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Original Research Article

Communication and awareness on a new vaccine: a cross-sectional study in a tertiary care hospital of West Bengal

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ABSTRACT

Background: Japanese encephalitis (JE) vaccination in India started in 2006 with SA-14-14-2 live attenuated JE vaccine (JEV) following large outbreaks of JE in some districts of Eastern Uttar Pradesh and Bihar in 2005. Age groups 1-15 yrs are first vaccinated with a single dose of JEV in a campaign mode followed by integration of this vaccine in routine immunization. It is beyond doubt that added to vaccination campaigns, proper awareness on JE can play significant role in controlling the disease.
Methods: An observational study with cross sectional design was conducted in Kolkata Medical College and Hospital, Kolkata during JE Vaccination campaign during January, 2018 among 85 respondents, to assess the awareness on JE, among care-givers who brought their children for vaccination at the immunization clinic.
Results: It was found that only 37.6% the respondents attending the campaign knew the name of the disease; 17.6% respondents were aware about disease transmission, and 5.9% could state two or more clinical features that might be associated with Japanese Encephalitis. 69.4% had no knowledge of up to what age JE vaccines can be administered; 23.5% said it can be administered till the beneficiaries attain fifteen years of age.
Conclusions: IEC activities during JE vaccination campaign was not able raise awareness on JE to the desired level. However beneficiaries were informed about service availability and could be mobilised to come for vaccination.

Keywords: Japanese encephalitis, Vaccine-awareness, Vaccination-campaign

INTRODUCTION

Japanese encephalitis (JE), a vector borne viral encephalitis, has been a public health problem in India and the world for long. The case fatality rate (CFR) due to AES/JE in India has been around 17%.[1] JE most commonly occurs in the young (less than fifteen years); however, adults are also affected. It is estimated that in the last sixty years, JE has infected around 10 million children globally, killing 3 million and causing long-term disability in 4 million.[1] JE is widespread in India. It was clinically diagnosed for the first time in 1955 at Vellore (Tamil Nadu). Since then, JE outbreaks have occurred in various parts of India. The first major JE epidemic was reported from the Burdwan and Bankura districts of West Bengal in 1973 followed by another outbreak in 1976.[1] Outbreaks have also been reported from Uttar Pradesh, Assam, Andhra Pradesh, Karnataka, Bihar, Tamil Nadu, Haryana and other states. The Directorate of National Vector Borne Disease Control Programme (NVBDCP) has been monitoring the incidence of JE in India since 1978.[1] Difficulty in recognizing the disease clinically has made it tough to generate adequate JE surveillance data throughout the world. Lack of sufficient laboratory support has also been a problem. In India, till 2005, JE

was reported as suspected JE, but as per the revised guidelines of NVBDCP, JE is being reported under the umbrella of Acute Encephalitis Syndrome[1]. Vector control has been the mainstay of JE control, but it has had a limited impact due to complex epidemiological determinants. A promising preventive tool for control of JE is JE vaccine.[1] Though available since 1941, inadequate production capacity and relatively higher cost made the vaccine unsuitable for mass campaign, especially in the developing nations. In recent times though, both the issues have been addressed to a large extent. JE vaccination in India started in 2006 following large outbreaks of JE in some districts of Eastern Uttar Pradesh and Bihar in 2005[1]. Based on recommendations of the Bi-Regional Consultation on JE (WHO SEA/WPR and PATH, Thailand, March-April 2005), Government of India organized a mass campaign targeting all children in the age group of 1-15 years in both rural and urban areas of the endemic districts. Large vaccination campaigns were carried out in 11 of the highest risk districts of India in 2006, 27 districts in 2007, 22 districts in 2008, and 30 districts in 2009. In these campaigns, beneficiaries (1 to 15 year age) were vaccinated with a single dose of live attenuated SA-14-14-2 JE vaccine (Manufacturer: Chengdu Institute of Biological products Co. Ltd, Sichuan, China).[2] In 2011, the same SA-14-14-2 JE vaccine was introduced in the routine immunization under Universal Immunization Program (UIP) in the 181 endemic districts as a single dose at 16 to 18 months at the time of 1st booster of DTP vaccine. In 2013, another dose of SA-14-14-2 vaccine was added at 9 months of age along with measles vaccine[3]. Recently in 2018, The Uttar Pradesh Government launched the 'Dastak' campaign aiming to immunize every child against JE and AES in all the thirty-eight endemic districts of the state.[4] It is beyond doubt that along with vaccination campaigns, proper awareness about JE can play significant part in controlling the disease. This can result in correct participatory measures taken at the individual, family and community level which play important role in the drive to control JE and other vector borne diseases. The present study was conducted during a JE vaccination campaign in January 2018 at Kolkata. This campaign targeted beneficiaries at government schools and fixed immunization session sites. Intensive background communication strategy was employed during this campaign. As three pillars of successful immunization campaign are technology, logistics and messages, it was objective of the present study to assess the effect of messages on awareness level of beneficiaries. Relationship between JE awareness and socio-demographic variables of the study subjects was also assessed.

