ORIGINAL ARTICLE

A SHORT SURVEY ABOUT AWARENESS OF INFLUENZA VACCINATION AMONG PATIENTS WITH HEART FAILURE IN A TERTIARY CARE HOSPITAL OF PAKISTAN

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Objectives: The objective of this survey was to highlight whether influenza vaccination was advised or not in patients with heart failure. Whether heart failure patients are aware of its significance or not, and more importantly they are getting vaccinated or not.

Methodology: This descriptive short survey was conducted at heart failure clinic of a tertiary care cardiac center. Consecutive patients of heart failure with reduced ejection fraction (HFrEF) were interviewed regarding awareness and significance of influenza vaccination. Survey was conducted using a structured questionnaire with specific sections pertinent to the demographic details of the participants, clinical history of heart failure and hospitalizations, co-morbid conditions, and awareness and adherence to the influenza vaccination.

Results: A total of 60 patients with HFrEF participated in this survey, 71.7% (43) of which were male, overall mean age was 56.82 ± 11.78 years, and mean duration since diagnosis of HFrEF was 3.88 ± 3.66 years. Only 15% (9) of the participants were aware of influenza vaccination, 18.3% (11) recall being advised by the medical officer, and 11.7% (7) received these vaccinations.

Conclusion: Influenza vaccination rate in patients with heart failure in Pakistan population is very low. The primary reason is inadequate prescription practice by physicians and lack of adequate awareness. Need of time is to emphasis health care provider to prescribe and encourage their patients with heart failure to receive influenza vaccine and to make it accessible.

Keywords: heart failure, HFrEF, influenza, vaccination, awareness, Pakistan

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INTRODUCTION

Influenza is a serious infectious viral illness. The types of influenza viruses are categorized in type A, B and C. Type A influenza virus cause moderate to severe illness in different age group population and it can infect other animals as well as human being. Type B influenza virus usually affects children and its illness is milder than type A. Type C does not cause epidemic illness and is usually subclinical.[1] Influenza infection affects worldwide population and its peak comes in winter causing around annually 500,000 deaths worldwide.[2,3] Usually the illness is self-limiting.[4] Studies reported a large number of mortalities in patients with cardiovascular diseases having influenza virus infection.[5,6] Cardiovascular events which are aggravated by influenza infection can be reduced by influenza vaccination.[7-9] Influenza virus infection is very dangerous for heart failure patients.[10] There is a decreased circulatory reserve in patients with heart failure.[11] As a result mismatch develops between decreased circulatory reserve and increased metabolic demand caused by the infection. This may result in exacerbation or decompensation of heart failure. The European Society of Cardiology (ESC) and the American College of Cardiology/American Heart Associationn (AHA/ACC) encourage influenza vaccination in heart failure patients annually but, still no class of recommendation or level of evidence is given in the heart failure guidelines, for influenza vaccination for heart failure patients because there is no sufficient evidence.[12-14] Although a few studies have shown that influenza vaccination improved outcome in patients with heart failure,[15,16] still randomized controlled trials failed to establish significant outcome of receiving influenza vaccine among heart failure patients. If we consider that influenza vaccination significantly improves outcomes among the patients with heart failure, we should give more emphasis in our daily clinical practice for awareness and adherence to the influenza vaccination for the patients with heart failure. Here, our aim was to highlight whether influenza vaccination was advised or not in patients with heart failure. Whether heart failure patients are aware of its significance or not, and more importantly they are

getting vaccinated or not. And what is the outcome of influenza vaccine in the patients with heart failure in term of their morbidity.

METHODOLOGY

This descriptive short survey was conducted at heart failure clinic of a tertiary care cardiac center namely the National Institute of Cardiovascular Diseases (NICVD), Karachi, Pakistan between December 2019 and May 2020. Consecutive patients of heart failure with reduced ejection fraction (HFrEF) were interviewed regarding awareness and significance of influenza vaccination. Study was approved by the ethical review board of NICVD (ERC-02/2022). Informed consent was obtained and patients who refused to participate in the survey were excluded.

Inclusion criteria for the survey were, adult patients of either gender between 25 and 85 years of age, with the diagnosis of HF with or without underlying ischemic heart diseases, and ejection fraction (EF) <40%. Patients with EF ≥ 40% and patients with any life-threatening chronic illness such as malignancy, chronic renal failure, stroke, chronic respiratory infection, patients with recent history of cardiac valvular surgery were excluded from this survey. HF was defined based on clinical examination (shortness of breath, respiratory tract infection, or pulmonary edema) and echocardiography (EF<40%).

Survey was conducted using a structured questionnaire with specific sections pertinent to the demographic details of the participants, clinical history of heart failure and hospitalizations, co-morbid conditions, and awareness and adherence to the influenza vaccination.

IBM SPSS version 21 was used for the analysis of collected data. Mean ± standard deviation (SD) and frequency (%) were calculated as descriptive statistics for the continuous and categorical variables.

