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ORIGINAL ARTICLE

ADVERSE REACTIONS FOLLOWING INFLUENZA VACCINATION AMONG HEALTH CARE PERSONNEL AT GOVT. MEDICAL COLLEGE, MIRAJ – A LONGITUDINAL STUDY

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ABSTRACT

Influenza continues to be a significant cause of morbidity and mortality globally. Health Care Personnel (HCP), the backbone of health care delivery system, have been identified as an important source of influenza for patients. Vaccination is a useful but underused means of preventing the illness and death associated with Influenza and the coverage is lower than expected among HCP. So, a longitudinal study to assess the frequency and pattern of adverse reactions following influenza vaccination among 130 HCP , participating voluntarily, was carried out at Govt. Medical College, Miraj and they were followed for the period of one year.71.5% of the study subjects had taken nasal type of vaccine . The overall incidence of adverse reactions after vaccination was 40%, commonly during first 3 days, with declining frequency over 1 week and the reactions were mild. None of the vaccinees reported severe adverse reactions.

Key Words: Influenza Vaccination, Health Care personnel, adverse reactions

INTRODUCTION

A novel influenza A H1NI virus, quite different from the circulating seasonal influenza viruses which got noticed in Mexico in April ,2009, spreaded fast across the globe during 2009-10.On 11th June,2009, WHO declared this a pandemic. It affected over 200 countries globally including India. Number of affected countries & human cases with influenza A virus claiming their lives are increasing rapidly. [1] The majority of the human population has no immunity to this virus. Health Care Personnel (HCP) [2] can acquire influenza from patients or transmit influenza to patients and other staff.[2] One important prevention strategy is vaccinating "at risk population" with Influenza Vaccine. Despite the documented benefits of vaccination, the coverage is lower than expected among HCP.[2,3]

Influenza vaccination programs for hospital workers have not met wide acceptance[4].The plan to introduce such a program is likely to be questioned about the adverse reactions to the vaccine.[3]

MATERIAL AND METHODS

Study type – Longitudinal study. Study period: Aug 2010 to July 2011. Sample size: A total of 130 HCP[2] which included Doctors, Nurses, Professions allied to medicine (PAMs) [5](Radiographers, dieticians, lab technicians), students etc working in Govt. Medical College and Hospital (Miraj & Sangli) who had taken influenza vaccine either live attenuated

Nasovac, manufactured by Serum Institute of India, Pune or killed Injectable vaccine, Panenza , a split virus inactivated, non adjuvanted, monovalent vaccine, voluntarily at either Miraj or Sangli hospital were followed for the period of 1 year from the day of vaccination without any drop outs. The relevant information was recorded in the predesigned, pretested proforma after informed consent. They were followed daily for the first week and then weekly up to 30 days and then monthly for further 11 months. Individuals were advised to report any reactions telephonically or verbally in between the visit. Those vaccinees who had reported side reactions during the follow up were visited, referred to physician, treated symptomatically and monitored. The data was analyzed by chi square test & standard error of difference between two proportions using SPSS software.

RESULTS

Out of total 130 HCP vaccinated 56(43%) were doctors (Table: 1). Mean age group was 33.8 ± 10.2 years. Males and females were in the ratio of 0.83:1 (Table: 1).

Table1: Gender wise Distribution of the study subjects taking vaccine (n=130)

Group	Male	Female	Total (%)
Doctors	33	23	56 (43.0)
Nurses	05	40	45(34.6)
PAMs	08	05	13(10.0)
Students	11	01	12(9.2)
Others	02	02	4(3.2)
Total	59(45.3)	71(54.7)	130(100.0)

71.5% study subjects had taken nasal type of vaccine and rest 28.5% took injectable vaccine (Table: 2).The overall incidence of side reactions following vaccination was 40% (52/130) (Table: 2). The incidence of adverse reactions reported were 43.01% with nasal and 32.4% with injectable vaccine. No significant difference was observed between adverse reactions following nasal and injectable vaccine (Table 2).

It was observed that single reaction was common over multiple reactions in those vaccinees in which adverse reactions were present. This was found to be statistically significant. (Table: 3).

Table 2: Comparison of adverse reactions following nasal and injectable vaccination among the study subjects

Type of vaccine	Adverse Reactions		Total (%)
	Present (%)	Absent (%)	
Nasovac	40 (43.01)	53 (56.9)	93 (71.5)
Injectable	12 (32.4)	25 (67.6)	37 (28.5)
Total	52 (40.0)	78 (60.0)	130 (100)

X^2=1.22, df =1, Not Significant.

Table 3: Comparison of single and multiple adverse reactions in those study subjects

Vaccine	Adverse reactions (%)		Total (%)
	Single reaction	Multiple reactions	
Nasal	36(90.0)	4(10.0)	40(76.9)
Injectable	11(91.6)	1(8.4)	12(23.1)
Total	47(90.4)	5(9.6)	52(100.0)

SE (p1-p2) = 13.85, Z=5.83, P<0.5, Significant.

