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Influenza vaccination in north Indian patients with heart failure

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ABSTRACT

Background: No data exists regarding the uptake of influenza vaccination in patients with heart failure (HF) in India. The present study was designed to assess the uptake, knowledge, attitude and practices of the Indian HF patients towards influenza vaccination.

Methods and results: Five-hundred patients with acute/chronic HF were approached for a personal interview and responses to an interview recorded in a pre-defined questionnaire depicting their knowledge, attitudes and practice regarding influenza vaccination. Of the 500 approached, 320 (64%, 174 male, age 3–90 years) consented to participate in the survey. Only 7.5% ($n = 24$) knew of influenza as an illness with adverse potential consequences for themselves or their family. Seventeen (5.3%) were aware of potentially serious nature of influenza and 40 (12.5%) knew of the availability of a vaccine against it and its local availability. However only 14 (4.4%) had actually received the vaccine 1–2 times in the past 5 years. Only 21 (6.56%) had been prescribed influenza vaccine by their respective physicians. Reasons for declining vaccination included misperceptions about safety and efficacy of the vaccine. Most of the participants, however, had not been prescribed vaccination at all.

Conclusions: Poor influenza vaccination rates in HF mandate intense efforts to improve vaccination rates.

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1. Introduction

Influenza is a major cause of morbidity and mortality in high risk populations like those with chronic medical conditions.^{1,2} Patients with heart failure (HF) are at a higher risk of hospitalization in the influenza season compared to the non-influenza season^{3,4} with winter peaking of the cardiovascular events being attributed to the influenza viral infection as against the earlier attribution to cold weather.⁵ Of adults hospitalized during the 2013–2014 influenza season, the most commonly-occurring chronic condition was heart disease, found in 37% of these.⁶

The European Society of Cardiology has recommended influenza vaccination and included it in the treatment guidelines for acute and chronic HF as an essential topic of patient education.⁷ Annual vaccination has been recommended by the American Heart Association and the American College of Cardiology since 2006, as a secondary preventive measure for cardiovascular morbidity and all-cause mortality.⁷ However the rate of influenza vaccination in patients with cardiovascular disease (CVD) is very low, and even lower in those with long-term disease.^{8,9} Only 1 in every 3 adults

with heart disease in USA (34%) received influenza vaccination in 2010, a level of coverage that was essentially unchanged from other below-target rates achieved in 2002.¹⁰ In 2005, vaccination coverage among elderly in USA (65 years old) with heart disease was found to be much higher (71%) than among middle-aged (50–64 years old) and younger (18–49 years old) adults with heart disease (41% and 23%, respectively).¹⁰ A major roadblock to vaccination against influenza in the US is that only about one half of cardiology practices in USA stock influenza vaccine, as opposed to 70% of endocrinology and primary care practices and 90% of pulmonology practices.^{11,12}

There is a paucity of literature on the uptake of influenza vaccination in the Indian subcontinent in high risk groups and no data are available on patients with HF. We have previously reported that healthcare workers (HCWs) have a number of misperceptions about influenza vaccination¹³ and their prescribing practices to high risk groups like diabetics,¹⁴ pregnant females,¹⁵ and COPD patients¹⁶ are inadequate. The present study has been designed to study the uptake of influenza vaccine among patients with HF, as also assess their knowledge and attitudes towards influenza vaccination.

2. Methods

The study was conducted in a tertiary care hospital in north India, where seasonal influenza has been reported with a

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temperate seasonality, from October 2013 to June 2015. Based on an assumed true proportion of 10% of an infinite population, a precision of +0.05 and a confidence level of 0.95, the sample size arrived at was 139. We randomly screened 500 patients diagnosed with HF (acute/chronic), of whom 320 (64%) consented for participation. The participants were interviewed and the responses recorded in a predefined and validated questionnaire. The questionnaire (Table 1) consisted of 21 questions which included demographic information, knowledge, attitudes and practices regarding influenza vaccination and perceptions about influenza. Responses were also requested about vaccination site and information that the participants desired about influenza vaccination and their preferred mode of reaching out to them. The questionnaire was administered by one of the investigators who are working in the Influenza laboratory of the hospital and apart from having participated in similar surveys previously were trained specifically for the study. They spoke the same dialect as that of the participating patients. The responses recorded were analyzed using descriptive statistics of the recorded variables (Statistical Package for Social Sciences, version 17). Informed consent was obtained from all participants and the survey was approved by the Institute Ethics Committee.

