HEART FAILURE CLINICS: MUCH MORE THAN PHARMACOTHERAPY

ABSTRACT

INTRODUCTION: Heart failure (HF) is a major cause of increased morbidity and/or mortality and its prevalence is expected to increase because of the aging population, increased prevalence of risk factors and improved post myocardial infarction survival. There is a relationship between high quality care and improved patient outcome particularly when the care is from specially trained providers and this has led to the creation of clinics that are disease specific. The heart failure clinic (HFC) is established for many reasons ranging from improvement of clinical outcomes and quality of life of patients through early recognition of symptoms and progression of diseases, to identifying other factors that contribute to progression of heart failure such as poor adherence, socioeconomic and psychological factors, It also serves as a mechanism for documentation and monitoring quality of life. The purpose of this study is to review the multidisciplinary approach to the management of heart failure through the heart failure clinic.

MATERIALS AND METHODS: A literature search using the database on Pubmed, Research gate, google scholar, Science direct, African Journal online and British Medical Journal was carried out using the key phrases; heart failure, heart failure clinic, management of heart failure.

CONCLUSION: Optimization of guideline-directed medical therapy and the establishment of multidisciplinary heart failure clinics would address several domains of care. It aims to provide comprehensive patient management that would lead to reduced hospitalization and better patient outcomes, if appropriately implemented.

INTRODUCTION

Heart failure (HF) is a clinical syndrome characterized by signs and or symptoms caused by a structural and/or functional cardiac abnormality and corroborated by elevated natriuretic peptide levels and/or objective evidence of pulmonary or systemic congestion. Heart failure is among the leading causes of hospitalization and mortality and its incidence is increasing particularly in the older population.[1] The management of heart failure is directed towards reduction of symptoms, improvement of quality of life and also increasing life span. This treatment is dependent on severity which is graded according to the functional status of the New York heart association (NYHA). Caring for patients living with heart failure includes both management during hospital stay due to acute failure and chronic management in patients that does not require hospitalization. Outpatient care provide opportunities for health care professionals to improve patient's quality of life through early identification of disease progression and monitoring of medical adherence.

Heart failure leads to most of the visits in population accessing medical care.[2] A heart failure clinic is an important factor when caring for patients with heart failure.[3] Over the years, emphasis has been on pharmacologic therapy and later device or surgical therapy. Non-pharmacologic therapy has however been neglected during the care of a heart failure patient. Using the multidisciplinary approach, individualized care has been proposed as a way to reduce frequent decompensation or hospital admissions. When performance and adherence are documented, it creates systems that can identify and care for patients with heart failure in a manner that leads to the reduction of hospital visits and thereby reducing cost.[4]

The setting up a heart failure clinic requires highly committed health care personnel, and a physical base of operation where outpatient can be seen. Adequate financial resources are

required to support educational initiatives, infrastructure and the specialized training of health personnel for a coordinated multidisciplinary care. The heart failure clinic provides an adequate patient-to-health provider ratio for quality patient care. The purpose of this study is to discuss the multidisciplinary approach to the management of heart failure through the heart failure clinic.

MATERIALS AND METHODS

A literature search using the data base on PubMed, Research gate, google scholar, Science direct, African Journals online and British Medical Journal was carried out using the key phrases; heart failure, heart failure clinic, management of heart failure.

RESULTS

Patients that would benefit most from HF clinics include, patients with recent heart failure hospitalization or high risk patients with other co-morbidities like renal impairment. The heart failure clinics is usually run by a physician or nurse but will include various health specialist during treatment and patient care.[6] It is advised that heart failure clinics that cannot provide all that is required to run an advanced clinic, should partner or merge with a facility that can offer such services like mechanical circulatory support and heart transplantation for those that may need it.

Most studies and articles that were published greatly dealt on the management/treatment of the diseases and some of them sparingly discussed the operation of a heart clinic. There is a lack of accepted standards when it comes to the processes of care and the structural elements required in a HF clinic. One of such previous studies discussed the services available in a heart failure clinic as well as a list of outcome measures but did not discuss any acceptable standard on setting up or running a heart failure clinic.[7] Some of the studies done in the past revealed that special care

programs for HF may improve the quality of life, satisfaction and functional status of patient and at the same time decrease the need for hospital visits.