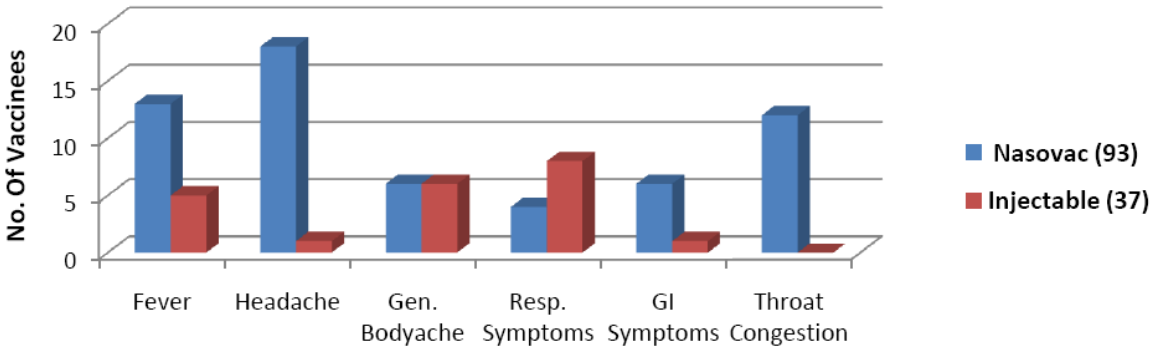

Figure 1: Various Adverse Reactions seen in vaccinees

Most of the systemic reactions were mild and were observed during first 3 days following vaccination with declining frequency over 1 week in both the types of vaccination. There

were no reactions observed after 7 days in both the vaccine (Table: 4). It was found to be statistically significant (Table: 5). X^2=1.22, df =1, Not Significant. (* - Figures in parenthesis are %).

Headache was the most common adverse reaction observed in study subjects who had taken nasal vaccine while nasal congestion was most commonly found in injectable vaccinees. The other mild systemic reactions observed were fever, generalized body ache, Respiratory symptoms(cough, running nose, nasal congestion), Gastrointestinal symptoms(nausea, mild diarrhoea, cramps), sore throat , throat congestion etc.

In the present study, none of the study subjects had presented with local reactions at the injection site in the form of soreness or pain or swelling and none of them had severe adverse reactions after vaccination.

Table 4: Day wise occurrence of adverse reactions in all the study subjects

Day of Reaction	Individuals having Adverse reactions		Total (n=130)
	Nasovac vaccinees	Injectable vaccinees	
Day 0	14	7	21
Day 1	18	6	24
Day 2	10	3	13
Day 3	8	2	10
Day 4	5	2	7
Day 5	2	0	2
Day 6	0	1	1
Day 7	2	0	2
Day 8	0	0	0
Day 9 - Upto 1 year	0	0	0

Table 5: Time distribution of adverse reactions following vaccination in study subjects

Day Of reaction	Type of Vaccine (%)		Total (%)
	Nasal	Injectable	
Upto 3rd day	34(82.9)	7(17.1)	41(78.8)
4th day – 7th day	6(81.8)	5(18.2)	11(21.2)
8th day-upto 1 yr	0 (0.00)	0(0.00)	0(0.00)
Total	40(76.9)	12(23.1)	52(100)

Yates Correction applied, X^2=3.93, df =1, P< 0.05, Significant. (* - Figures in parenthesis are %).

DISCUSSION

In the present study, uptake of the influenza vaccine is found to be quite low which is consistent with the previous other study findings .[6]Among HCP who denied vaccination, majority reported fear of adverse reactions and also expressed doubts regarding efficacy of the vaccine. The findings of this study also show that both the types of vaccine are associated with adverse reactions, being more with nasal type. Similar observations were made in various other studies.[7,8] The rate of adverse reactions was somewhat more as compared to other studies which can be attributed to the other coincidental intercurrent illnesses which cannot be differentiated from the adverse reactions and also perhaps HCP are overanxious than other recipients and are more apt to report them when invited to do so.

CONCLUSIONS

Vaccination by both the types of vaccine is associated with mild adverse reactions during first 3 days and no serious/severe adverse reaction is found with any of the vaccine types even at the end of 1 year follow up. The uptake of influenza vaccine is found to be poor among HCP.

LIMITATIONS

1. As the uptake of both the types of vaccine was poor, our sample size was small.
2. There was lack of current Indian references relating to our study.
3. We do not have satisfactory comparative results with Indian population available with us.

RECOMMENDATIONS

1. Influenza vaccination should be made mandatory for HCP as a professional obligation as scientific, ethical and legal justifications support it.
2. Efforts are needed to promote vaccination among HCP and to understand their attitude/ beliefs regarding vaccination. Rumors and fear must not be a barrier in the process of promoting individual safety.
3. Proper planning by the health care institutes to improve the acceptability of vaccine is needed.

4. Tertiary care centre should make influenza vaccination as an additional Hospital policy.
5. Institutional Educational campaigns should be organized to promote the need for vaccination.
6. Vaccine must be made readily available to HCP and they must be educated about the safety and effectiveness of the vaccine.
7. Similar types of studies must be promoted taking large sample size.

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