3. Results

The 320 consenting participants consisted of 146 male and 174 female patients, either currently admitted with HF or seen during a post-discharge follow-up visit. The age of the patients ranged from 3 years to 90 years; 60% ($n = 191$) being ≥ 60 years. Only 3 (0.93%) patients were younger than 18 years of age whereas 26 (8.12%) belonged to the 18–39 year age group and 100 (31.25%) to the 40–59 year group. Two-hundred forty-six patients were from rural setting whereas the rest were from urban setting. Various co-morbidities included COPD ($n = 87$, 27.2%), hypertension ($n = 54$, 16.9%), community-acquired pneumonia (CAP) ($n = 35$, 10.9%), type 2 diabetes mellitus ($n = 39$, 12.2%), and dilated cardiomyopathy ($n = 13$, 4.1%).

Only 7.5% ($n = 24$) of the participants considered influenza as an illness with adverse potential consequences for themselves or their family. Seventeen (5.3%) were aware of its potentially serious nature and 40 (12.5%) knew of the availability of a vaccine against influenza and its local availability. However only 14 (4.4%) had received the vaccine 1–2 times in the past 5 years, >70% of those vaccinated being >60 years of age (Table 2). None of the participants aged <40 years had received the vaccine twenty-one (6.56%) of the participants had been prescribed influenza vaccine by their respective physicians but only 14 complied receiving the vaccine in hospitals 4(28.57%), private clinics 6 (42.85%) or through family doctors 4 (28.57%). The 7 declining vaccination despite prescription possessed concerns about vaccine safety, believing it to be capable of causing immune and other system disorders. Others who did not receive vaccination were not aware of the seriousness of influenza and some responded that they did not have time for vaccination. However, most ($n = 292$) of the patients had not been advised vaccination by their respective physicians.

The participants expressed a desire for convenient dissemination of information regarding various aspects of influenza vaccination including current year's vaccine, difference between common cold and flu, safety and adverse effects of vaccination. Most of them desired that the information be circulated through various means of technology ranging from radio (41.87%), SMS via mobile phones (26.25%), print newsletter (24.68%) or electronic mail (7.18%).

Table 1
Questionnaire for Survey of Influenza vaccination in CCF.

1. Patient identifier: #.....
2. Residence:..... (R/U)
3. Age :.....yrs
4. Sex : M/F
5. Occupation :.....
6. Monthly income from all sources.....
7. Educational status:
 - a. Uneducated
 - b. Primary level education
 - c. Secondary level education
 - d. Graduate level education
 - e. Professional level
8. Diagnosis:
9. Duration of Disease:
10. Number of previous hospitalizations:
11. Do you have knowledge of potential health consequences of influenza for yourself & your family? Yes / No
12. Do you consider influenza considered as a potentially severe disease? Yes / No
13. Do you know of a vaccine is available? Yes / No
14. Has your doctor told you a requirement of vaccine? Yes / No
15. Have you ever had influenza vaccine in last 5 years? Yes / No
16. If you have received influenza-vaccine before, where so you usually obtain the shot?
 - a. Family Doctor
 - b. Hospital
 - c. Private Clinic
 - d. Other
17. If a doctor told you to get vaccinated. Why did you not get the shot?
 - a. Didn't have time for vaccine.
 - b. Vaccine weakens immune system.
 - c. Vaccines are made & driven for profit.
 - d. I don't get flu.
 - e. I don't think influenza is a serious illness.
 - f. I can't afford the vaccine.
 - g. Others (specify).....
18. Do you consider influenza vaccine to be safe?.....Yes/No
19. If you consider the vaccine to be unsafe, why do you consider it to be so:
 - a. It can harm my immune system
 - b. It can worsen my disease
 - c. It can harm my joints
 - d. A physician told me that it is unsafe
 - e. I know of patient who got sick after vaccination.
 - f. Other (specify).....
20. What type of information would be the most important for you to receive about the influenza prevent on program?
 - a. Details regarding current year's vaccine.
 - b. Difference between common cold and flu
 - c. Influenza outbreak information
 - d. Information about effectiveness of vaccine
 - e. Commonly expected side effects of vaccine
 - f. Information about safety of vaccine
 - g. Information about seriousness of influenza
 - h. Other (Please Specify).....
21. What is the best way to read you with information about influenza vaccine?
 - a. E-mail
 - b. Newsletter
 - c. Mobile phones
 - d. Any Other (Please Specify).....

4. Discussion

Our data suggest a poor vaccination uptake in Indian patients with HF. The study, to the best of our knowledge, is the first study that addresses this aspect of patients with HF in the Indian subcontinent. The practices of the physicians and the patients across other areas of the subcontinent need to be studied in order to ascertain if the data are extrapolatable to other areas of the subcontinent.

Most of the vaccinated participants in the current study were aged 60 years or above (Table 2). A higher vaccination uptake has

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