

Heart Failure – A Public Health Issue in Oman: Would Heart Failure Program be Cost Effective?

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Abstract This review article explores the complexity and importance of heart failure globally as well locally. We attempted to study the current situation of heart failure in Oman by using very limited data from the Ministry of Health annual health report. This data were concentrating mainly on the number of cases admitted in the regional hospitals, and it showed that in 2010 the number of beds occupied by heart failure patients in the hospitals in certain Regions in Oman namely; Muscat Region (Royal hospital), ALDakhalia Region and North ALBatina was high. The data is convincing enough to think of having a comprehensive heart failure program at the national level in order to decrease the burden on tertiary care, save number of beds and ultimately the budget of the health economy.

Keywords Heart Failure, Heart Failure Mortality; Multidisciplinary, ACE Inhibitors in Heart Failure, Beta-adrenoreceptor Antagonists in Heart Failure, Annual Health Report Ministry of Health Oman

1. Introduction

Evidences from the literature indicate that the management of heart failure due to systolic dysfunction is supported and strengthened by one of the strongest evidence bases in medicine. Following large randomized drug treatment trials of ACE inhibitors⁽¹⁻³⁾ and Beta-adrenoreceptor antagonists⁽⁴⁻⁹⁾ published in the late 1980 and early 1990, numerous guidelines have been written (ESC, ACC/AHA, SAIGN and NICE). Despite this, registry data and current practice in some places show a low uptake of these therapies in the community, subsequently both the mortality and morbidity remains high. This has led to a paradigm shift away from individual drug therapies, to the systems of care in which treatments are delivered, that is, within organized multi-professional heart failure service.

What is heart failure?

Heart failure is not a disease; in fact, it is a complex clinical syndrome in which the ability of the heart to pump

blood is reduced, that can result from any structural or functional cardiac or non-cardiac disorder. Heart failure is characterized by symptoms such as breathlessness on exertion, fatigue, and signs of fluid retention.

Heart failure may arise as a consequence of a myocardial, valvular, pericardial, endocardial or electrical problem (or some combination of these)⁽¹⁰⁻¹²⁾.

Why heart failure is important

Chronic heart failure important because it; common, costly, disabling and deadly. However, at the same time it is also treatable. Certainly, Heart failure is terribly disabling, reducing self-reported quality of life more than most other chronic medical conditions.

In general, heart failure it's a burden worldwide and more specifically, here in Oman because of increase in the life expectancy, the ageing population is becoming more prevalent and furthermore, evidences from previous studies indicate that there is a correlation between ageing population and incidence of heart failure⁽¹³⁾.

Unfortunately, in Oman the literature on heart failure is scarce. There is only few annual reports which was published in 2010, 2011 and 2012 includes about heart failure patients who are admitted in hospitals. So, in this report they were only looking and concentrating on readmission rates and mortality rates at the level of tertiary care in different regional hospitals.

Moreover, the need for heart failure service arises not only from the poor management, but studies showed that complexity in diagnosing heart failure is an issue as well. Patients who are affected with heart failure usually have frequent and multiple co-morbidities and on the other hand the therapies themselves have numerous side effects.

In the midst of all this, patients with heart failure are more prone to have frequent readmission rate and hospitalization. This consequently leads to confusion which results in patchy adherence to therapy.

2. Situation and Burden of the Problem Globally and Locally

Worldwide situation

It is estimated that between 1% and 2% of the total population in the UK suffer from Heart Failure, with a tenfold increase in the elderly. Prevalence of heart failure increases with age. Approximately 1% of National Health Service NHS Expenditure is currently spent on heart failure, with most of these costs relating to hospital admissions. Heart failure accounts for around 5% of all medical admissions and 25 – 30% of heart failure patients are readmitted every year. Patients with Chronic Heart Failure (CHF) often experience a poor quality of life, with over one third having severe and prolonged depressive illness, with mortality ranging between 10% and 50% per year depending on severity⁽¹⁰⁻¹²⁾.

Admission & Readmission in Oman

According to the Ministry of Health (MoH) annual health report in 2010 it has been shown that total of inpatient morbidity due to disease of the circulatory system was about 15,671. Out of this approximately 3,080 and 1,265 of them were patients who are suffering from essential hypertension and myocardial infarction respectively. Around 1400 of them with heart failure and 227 was suffering from cardiomyopathy.

Heart failure accounts for about 52 per 10,000 of Omani male population who are admitted in the hospital in 2010. It also has been shown that the prevalence of heart failure increases with age with an approximate of 3% between the 45-49 age group, 6% among the 55-59 age group and 34% among the 60 years and older.

A study indicates that total of 5 per 10,000 of Omani female population admitted inpatient with heart failure in 2010, roughly 8% among them are 50 years and older.

The MoH annual health report in 2010 presents that about 982 patients with disease of circulatory system died in hospital^(14, 15).

