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Integration of StopHF Model in Primary Healthcare System In Pakistan

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Abstract

Pakistani healthcare system consist of rural health centre (RHC), basic health unit (BHU) connected to district headquarter hospital which offer specialist services. RHC and BHU form the basis of primary care in Pakistan. There is another parallel private healthcare system which serve 70% of the population. Due to lack of facilities in primary healthcare system most of the population attends private healthcare.

Private healthcare system serves 70% of the general population in Pakistan and most of the patients would prefer to attend private clinic and private hospitals for minor or major illnesses. These private clinic also serve a major part in primary prevention and management of cardiovascular diseases. Primary prevention plays an important role in management of cardiovascular disease.

In STOP-HF "first-of-its-type" research study, the investigators recruited 1374 individuals with cardiovascular risk factors from a nurse-lead healthcare cardiovascular screening program in the catchment area of St. Vincent's University Hospital, Dublin, Ireland, between January 2005 to December 2009. This study demonstrated reduction in adverse cardiovascular events using BNP guided risk stratification of patients with cardiovascular risk factors.

STOP-HF offers an excellent design to the global community on how to incorporate simple screening testing with secondary and tertiary healthcare system. Pakistani healthcare system can utilise STOP-HF model for the management of cardiovascular risk factor using BNP testing for identifying high risk population and early diagnosis and management of heart failure.

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Abbreviations

RHC: Rural Health Centre

BHU: Basic Health Unit

STOP-HF: St.Vincent's Screening to Prevent Heart Failure

HF: Heart Failure

BNP: brain natriuretic peptide

Introduction

Pakistani healthcare system consist of rural health centre (RHC), basic health unit (BHU) connected to district headquarter hospital which offer specialist services. RHC and BHU form the basis of primary care in Pakistan [1]. There is another parallel private healthcare system which serve 70% of the population. Due to lack of facilities in primary healthcare system most of the population attend private healthcare. This private healthcare system consists of private clinics and private hospitals which provides modern healthcare facilities to the general population. The general population can easily access to the best of the health facilities in a very short time. These private clinics are linked to private diagnostic centres which provides modern diagnostic services to the patients attending private clinics. These private clinics are run by the medical officers and medical specialists who works in the tertiary care hospitals.

This private healthcare system serve 70% of the general population in Pakistan and most of the patients would prefer to attend private clinic and private hospitals for minor or major illnesses. A patient attending cardiology private clinic would be seen by a cardiologist within a week and patient would get an electrocardiography, routine blood tests, echocardiography and troponin tests on the same day. If there is any concerns about any of the above tests, patient would be referred to tertiary care hospital for further management.

These private clinic also serve a major part in primary prevention and management of cardiovascular diseases. Primary prevention plays an important role in management of cardiovascular disease. Cardiovascular diseases has been a major cause of mortality and morbidity across the word and mainly in the developing world. The St. Vincent's Screening TO Prevent Heart Failure (STOP-HF) study used brain natriuretic peptide (BNP) as a screening tool for HF in at risk population in reducing new onset of heart failure. This model uses a very simple protocol and can be applied and integrated into Pakistani healthcare system at primary care level.

StopHF Study

In this "first-of-its-type" research study, the investigators recruited 1374 individuals with cardiovascular risk factors from a nurse-lead healthcare cardiovascular screening program in the catchment area of St. Vincent's University Hospital, Dublin, Ireland, between January 2005 to December 2009.The inclusion criteria were age more than 40 and with a background history of one or more cardiovascular risk factors such as hypertension, diabetes mellitus, obesity, vascular disease, arrythmias, moderate to severe valvular disease. Exclusion criteria was refusal to consent, established evidence of LV dysfunction, symptomatic heart failure, or a diagnosis compromising survival over the study period.

The participant were randomly assigned to usual primary care management (control group, n=677) or screening with BNP testing (n=697). Study period was from January 2005 to December 2011 (mean follow up, 4.2 years [SD, 1.2 years]. Intervention group with BNP level more than 50 underwent echocardiography and collaborative management between their primary care physician and specialist cardiovascular service. The primary end point was prevalence of asymptomatic left ventricular dysfunction with or without new diagnosis of heart failure. As a result of slower recruitment rate, the investigators prolonged the research duration and redefined the primary end point to include substantial LV diastolic dysfunctions as identified by a ratio of peak velocity mitral peak velocity of early filling (E) to early diastolic mitral annular velocity (E') greater than 15. Secondary end points included emergency hospitalization for arrhythmia, transient ischemic attack, stroke, myocardial infarction, peripheral or pulmonary thrombosis/embolus, or heart failure. The inclusion of asymptomatic LV systolic dysfunction or substantial diastolic disorder as a component of the key endpoint mirror the enhanced risk status of these abnormalities.

An overall of 263 patients (41.6%) in the treatment group had at the very least 1 BNP reading of 50 pg/mL or higher. Of the risk factors consisted of in the study, this finding was consistent with the increasing age of the population. As expected, the treatment group undertook more cardiovascular investigations and received more renin-angiotensin-aldosterone system based therapy at follow-up. The main end point of left ventricular disorder with or without HF was met in 59 patients (8.7%) in the control group and also 37 patients (5.3%) in the treatment group (odd ratio [OR], 0.55; 95% CI, 0.37-- 0.82; P=0.003). Asymptomatic LV dysfunction was discovered in 45 (6.6%) of 677 control-group people as well as 30 (4.3%) of 697 intervention-group individuals (OR, 0.57; 95% CI, 0.37-- 0.88; P=0.01). HF occured in 14 (2.1%) of 677 control-group individuals and 7 (1.0%) of 697 intervention-group individuals (OR, 0.48; 95% CI, 0.20-- 1.20; P=0.12). The incidence rates of emergency hospitalization for major cardiovascular events were 40.4 per 1000 patient-years in the control group versus 22.3 per 1000 patient-years in the treatment group (incidence rate ratio, 0.60; 95% CI, 0.45-- 0.81; P=0.002) [2].

STOP-HF offers an excellent design to the global community on how to incorporate simple screening testing with secondary and tertiary healthcare system [3]. This study demonstrated reduction in adverse cardiovascular events using BNP guided risk stratification of patients with cardiovascular risk factors. Pakistani healthcare system can utilise STOP-HF model for the management of cardiovascular risk factor using BNP testing for identifying high risk population and early diagnosis and management of heart failure. Utilizing this model will need a strong will from healthcare community as well as from political community. The government will need to make guidelines and policies to support healthcare community in implementing this model.

Conflicts of Interest

None declared.

References

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