METHODS

Present study was an observational study with cross sectional design conducted at the immunisation clinic of Medical College and Hospital, Kolkata. The study duration was of 1 month during the JE vaccination campaign in January, 2018.

All care givers of beneficiaries (1-15 yrs), attending immunisation clinic, those who gave informed consent, were eligible to participate in the study. Inclusion criteria for selection were any person ≥18 yrs of age and caregiver to the JE vaccine recipient. If there were two or more persons accompanying the child, the person identified as primary caregiver was interviewed. Health care staffs, coming for vaccination with their children were excluded as they had alternate channel of information on the disease and vaccine. Total 85 respondents were included in the study by consecutive sampling. A pre designed, pretested, semi structured schedule was used for data collection.

Variables used in the study were demographic variables like respondent's age, sex, education, occupation, income and relation with the beneficiary, knowledge about the disease and vaccine, also satisfaction level of respondents with immunization service. Total period of data collection was one week. Results on continuous measurements are presented on mean±SD and results on categorical measurements are presented as frequency and percentage. Significance was assessed at 5 % level of significance. The Statistical software SPSS 21.0 were used for the analysis of the data and Microsoft Excel has been used for raw data entry. The study was duly cleared by the Institutional Ethical Committee of Medical College Kolkata.

RESULTS

There were 85 respondents included in the study, among whom, 78.8% were females; mean age of the respondents being 32.26±14.92 years. Majority of the respondents were mother to the beneficiaries (71.8%), followed by the fathers (20.0%). 94.1% were found to stay within the limits of the Kolkata city. The mean family income among the respondents was Rs. 10596.47 per month. Most of the respondents (37.6%) had studied to less than primary level; however, 32.9% had studied up to the secondary level. 70.6% were home-makers (Table 1).

As stated earlier, the respondents were interviewed during a JE vaccination campaign at a tertiary care centre. Prior to and during the JE vaccination campaign, extensive communication strategy was adopted. However, it was found that only 37.6% the respondents attending the campaign knew the name of the disease; 17.6% respondents were aware that the disease is transmitted by mosquito bite, and 5.9% could state two or more clinical features that might be associated with JE. 69.4% had no knowledge of up to what age JE vaccines can be administered; 23.5% said it can be administered till the beneficiaries attain fifteen years age. Only 2.4% were aware that JE is a zoonotic disease. Nearly four-fifth of the total respondents (81.2%) had no knowledge regarding prevention of the disease; 18.8% knew that

proper vaccination could prevent the onset of JE. 76.5% were unaware that in severe cases, JE can lead to death of the patient. Among the respondents, 37.6% answered that JE vaccination campaigns are arranged in schools and anganwadi centers as well, while 52.9% of them did not have such knowledge (Table 2).

Table 1: Socio-demographic characteristics of the respondents (n=85).

Criteria	Category	N (%)
Age (completed years)	≤26	23 (27.1)
	27-32	25 (29.4)
	33-36	18 (21.2)
	>36	19 (22.4)
Gender	Male	18 (21.2)
	Female	67 (78.8)
Relation with the beneficiary they accompanied	Father	17 (20.0)
	Mother	61 (71.8)
	Grandparents	2 (2.4)
	Others	5 (5.9)
Place of stay	Kolkata	80 (94.1)
	Outside	5 (5.9)
Educational status	<Primary	32 (37.6)
	Primary	10 (11.8)
	Secondary	28 (32.9)
	Higher Secondary	15 (17.6)
Occupation	Home-maker	60 (70.6)
	Business	5 (5.9)
	Service	9 (10.6)
	Skilled/Unskilled work	11 (12.9)
Monthly family income (Rs.)	≤5000	28 (32.9)
	5001-8000	15 (17.6)
	8001-11500	21 (24.7)
	>11500	21 (24.7)

Table 2: Distribution of the respondents according to their awareness regarding JE (n=85).