RESULTS

A total of 60 patients with HFrEF participated in this survey, 71.7% (43) of which were male, overall mean age was 56.82 ± 11.78 years, and mean duration since diagnosis of HFrEF was 3.88 ± 3.66. Mean number of hospital admissions or ER visits were 3.67 ± 3.49 after the diagnosis of HFrEF, with respiratory tract infection as a most common cause observed in 51.7% (31) followed by acute coronary syndrome (35%), fluid overload (13.3%), and drug non-compliance (13.3%). Only 15% (9) of the participants were aware of influenza vaccination, 18.3% (11) recall being advised by the medical officer, and 11.7% (7) received these vaccinations (Table 1).

Table 1: Demographic distribution, clinical history, and awareness of influenza vaccination among study participants

Characteristics	Total
Total (N)	**60**
Gender	
Male	71.7% (43)
Female	28.3% (17)
Age (years)	56.82 ± 11.78
Weight (kg)	66.55 ± 11.17
Co-morbid conditions	
Diabetic mellitus	61.7% (37)
Hypertension	75% (45)
Dylslipidemia	35% (21)
Smoking	36.7% (22)
Duration since HF/IHD (years)	3.88 ± 3.66
Diagnosed case of IHD	91.7% (55)
Number of hospital admission or ER arrival after the diagnosis	3.67 ± 3.49
Cause of the admission	
ACS	35% (21)
Dyspnea	1.7% (1)
Respiratory tract infection	51.7% (31)
Fluid overload	13.3% (8)
VT storm	1.7% (1)
Arrhythmia	1.7% (1)
Non-compliance to medicine	13.3% (8)
Compliant to medication for IHD or heart failure	75% (45)
Non-affordability of medication for IHD or heart failure	26.7% (16)
Awareness of influenza vaccination	15% (9)
Previously advised by the medical officer	18.3% (11)
Did the patient receive these	11.7% (7)

IHD=ischemic heart diseases, ER=emergency room

DISCUSSION

Despite positive output and benefits and strong suggestions from American Heart Association encouraging influenza vaccination for heart failure patients, vaccination rate is very low in the Pakistan population, in our small population survey regarding awareness and adherence to the influenza vaccine in the patients with heart failure, we found many contributing factors responsible for this low rate of vaccination. Low vaccination rates among Asians may be due to multiple contributing factors like low socioeconomic status, inadequate resources and health facilities and priorities,[17-19] cost of the vaccine, reduced accessibility to the vaccine, lack of knowledge about the benefits of the vaccine, lack of organized vaccination programs for the patients with cardiovascular diseases specially heart failure, misconcept that this vaccine is harmful to the health that it may cause influenza infection or its ingredients are nor safe, or it has severe side effects.[20-22] In our small survey on the patients with heart failure, main cause for low influenza vaccine rate was lack of awareness regarding influenza vaccine in the patients with heart failure. Only 9% patients had awareness regarding influenza vaccine benefits for the patients

with heart failure and from this 9% population, only 7% received influenza vaccine that is very low vaccination rate. Among the patients who had awareness regarding influenza vaccine but they didn't receive the vaccine, the most important cause was affordability and cost of the vaccine. Surprisingly most important cause of readmission and hospitalization among these patients was respiratory tract infection that was 51%. A similar study was conducted in north India[23] which results showed only 5.3% patients were aware of its serious illness, 12.5% were aware of vaccines availability. 7.5% patients considered influenza is an illness, 6.56% had been prescribed influenza vaccine by their physician. In that study most of the patients [60%] were old age that is more than 60 years old. Data for Pakistani population with regards to the prescription, awareness, and uptake of influenza vaccine by HF patients is mainly scarce. Only study we come across in recent years is by Shah SD et al.[24], which showed sub-optimal update of influenza vaccination in patients with cardiovascular diseases and HF. Low update was reported to be driven by the low prescription rate by physicians coupled with lack of knowledge at the patient end. There observations were re-enforced by findings of our current survey.

Limited sample size and single tertiary care hospital coverage were the two main limitation of the current survey. Multicenter large scale studies are warranted to estimate the national level picture of the current issue. In our day to day clinical practice, emphasize has to be made regarding counseling of patients regarding importance of influenza vaccination.

CONCLUSION

Influenza vaccination rate in patients with heart failure in Pakistan population is very low. The primary reason is inadequate prescription practice by physicians and lack of adequate health care structure and vaccination facilities. Need of time is to emphasis health care provider to prescribe and encourage their patients with heart failure to receive influenza vaccine and to make it accessible.

AUTHORS' CONTRIBUTION

RR, SMA, TA and MNK: Concept and design, data acquisition, interpretation, drafting, final approval, and agree to be accountable for all aspects of the work. RR, SMA, TA, and MNK: Data acquisition, interpretation, drafting, final approval and agree to be accountable for all aspects of the work.

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