SOME IMPORTANT DOMAINS OF A HEART FAILURE CLINIC

1. Management of disease
2. Assessment of functional status
3. Assessment of quality of life
4. Drug evaluation/ medical therapy
5. Evaluation of device
6. Assessment of nutrition
7. Follow-up
8. Planning ahead
9. Training of personnel

1. MANAGEMENT OF THE DISEASE

Management of the disease comprises of all systems employed including best practices, information technology, improvement of practice etc., in caring for patients with heart failure. This will in turn reduce the costs of treatment and improve measurable positive outcome during care. Management of heart failure in a HFC encourages individualized patient care enables the assessment of severity of the disease in each patient. Drug administration is done to avoid wasting medical supplies by giving drugs according to guidelines to those that need them.[8] The pathway for management of the disease can be categorized into three distinct group which may either occur singly or as a hybrid of more than one groups. They include, Heart failure clinics, Home care and Tele monitoring.

Heart failure clinics is usually based on an outpatient office, a hospital or an office-based clinic with the use of a team made up of professionals that plays their various role in making sure that the patient receives the best quality care. The team may involve physicians, nurses, pharmacists, physiologists, nutritionists, social workers, psychologist, and some other allied health care professionals that specialize in heart failure management.[9] The team creates a relationship with each patient thereby offering individual-patient centred management resulting in better outcomes.

The clinic can also provide resources and basis for other forms of disease management protocols to function effectively. Home care is performed with the aid of some already established home health care vendors with employed nurses and some other health care professionals. Visitation of patients at home by physicians ensures adherence especially for home bound patients and those living far away from the HFCs. Telemonitoring involves care from remote locations to using phones and video coverage by nurses and physician with adequate provider training.[10]

Some assistive instrument may also be kept at patient's home for self-check and examination in which the results will be relayed to the physician during the routine tele visit. Results of body weight, blood pressure, and heart rate may be sent to the team.[11] However, it is interesting to note that not all population setting may afford such innovative home care setting and hence the generalized clinic visit is recommended for such a population.

It is challenging to achieve the best possible clinical outcomes and cost-effective treatment through the enactment of modern, evidence-based heart failure care. This is because of the finances involved in caring for the patients. In some developing countries like ours most patients pay out of pocket and are not able to sustain the financial demands of this specialized care. The presence of co-morbidities is also considered in the management of these patients.[2] HFC is

however still beneficial to the patient as it provides cost effective therapy in line with current guidelines using a multidisciplinary approach.

Components of a disease management program of a heart failure clinic

The **H**eart Failure Society of America (HFSA) has recommended that disease management programs should include several components depending on what the patient needs. Some recommendations that may apply to heart failure clinics include;

a. Standard education and counseling where personalized patient information will be given to the family and caregivers of the patient.
b. A philosophy that promotes self-care, including self-adjustment of diuretic therapy in appropriate patients (with a family member/caregiver assistance, as necessary).
c. Usage of individual-based therapy, including an emphasis on behavioral strategies to increase adherence.
d. There should be mechanisms to ensure appropriate follow-up after hospitalization or after periods of instability and early attention to signs and symptoms of fluid overload.
e. Ability to assist with social and financial concerns either directly or through appropriate referrals.
f. A provider-to-patient ratio that will support individualized patient care. Providers include physicians, nurse practitioners, and other qualified health professionals.
g. Establishment of facilities that will permit coordination of care between primary physician with other agencies like home health and cardiac rehabilitation.[12]

2. ASSESSMENT OF FUNCTIONAL STATUS

Assessment of functional status in heart failure patients is required for effective examination and evaluation. There are three commonly used methods for assessment of functional status. They include; Evaluation of the NYHA class; the 6-Minute Walk Test (6MWT); and Cardiopulmonary exercise stress (CPX) testing.[13] Some other tools can be used for functional assessment such as pedometers and physical activity scales (eg, Duke Activity Index scale, the International Physical Activity Questionnaire).[14]

NYHA Class: This classification is incorporated mostly in clinical practice and correlates with the likelihood of death in a stepwise fashion and the pattern of mortality in patients with heart failure due to left ventricular dysfunction. It also assesses the likelihood of being exposed to non fatal events like hospitalization and the need for right intervention response.[15] This assessment method is thought to be less objective than the other two.

