health care workers, intensive and emergency treatment suggests a wide gap between theory and practical knowledge of managing JE. This gap in practice could be due to no disease burden and management experience by health care professional in the study area. Also, literature showed that there is no occurrence or outbreak of JE or acute encephalitis syndrome since more than a decade in the study area.⁵ As of current training pattern of health care professionals in India, they are graduated differently in different parts of the country about managing various health problems depending on local health needs and resources availability so perception about Japanese encephalitis as a serious problem may not be uniform among them all over country.

Perception towards acknowledging themselves with the information about disease, interventions like mosquito breeding place reduction, community participation, vaccination, and universal standard precaution while handling JE cases was also not satisfactory. These findings suggest that health-care professionals being pillars of the society should equip uniformly throughout the country to combat future outbreaks of JE, which may be an important public health problem due to lack of intervention or manmade activities.⁶ Healthcare professionals are also important source of information to general public to provide counselling, education and prevention measures for diseases so it is need of time to strengthen preventive and curative knowledge of post graduate doctors irrespective of disease burden they are handling in particular geographical area during their training. This finding suggests that there is a need to in cult habit of conducting uniform training of health care professionals through seminar/webinar during disease outbreak in different geographical area. Also, there is a need to promote health research uniformly in India as it may provide important information about disease trends, risk factors, and required public health interventions. Arranging research seminars on outbreak of diseases and other health issues on a regular basis may aid in improving perception. Literature found that participation in research activities may change perception of healthcare workers regarding different disease conditions.¹³

CONCLUSION

Health care professionals have optimized knowledge but not up to the mark. Today's resident doctors are future health care manager, so they should uniformly empower through medical education Programmes like conferences, seminar, and workshop on Japanese encephalitis, epidemiology, management and epidemiological shift in disease patterns. The study has explored an area where much research needs to be done. Additionally, study findings will help the stakeholders in India to design customized interventions to optimize the knowledge and perceptions of Health care professionals towards JE. The present study has some limitations like

small sample size, convenience sampling approach and single-center study, which may not be generalizable to the whole state or country. Our findings address one of the major healthcare problems that may confront India in future. Further studies large size multicentric studies are required to establish these results by including other major referrals hospitals of the affected states of India. Our findings could be a basis for further development of educational campaigns by targeting less knowledgeable areas as highlighted in this study.

Conflict of Interest: No

Source of Funding: Indian Council of Medical Research (ICMR)

Author's contribution:

Dipendra Singh: Conception, data collection and drafting the article

Dr. Jyoti Landge: Data analysis and interpretation, critical revision of article, final approval of the version to be published

ACKNOWLEDGEMENT

Authors acknowledge the immense help received from the scholars whose articles are cited and included in references of this manuscript. The authors are also grateful to authors / editors / publishers of all those articles, journals and books from where the literature for this article has been reviewed and discussed.”

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Table 1: Baseline characteristics of study participants

Characteristics of study participants	Frequency	Percent
Gender		
Female	44	42.7
Male	59	57.3
Dept. Division		
Clinical	59	57.3
Paraclinical	44	42.7
Designation		
Junior Residents(2 nd &3 rd yr)	66	64.1

Table 1: (Continued)

Characteristics of study participants	Frequency	Percent
Faculty	37	35.9
Post MBBS Experience		
Up to 3yrs	63	61.2
3-5Yrs	22	21.4
>5Yrs	18	17.5
Knowledge		
Good	70	68
Poor	33	32
Perception		
Negative	48	46.6
Positive	55	53.4

