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Original Research Article

Assessment of knowledge about adverse events following immunization among health care workers of Raipur city

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ABSTRACT

Background: Vaccines used in national immunization programme are extremely safe and effective. Although, no vaccine is 100% safe and effective and adverse effects occurs. Process of immunization itself is potential source of adverse reactions. Knowledge and reporting of adverse events following immunization (AEFI) is very important for health care workers. Objective of this study is to assess knowledge about AEFI among health care workers.
Methods: This cross-sectional study was conducted among health care workers of primary health care centres of Raipur City. All the ANM, Staff Nurse and MPWs posted in all the primary health centers of Raipur city (C.G.) were selected for the study. A pre designed pretested questionnaire was administered after taking verbal consent. Data was collected, compiled and analyzed in MS excel.
Results: A total 157 health care workers participated in study. Mean age of the participants was 36.4±8.8. More than 80% participants knew vaccine product and vaccine quality defect-related reaction as possible causes of AEFI. 87.3% knew about swelling as commonest AFEI. The 59.9% had knowledge about management of common AEFI. 99.3% Health care workers knew anaphylaxis as one of severe AEFI and 91.08% were aware that AEFI should be reported.
Conclusions: Majority of study participants had knowledge about possible causes of AEFI, minor and serious AEFI.

Keywords: AEFI, Immunization, Health care workers, Knowledge

INTRODUCTION

Immunization is an effective measure to protect individual and public from vaccine preventable diseases. Vaccines used in national immunization program are extremely safe and effective. Although, no vaccine is 100% safe and effective and chances of adverse effects are not zero. Immunization is among the most successful and cost-effective public health interventions. It has led to the global eradication of smallpox as well as the elimination of poliomyelitis in regions of the world. Immunization currently averts an estimated 2 to 3 million deaths from diphtheria, tetanus, pertussis (whooping cough), and measles every year in all age groups.[1] Process of immunization itself is potential source of adverse reactions. Increased immunization coverage, mass campaigns and introduction of newer vaccines have increased vaccine use, causes more vaccine reactions and coincidental events. AEFI is untoward medical event following immunization which does not necessarily causal relationship with usage of vaccine. AEFI's has 5 categories: 1. Vaccine product related, 2. Vaccine quality defect-related reaction, 3. Immunization error-related reaction (formerly "program error"), 4. Immunization anxiety-related reaction and 5. Coincidental event.[1]

Health care workers should be well aware about all AEFI and know about importance of timely reporting of AEFIs. Objective of this study was to assess knowledge about AEFI among health care workers of Raipur city (C.G.).

METHODS

The present cross sectional descriptive study was conducted by department of community medicine, Pt. J.N.M. medical college, Raipur (C.G.) on auxiliary nurse midwife, staff nurses and MPW posted in primary health centers of Raipur city (C.G.), during December 2019 to January 2020 included 157 health care workers from all the 18 PHCs of Raipur city (C.G.).

Inclusion criteria

ANM, staff nurse, MPWs who has given consent to participate in the study were included in the study.

Exclusion criteria

ANM, staff nurse, MPWs not given consent and those on maternity or other leave were excluded from the study.

Ethical consideration

Informed verbal consent was taken from the participants.

A pilot study was conducted before starting of final survey. Informed verbal consent was taken from all the health care workers. All ANM, Staff nurse and MPWs, who were present at the time of study were interviewed. Total 157 health care workers interviewed by using a predesigned, pretested questionnaire. Details regarding their socio- demographic characteristics, possible causes, AEFI, management and reporting about AEFI were asked. Data was compiled, checked for its completeness and analyzed in MS Excel.

RESULTS

Total 157 subjects participated in the study, mean age of the participants were 36.4±8.8, with majority were from age group 26-30 years (24.8%) and 94% were females. Among the study participants 66.9% were ANM, 32.5% were Staff nurse and 0.6% were MPW. Majority (59%) were not taken any training on AEFI (Table 1). About knowledge of possible causes of AEFI, more than 80% participants were knowledgeable about vaccine dose, proper storage, route, site of vaccine administration, use of vaccine when there is suspected contamination of vaccine or diluents, use of vaccine which is incorrectly stored but within the period of expiry. The 60.5% health care workers knew patient anxiety is one of the possible causes of AEFI and 70.1% had knowledge of approach such patient (Table 2). 87.3% participants knew swelling as one of the commonest AEFI, while 30.5% knew pain as commonest AEFI. Maximum were aware about systemic AEFI, 98.3% 84.1%, 75.15%, 72.6% fever, myalgia, irritability, malaise respectively. 99.1% HCW knew anaphylaxis as one of serious AEFI, followed by 77.7%, 72.6% hypotensive hyporeactive episode and seizures as another serious AEFI respectively (Table 3). The 91.1% respondents knew AEFI should be reported.