6MWT: The 6-Minute-Walk-Test is an easy tool that involves the patient walking on level floor and determination of the distance covered by the patient. It reveals a patient's capability to perform daily activities to a much higher degree as it is easier to perform than the peak oxygen uptake cardiopulmonary exercise testing. The 6MWT correlates moderately with peak oxygen uptake (R values range from 0.68 to 0.76).[16] About 15% to 20% of patients may not be able to undergo the test because of marked obesity, osteoarthritis, neurologic conditions or severe lung disease. When the result of a 6MWT is less than 300 meters, the risk of mortality is increased. In normal circumstances, a difference of 50 m is considered clinically relevant.[17]

Cardiopulmonary exercise Testing: It is a more complex method that assesses the performance during exercise using the peak exercise oxygen uptake and this information can be used for risk assessment.[18] CPX has been combined with NYHA classification in the past to ascertain if an intervention like Cardiac transplantation is required.[19] The CPX test can be administered on a

patient with basic exercising tools like a treadmill or a bicycle ergometer and it requires the presence of trained health care providers for interpretation of the output.

Reason for assessing functional status

There are four categories of information that can be obtained from conducting an adequate assessment. They include; determining morbidity and mortality due to cardiovascular disease, to determine a change in risk over time, to ascertain the therapies that would be used for treatment of heart failure and the response and adherence to the administered medication.

Components of a functional status assessment

The components when assessing the functional status of a heart failure clinic includes;

a. Assessment of NYHA functional class at every clinic visit for patients with symptomatic HF is documented in the medical record. A baseline 6MWT is desirable with follow-up assessments as clinically necessary. Results should be easily accessible in the medical record and significant changes should be noted.
b. Baseline and serial CPX assessments in patients with NYHA Class III/IV symptoms who are candidates for advanced therapies such as LV assist device or cardiac transplantation or to measure response to therapy. Testing should be done by trained personnel with appropriate quality control.

3. ASSESSMENT OF QUALITY OF LIFE

In the management of any chronic condition especially Heart failure, quality of life is paramount. During assessment, most instruments may combine quality of life components with some other components of general health status.[20] The 36-item Medical Outcomes Study short-form composed of 8 domains can be used to measure quality of life or the EuroQol-5D, a 5-item survey covering mobility, self-care, activities, pain, and anxiety/depression using a visual analog scale (0 to 100) can also be used in the measurement of quality of life.[21] A change of 5 or more is thought to be clinically important.[22] These measures can be self-administered whenever feasible or obtained during a structured interview. Their validity, reliability, and responsiveness to clinical change have been evaluated.

Reason for a quality of life assessment

Some scores got from the Minnesota Living with Heart Failure Questionnaire and Kansas City Cardiomyopathy Questionnaire have been associated with survival and hospitalization for outpatients with HF.[23] Although correlated with other measurements of functioning (NYHA Class, 6MWT, LV ejection fraction), each questionnaire has an independent predictive value for death and hospitalization. Though infrequently performed in practice, in the clinical trial setting several domains of the Minnesota Living with Heart Failure Questionnaire and Kansas City Cardiomyopathy Questionnaire have been associated with mortality and hospitalization, including activities of daily living, general health, and HF symptoms.[24] The health status/quality of life measures allow standardized assessment that can be self-administered by patients before clinic visits. The quality of life survey can also be used to identify patients that require immediate intervention and possible titration of guideline directed medical therapy.

Components that makes up quality of life assessment

The quality of life assessment components in a HF clinic include but are not limited to the following:

a. Knowledge and interpretation of at least 1 HF-specific health status/quality of life survey. Questionnaire administration at least once with every patient is desirable and repeated on an individualized basis, especially with changes in clinical status. The use of quality of life tools to screen patients for improvement or deterioration is also desirable.
b. Recording results from the questionnaire and interpreting such results into medical record.
c. Making the medical records easily assessable so that tracking of individual result can be facilitated.

4. DRUG EVALUATION AND MEDICAL THERAPY

The Heart Failure society of America has published protocols for the pharmacotherapy of heart failure. Compliance with these guidelines, however, varies considerably by region, hospital, and prescribing physician. HF clinics should include features that will promote optimal medication prescribing practices, including an effective drug therapy evaluation process.