Table 2: Knowledge about Japanese Encephalitis among study participants

Knowledge about Japanese Encephalitis	Correct Response	Incorrect Response
Have you heard about Japanese encephalitis?	103(100%)	0
JE is caused by	92(89.3%)	11(10.7%)
What is the Mode of transmission of infection?	87(84.5%)	16(15.5%)
What are symptoms of JE?	91(88.3%)	12(11.7%)
What is an Incubation period of JE Virus?	54(52.4%)	49(47.6%)
ELISA is the method of choice for diagnosis of JE provided samples are collected 3-5 days after the infection.	79(76.7%)	24(23.3%)
Is there Risk of JE in healthcare workers	30(29.1%)	73(61.3%)
JE can be fatal?	96(93.2%)	7(6.8%)
JE is endemic to Asian countries?	80(77.7%)	23(22.3%)
Japanese encephalitis is seasonal in its occurrence-	83(80.6%)	20(19.4%)
Japanese encephalitis has a specific treatment therapy	63(61.2%)	40(38.8%)
People in rural agricultural areas are more prone to the JE	80(77.7%)	23(22.3%)
Vaccines are available for prevention of JE	97(94.2%)	6(5.8)
Vaccines are available for prevention of JE in India	88(85.4%)	15(14.6%)
Antibiotics are first-line treatment	77(74.8%)	26(25.2%)
Antivirals are highly effective against JE -	45(43.7%)	58(56.3%)
Knowledge of precautions needs to be taken when dealing with JE patients-	92(89.3)	11(10.7%)

Table 3: Perception about Japanese Encephalitis among study participants

Perception questions	Strongly Agree	Agree	Disagree	Strongly Disagree
JE a serious illness	41(39.8%)	55(53.4%)	4(3.9%)	3(2.9%)
HCWs are at risk of JE	17(16.5%)	56(54.4%)	19(18.4%)	11(10.7%)
JE is a preventable disease	26(25.2%)	53(51.5%)	15(14.6%)	9(8.7%)
Controlling the breeding places of mosquitoes, a good strategy to prevent JE	42(40.7%)	57(55.3%)	4(3.9%)	0
Stagnant water around the houses, broken pots and bottles are breeding places of mosquitoes responsible for JE	31(30.1%)	54(52.4%)	15(14.6%)	3(2.9%)
Communities should actively participate in controlling the vectors of JE	40(38.8%)	60(58.3%)	3(2.9%)	0
Everyone residing in areas with intense JE viral transmission should be vaccinated	36(35%)	55(53.4%)	8(7.8%)	4(3.9%)
Special Caution must be taken when dealing with patients of JE	20(19.4%)	54(52.4%)	20(19.4%)	9(8.7%)
Transmission of JE infection can be prevented by using universal precautions given by CDC, WHO, Government of India etc	26(25.2%)	59(57.3%)	18(17.5%)	0
Prevalence of JE can be reduced by active participation of health care worker in hospital infection control program	24(23.3%)	53(51.5%)	23(22.3%)	3(2.9%)
Intensive and emergency treatment should be given to diagnosed patients	33(32%)	61(59.2%)	6(5.8%)	3(2.9%)
Healthcare workers must acknowledge themselves with all the information about JE	33(32%)	65(63.1%)	5(4.9%)	0
Gowns, gloves, mask and goggles must be used when dealing with JE patients	15(14.5%)	44(42.7%)	31(30.1%)	13(12.6%)

Table 4: Relation between study variables with knowledge and perception of health professionals

Variables	knowledge		p-value	Perception		p-value
	Good	Poor		Positive	Negative	
Gender						
Female	26(59.1%)	18(40.9%)	0.146	23(52.3%)	21(47.7%)	0.998
Male	44(74.6%)	15(25.4%)		32(54.2%)	27(45.8%)	
Dept. Division						
Clinical	40(67.8%)	19(32.2%)	0.863	30(50.8%)	29(49.2%)	0.688
Paraclinical	30(68.2%)	14(31.8%)		25(56.8%)	19(43.2%)	
Designation						
Junior Resident (2&3 rd year)	40(60.6%)	26(39.4%)	0.055	39(59.1%)	27(40.9%)	0.180
Faculty	30(75%)	7(25%)		16(43.2%)	21(56.8%)	
Post MBBS Experience						
Up to 3yrs	38(60.3%)	25(39.7%)	0.292	36(57.1%)	27(42.9%)	0.595
3-5Yrs	17(77.3%)	5(22.7%)		11(50%)	11(50%)	
>5Yrs	13(72.2%)	5(27.8%)		8(44.4%)	10(55.6%)	