Table 1: Socio demographic profile of study subjects.

Variables	Frequency	Percentage (%)
Age (years)		
21-25	13	8.2
26-30	39	24.8
31-35	33	21
36-40	31	19.7
41-45	17	10.8
46-50	8	5
51-55	10	6.3
56-60	5	3.1
61-65	1	0.6
Mean age	36.4±8.8	
Gender		
Female	148	94
Male	9	6
Designation		
ANM	105	66.87
Staff nurse	51	32.48
MPW	1	0.6
Any training of AEFI		
Yes	65	41
No	92	59
Duration of training taken		
Not taken	92	59
Within 1 year	58	37
>1 year ago	7	4

Table 2: Knowledge about possible causes of AEFI.

Variables	Yes (%)	No (%)	Total
Wrong dose of vaccine given	154 (98.1)	3 (1.9)	157
Injection given at improper site or via improper route	155 (98.7)	2 (1.3)	
Improper sterilization of syringe and needle or site of administration	155 (98.7)	2 (1.3)	
Vaccine reconstitution with improper diluents	128 (81.5)	29 (18.5)	
Wrong amount of diluents	130 (82.8)	27 (17.2)	
Direction for use, particular vaccine not followed	104 (66.2)	53 (33.8)	
Use of vaccine suspected contamination of vaccine or diluents	154 (98.1)	3 (1.9)	
Use of vaccine which is incorrectly stored but within the period of expiry	153 (97.4)	4 (2.6)	
A reconstituted vaccine is used beyond its recommended duration	118 (75.2)	39 (24.8)	
AEFI can occur after immunization but not related to immunization	109 (69.4)	48 (30.6)	
Patient anxiety	95 (60.5)	62 (39.5)	

Table 3: Knowledge about AEFI.

AEFI	Frequency	Percentage (%)
Common		
Pain	48	30.5
Swelling	137	87.3
Redness at the site of injection	22	14
Systemic		
Fever	155	98.7
Myalgia	132	84
Malaise	114	72.6
Irritability	118	75.2
Headache	35	22.3
Loss of appetite	25	15.9
Serious		
Seizures	114	72.6
Persistent and inconsolable screaming	55	35
Anaphylaxis	156	99.4
Hypotensive hyporeactive episode	122	77.7

Table 4: Knowledge about management of common/minor AEFIs.

Management common/minor AEFI	Frequency	Percentage (%)
Paracetamol	94	59.9
Icepack	5	3.2
Paracetamol + Icepack	29	18.5
Nothing	9	5.7
Others	20	12.7
Total	157	100

Table 5: Reporting of AEFI.

AEFI should be reported	Frequency	Percentage (%)
Yes	143	91.1
No	14	8.9
Total	157	100

DISCUSSION

The present study was done with objective to assess the knowledge of health care workers about AEFI in Raipur city (C.G.). There are few studies done about AEFI in India. The health care workers are who are directly involved in delivery of vaccine to the community, it is very crucial for them to have knowledge, management and timely reporting of AEFI. In this study mean age of respondents was 36.4±8.8, and majority of them were females. Majority of the respondents had knowledge about possible causes of AEFI, finding of this study is consistent with findings of study by Saha et al in community health nurses in West Bengal.[2] While in contrary to study done in Africa among health care workers and Gupta et al.[4] In a study by Masika et al, in Kenya using binary logistic regression model, 29.2%, 32.1%, and 45.3% of the respondents had good knowledge, good practices, and good perceptions on AEFI surveillance, respectively.[(5)] Current study shows that more than half of the respondents were not trained for AEFI, this is similar with study done by Yamoah et al, Gupta et al and this finding is opposite to previous studies done by Saha et al and Semere et al.[2-4,6] more than 80% of the healthcare workers knew that fever, myalgia and swelling at injection site were clinical signs and symptoms of AEFI and 99.4% knew anaphylaxis as serious AEFI, this finding is similar to findings of studies in Nigeria Haryana, Lagos.[2,7,8] Over 90% of respondents knew about AEFI should be reported, while study participants have poor knowledge regarding reporting of an AEFI incident.[2] New vaccines have been introduced for the benefits of community, training of health care workers regarding AEFI is vital to make them competent enough for identification and reporting of AEFI for patient safety to make community confident on immunization services provided by government.

CONCLUSION

There was knowledge present regarding possible causes, types and management of AEFI among health care worker, but still there was lack of training, there is need of training and retraining of health care workers to ensure best practices in national immunization programs.

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