Reason for medical therapy and drug evaluation

The following drugs are of benefit to the heart failure patient; angiotensin-converting enzyme (ACE) inhibitors, mineralocorticoid receptor antagonists, beta-blockers, and sodium glucose co-transporter inhibitors.[25] Use of medications in outpatient clinic is noted to be significantly lower than in inpatient setting, probably due to cost or long-term side effects. [26] One of the major objectives of the heat failure clinic is the provision of adequate care that is based on evidence-

based practice guidelines.[27] For patients that do not receive the optimal dose for their treatment, extra steps are taken to titrate them back to the normal doses.

An extensive drug evaluation and adherence to the appropriate therapy will lead to reduction in hospitalization and improved quality of life.[28] The goals of such an evaluation are to: devise a medical regimen consistent with evidence based standards of care, minimize interactions and other drug-related side effects improve patient adherence, quality of life and satisfaction. Several studies involving intensive reviews of patients' medical records and treatment plans have demonstrated improvement in HFC outcomes compared with usual care.[28]

Components of medical therapy and drug evaluation

The components required to meet the optimal dosage for proven medical therapies in a heart failure clinic include;

a. The management of heart failure with reduced ejection fraction can be achieved by therapies like Beta-blockers, Angiotensin receptor antagonists, Angiotensin Converting enzyme inhibitors, Angiotensin receptor neprilysin inhibitors, Sodium glucose co-transporter 2 inhibitors,
b. Clear and readily accessible documentation of reasons for not prescribing recommended medical therapies or for not titrating to recommended dosage levels.
c. Self-management of diuretics, which also includes education of patients and close look into the hepatic and renal functions.
d. Drug evaluation should be carried out immediately the patient is enrolled in the heart failure clinic and repeated during regular intervals to monitor progression. The evaluation may be performed by the physician, a specially trained nurse, or a clinical pharmacist. To

improve the effectiveness of the evaluation, the patient's family/caregiver should be engaged if possible, and patients should be advised to bring all medication bottles or a list of all current medications.

Components to be considered for a drug therapy evaluation include the following

I. Clear, comprehensible, and standardized written instructions for the patient/caregiver regarding the indications for each drug, common side effects, and medications and dietary choices to avoid. Any changes to the drug regimen should be clearly explained to the patient/caregiver and documented in the medical record

II. A thorough review of all medications, including over-the-counter medications and supplements, in the context of medical comorbidities, dietary habits, and other patient specific factors to avoid potential adverse drug-drug or drug-disease interactions.

III. Comprehensive review of the patient's allergy history. Reported intolerances to specific medications should be distinguished from true allergies, possibly through a re challenge, when such medications are critical to patient care.

IV. Assessment of adherence. At each clinic visit, patients should be asked specifically about adherence to the medication regimen, especially if there is evidence of clinical deterioration. When non adherence is determined, causes should be identified and a strategy implemented to improve medication-taking behavior.

5. EVALUATION OF DEVICE

The use of Implantable cardioverter defibrillators (ICDs) and biventricular pacing (CRT-P and CRT-D) have increased in patients with left ventricular dysfunction and heart failure.[29] There is an evolving role of heart failure clinic in this area. The Cardiologist in HF clinics should be able

to identify patients who may be candidates for device therapy. They should also evaluate the devices and address programming issues or when there is the need to upgrade devices.

Reasons for device evaluation

Before choosing the option of implantable cardiac devices and invasive monitoring techniques for heart failure, the clinic must have a formal system that ensures that devices are monitored appropriately, and this includes referral to providers who manage devices, if rhythm monitoring is not performed directly in the HF clinic.[30] Heart failure clinic physicians and staffs should have undergone special training to enable them monitor devices effectively and handle patient's needs. They should also have some knowledge of how the device was manufactured so as to differentiate device malfunctions from other causes of variations. Patient can be referred to the team's electrophysiologist if abnormal results are noticed. The electrophysiologist would monitor and intervene where necessary.[31] Several factors have to be considered before choosing a particular device to assist therapy. Usually before finalizing on the use of devices, there is need to give time for reversible issues to correct itself and for improvement of clinical status and left ventricular function following guideline-based treatment.[32] The guideline directed optimal medical therapy should be implemented before the use of device therapy. [33] Discussions on procedures and possible side effects of the devices should be done with the patient and patient's consent obtained before moving on with the procedure.