Criteria	Category	N (%)
Could name the disease correctly	Yes	32 (37.6)
	No	53 (62.4)
Knew that the disease is transmitted by mosquito bite	Yes	15 (17.6)
	No	70 (82.4)
Could mention at least two features of Japanese Encephalitis	Yes	5 (5.9)
	No	80 (94.1)
Knew that the disease was zoonotic	Yes	2 (2.4)
	No	83 (97.6)
Knew that the disease could be fatal	Yes	20 (23.5)
	No	65 (76.5)
Prevention of the disease	Knew about vaccination	14 (16.5)
	Knew about vaccination and other way(s)	2 (2.4)
	Did not know	69 (81.2)
Age up to which vaccination possible	Up to 5 years	5 (5.9)
	Up to 10 years	1 (1.2)
	Up to 15 years	20 (23.5)
	Did not know	59 (69.4)
Knew of schools and anganwadi centers can be site of vaccination campaign	Yes	32 (37.6)
	No	53 (62.3)

Respondents who gave correct response to all the knowledge related questions were considered to have complete knowledge. Only 5 out of the total 85 respondents (5.9%) had complete knowledge as per criteria set up by the study. This study further explored source of receiving information on JE vaccination campaign. There were multiple channels through which respondents had received information, as presented in Table 3, but commonest were family, friends and neighbours (60%), followed by health workers during an immunisation clinic visit. All the respondents were satisfied with the service of the vaccination centre, as reflected in their exit interview, among them, 58.8% and 41.2% respectively were fully satisfied and moderately satisfied on a 3-point Likert scale. All were satisfied with the behavior of the staffs at the vaccination center; 62.4% being completely satisfied and 37.6% being moderately satisfied on a 3-point Likert scale. All the beneficiaries received correctly and completely filled up immunization certificate after getting immunized. 97.6% of beneficiaries were asked to wait for thirty minutes after the vaccination, to rule out any side-effects. 97.6% of the beneficiaries had received mark on their left thumb as a mark of vaccination.

Table 3: Distribution of respondents according source of information on JE vaccination campaign (n=85, multiple response).

Source of information	N (%)
Mass media	13 (15.29)
Health workers (home visit)	33 (38.82)
Health workers (immunisation clinic)	42 (49.41)
Banners and posters	7(8.24)
Newspaper and leaflets	18 (21.18)
Miking and Jingles	8 (9.41)
Family, friends and neighbours	51(60.00)

Table 4: Association of socio-demographic characteristics of the respondents with their awareness status on JE (n=85).

Criteria		Awareness status		Chi square	P value
		Not complete	Complete		
Age (in years)	≤32	46	2	0.090	0.764
	>32	34	3		
Sex	Male	18	0	0.398	0.528
	Female	62	5		
Place of stay	Kolkata	75	5	0.000	1.000
	Outside	5	0		
Educational status	≤Primary	40	2	0.000	1.000
	>Primary	40	3		
Occupation	Non-wage earner	56	4	0.000	1.000
	Wage earner	24	1		

Table 4 explores association between demographic variables and complete knowledge on JE. Our study showed socio-demographic variables were not associated with knowledge on JE.

DISCUSSION

Introduction of a new vaccine is a challenging task. Successful vaccine introduction requires sound communication strategy besides improved vaccine logistics and vaccine technology. The strategic advisory group on immunisation (SAGE), working group on vaccine hesitancy (WG), concluded in their study that communication was a tool to address vaccine hesitancy and poor communication can result in lower vaccine acceptance in all settings.[5]

In our study, more than 60% of the respondents did not know name of the disease, yet came for vaccination. In fact, the respondents had poor knowledge in all areas related to disease causation, symptom and transmission as well vaccination. This is an example where communication informed about the service but did not result in improved knowledge. This is in agreement with WG observation that success of vaccination campaigns depended on good communication rather than improved knowledge.[5]

When beneficiaries perceive a disease to be severe, vaccination rate against this disease improves.[6] However, in our study only 23% of respondents knew the disease to be fatal, which should shift focus to another strong determinant of vaccination, peer pressure. An epidemiological model shows, vaccine acceptance

improves with peer pressure if vaccines are cheap. In our case, vaccines were provided free and peers were the most common source of information (60%) on the vaccination campaign.[7]

There are very few studies regarding JE vaccine in India. Akram et al in their study at Darrang district of Assam, regarding knowledge and attitude towards Japanese encephalitis concluded that overall, 24.7% participants had good knowledge of JE. The majority of the participants were aware of JE (86.9%), its symptoms (79.3%), and transmission (76.3%), however, their knowledge in areas relating to the management and prevention strategies of JE were only 16.7% and 33.3%, respectively. Our study revealed that only 17.6% were aware of the disease, which is much lower.[8] Due to overall poor knowledge on JE, tests of significance did not show any association between awareness and other demographic variables. In the Darrang study however participants with tertiary education had significantly higher knowledge. These observations call for more careful planning of communication messages.

CONCLUSION

The current study has revealed some novel aspects of JE vaccination campaign and the disease. Communication during vaccination campaign though results in vaccine acceptance may not improve awareness of either the disease or the vaccine. The limitation of the study was small sample size and data collection from a single site. However the study site being a tertiary centre had large beneficiary base. Satisfaction with services of immunization clinic and positive peer effect on vaccine acceptance can be used as drivers for future vaccination campaigns.

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