Bed Occupancy in Hospitals

It has been noted that in 2010 the number of beds occupied by heart failure patients in the hospitals in certain Regions in Oman namely; Muscat Region (Royal hospital), ALDakhalia Region and North ALBatina was high. For instance, around 258 patients who suffer from heart failure were admitted at Royal hospital, compared to approximately 233 patients are admitted at North ALBatina. Another thing to note is that the number of heart failure patients' occupied bed in ALDakhalia Region was as high as Royal hospital it was roughly around 276 cases⁽¹⁴⁻¹⁵⁾.

3. Importance of Heart Failure Program

Despite the publication of evidence-based guidelines, the current care of patients with heart failure remains suboptimal. It has been noted that there is relatively sparse literature on implementing practice guidelines for patients with heart

failure. Numerous studies document underutilization of key processes of care, such as use of evidence based medications in patients with decreased systolic function and the measurement of left ventricular ejection fraction.

Therefore, Disease-management systems approaches are needed. It is well addressed in the literature that the disease-management approach views heart failure as a chronic illness spanning the home, outpatient, and inpatient settings and involves multidisciplinary team care. Observational and randomized controlled trials indicated that disease-management programs reduce hospitalizations and can improve quality of life and functional status of patients who is suffering from heart failure.

Several randomized control trials of multi-professional versus usual care have now been carried out. The most important and influential ones include:

Rich et al. 1995 studied nurse directed multi-professional heart failure intervention versus usual care in heart failure patients aged > 70 years at high risk of re-admission. The interventional arm included education, dietary advice, home visit and telephone contact. The study showed 44% reduction in all cause re-admissions at 90 days ($p=0.035$)⁽¹⁶⁾. Another study by Stewart et al. 1999, in this study they randomized patients to usual care versus home visit from nurse for education about medication after an admission for heart failure. The study showed significant reduction in event free survival at 1 year ($p=0.037$)⁽¹⁷⁾. Furthermore, Blue et al. 2001 studied 165 patients admitted with heart failure and they randomized the into nurse intervention versus usual care. The study showed significant decrease in all cause admissions (86 versus 114, $p=0.018$), and decrease in heart failure admissions (19 versus 45, $p<0.001$)⁽¹⁸⁾.

Accordingly, most society guidelines namely; (ACC/AHA/SIGN and NICE) now stat that heart failure care should be delivered in multi-professional manner. Therefore, it is important to have a comprehensive heart failure program at the level of community, primary and secondary care in order to reduce the burden on the tertiary and save number of beds and the budget of the health economy.

4. Essential Component of Heart Failure Program

Most heart failure services in the world have unique features specific to their geographical location, disease prevalence, local resources and barriers to optimal care. But the most important aim is to provide comprehensive care for a community and improve the outcomes for all heart failure patients, regardless of their entry point to health care. The essential component of this service seems to include; community nurse who have a role in educating the patient about their condition and its precipitating factors, dietary advice and the need for compliance with therapy. The other component is heart failure follow up clinic where is patient will be treated with optimal evidence based medications.

The heart failure services should also include local guidelines which can be used across all levels of care, consistency of care and approach. The heart failure service should be available to the heart failure patient whenever they enter their health care journey, whether that is primary care, as admission in internal medicine ward or the coronary care unit, or as a referral to secondary or tertiary care.

5. Objectives of Heart Failure Program

The main objectives of the national program should include; Early detection of individuals at high risk of heart failure, encourage uniformity in management of heart failure, provide an accurate diagnosis, maintain the health and quality of life for patients with heart failure through effective health care system, provide suitable and quality health education to people with heart failure, their relatives and the community. Most importantly, decrease hospitalization and burden on the tertiary hospitals through proper treatment and management of heart failure. In addition, monitor program through a set of process and/or outcome indicators and finally, support research related to the control of heart failure.

6. Potential Cooperation at the Level of Primary Health Care

In order to reduce the burden of the heart failure, the cooperation with primary health care is very important for identification of patients at risk of developing heart failure for instances; patients who are suffering from chronic diseases namely Coronary Heart Disease, Atrial Fibrillation, Diabetes and Hypertension. Ideally the practice should offer advices and treatment to these groups of people to reduce the risk. Furthermore, establishment of disease registers for chronic diseases that increase the risk of heart failure will improve the ability of the practices to target relevant interventions to reduce the risk of these diseases and consequently development of heart failure by providing systematic care for these patients.

7. Conclusions

This review explores the current situation of heart failure condition in Oman and it also highlights information which indicates that heart failure it is a burden and public health issue in our country. In order to achieve standard care throughout the country establishing a comprehensive heart failure program with standard policy and procedures is warranted and it is defiantly cost effective.

Conflict of Interests

The author reported no conflict of interests and no funding was received for this work.

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