Components used for device evaluation

The important components used for device therapy in a heart failure clinic include the implementation of standard procedures and the documentation of device functioning and patient well- being, as well as the aiding of communication with the electrophysiologist and any other

personnel involved in the care of the patient. There is need to also identify patients that would benefit most from device implantation.

Components that are relevant to patients with existing Cardiac Device

a. A site registry, updated and reviewed regularly, of all patients in whom cardiac devices have been implanted.
b. A clear and consistent system for device evaluation, including documentation in the medical record, and a mechanism to monitor patients with a frequency established by a protocol.
c. Coordination of care with electrophysiologists to avoid duplication of services and conflicting interventions.
d. A system to respond to alerts or recalls produced by regulatory agencies or device manufacturers. This includes a mechanism to rapidly identify affected patients and to permit early clinical follow-up.

6. ASSESSMENT OF NUTRITION

Assessing the nutrition of patients is important in the management of patient with heart failure. Patients with other co-morbidities are managed on an individualized basis depending on the disease. Nutritional assessment should start immediately a patient is diagnosed with heart failure. Outpatient follow-up is also required to prevent re-hospitalization.

The dietitian should take into account ethnic, religious, and gender influences on nutritional habits and including, when possible, the person responsible for meal preparation.

Non-adherence to nutritional requirement accounts for at least 18% of avoidable hospitalization for heart failure. Proper adherence to sodium intake is important. Poor adherence may lead to diuretic-induced electrolyte imbalance, such as hyponatremia or hypokalemia which may further exacerbate the condition.[34] Co-morbidities such as coronary artery disease, diabetes mellitus, and chronic kidney disease often require a special kind of diet. Depression and poor finance may also contribute to poor nutrition and non-adherence to nutritional plans. The main objective of adherence to nutrition is to reduce disease progression and prevent episodes of decompensation.[35] Right ventricular heart failure can contribute to cachexia by affecting the absorption of nutrients across the gastrointestinal wall or by impairing hepatic synthetic function.

Components that makes up nutritional assessment

Assessment of nutrition in a HF clinic should occur in the context of patient comorbidities. The components may include:

a. Evaluation of the patient's nutrition, by a registered dietitian with knowledge and expertise in working with patients with HF, or by an advanced practice nurse with special training in nutrition, or by any other knowledgeable provider. A preliminary nutritional assessment, and plan of care should be performed at the time of diagnosis and during subsequent clinic appointments, whilst taking into account ethnic, religious, and gender influences on nutritional habits of such patients and this may include the person responsible for meal preparation for patient. Advice regarding dietary sodium restriction and fluid restriction is particularly important, with appropriate documentation and reinforcement whenever clinically indicated.

b. A system to measure, record, and track body weight and body mass index regularly. Calorie counts should be obtained if cachexia is clinically suspected and appropriate nutritional supplementation prescribed if unintended weight loss is documented.

7. FOLLOW UP

Continuity of care is a major milestone in the management of patient with heart failure, and the HF clinic is uniquely positioned to provide directed assessment. Patients should be advised on how to recognize and respond to recurrence of symptoms.[37] Health personnel should create a mechanism for early outpatient follow-up after recent hospitalization, emergency department visit. History and physical examination by the physician may be augmented with repeat imaging and blood chemistry. Follow up strategies vary with each patient's case, but it has been agreed that there is need for regular evaluation of patients with HF at risk for adverse events and rehospitalization. The frequency of patient follow-up will be guided based on provider's judgment.[38]

Reasons for follow-up

Inclusion of follow-up care as a major component of the heart failure clinic is important for any chronic disease that limits patient well-being, associated with repeated hospital admissions, and having a high rate of mortality. HF is the leading cause of 30-day rehospitalization in the Medicare population and has a high mortality rate. Lack of continuity of care may contribute to unnecessary utilization of resources, partially through inadequate provider-patient and provider-provider communication. Patients in a heart failure clinic should be followed up until they or their family/caregiver demonstrate independence in the prescribed treatment plan, adequate or improved adherence to treatment guidelines, improved functional capacity, and symptom

stability.[5] Patients experiencing increased episodes of exacerbation or who demonstrate instability after discharge from a program should be referred again to the heart failure clinic.

Components of follow up

The main focus in follow-up is the establishment of well-defined parameters for patient monitoring after a hospitalization or after outpatient visit and the confirmation of patient/ caregiver comprehension about said parameters.

a. During discharge, an outpatient visit should be scheduled in the HF clinic within 7 to 10 days, as clinically indicated. Higher risk patients should receive follow-up no longer than 72 hours after discharge via such means as telephone contact, home health visit, telemonitoring, or clinic visit. The patient should be counseled on symptoms that might occur and mechanisms to contact a provider at the clinic if symptoms recurs and is prolonged. A defined plan of action is provided for the patient or caregiver in case of a sudden or unexplained change in clinical status.
b. Systematic follow-up after an outpatient HF clinic visit. A return visit should be scheduled within no more than 12 months for a stable patient and sooner for patients with advanced symptoms.
c. Serial evaluations of electrolytes, renal function, and other objective monitoring, such as assessment of LV function, with a frequency determined by the provider as part of individualized treatment plans. These frequencies may also be set by reasonable clinical standards of care; for example, patients on diuretics should have electrolytes and renal function monitored at least semiannually.
d. Telephone contact or the use of telemonitoring devices, if available, on an individualized basis.

8. PLANNING AHEAD

The AHA advocates that advanced HF patients be referred to specialized teams at heart failure clinics to assess suitability for advanced care and/or palliative care[39]. Such patient should be approached in an empathetic manner to discuss preferences before the disease progresses to its pre-terminal stage.[40] The act of mapping out the types of medical and non-medical care a patient would like to receive before the condition deteriorates is referred to as advance care planning. This type of planning is usually done between the patient, care providers, spouse, family members. It is a dynamic process that may require modification or revision as the patient's illness and thought processes evolve.

Advance care plans address the challenges of living with chronic illness, the complications likely to arise, and the treatment options available. Conversations about advance directives often include decisions about code status and the patient's desire for cardiopulmonary resuscitation.[41] Explicit consideration of device deactivation is appropriate for patients with end-stage HF. Discussions may also cover invasive procedures, surgery, and hospitalizations. The priority is to engage the patient in such a way that values and goals can be elicited. There are no set formats for initiating these discussions, but open-ended questions represent one effective method.[42]

A cardinal feature of advance care planning is the advance directive, which can take various forms, including a living will, health care proxy, or durable power of attorney for health care. Advance directives can be oral or written and, beyond documenting the patient's preferences, may also name a surrogate to make medical decisions if required. The identification of a

surrogate also offers an opportunity for the physician to ask about what the patient has told, or would want to tell, the surrogate about his or her preferences.

Reasons for advanced planning

With advance care planning, physicians can improve patient satisfaction and provide compassionate care at the end of life following the patient's wishes. The patient remains autonomous concerning the type and intensity of care designated in advance care planning comes into effect only if the patient can no longer express his or her intentions.

Components of advance planning

The provider must introduce the topic, provide resources, and offer access to a structured process that will lead to clarity about patient preferences. The components related to advance care planning in a HF clinic regarding advance planning include the following:

a. Incorporating advance care planning into the practice. The care team should be knowledgeable and have the ability to implement advance care planning concepts.
b. Incorporating advance care planning discussions into the longitudinal care of HF patients.
c. Referring patients to other professionals and resources for assistance, if and when they express an interest in devising a formal advance directive.
d. Recording the status of advance care planning in the patient chart, including a copy of the advance directive, if one exists.

9. TRAINING OF PERSONNEL

The Institute of Medicine recognizes that professional education is an integral component in the quality of HF care, a fact confirmed in many studies.[47] It is also recognized by clinicians, as

reflected in a national survey of clerkship directors in internal medicine in which HF was ranked 4th of a possible 60 disease targets. Provider education in the HF clinic encompasses a full range of initiatives designed to ensure provider competence. Competence includes the knowledge of standards of care and their pathophysiologic foundations, effective communication skills, and the development of a culture in the practice that is focused on performance assessment and continuous quality improvement. Educational options include such formats as lectures, skills workshops, online activities, and practice-based assessment and learning.[48]

Decision-making in HF care is a dynamic process, given frequent advances in clinical trials and translational research that provide the framework for evidence-based practice. The literature on practice assessment and ongoing performance measurement emphasizes the central importance of provider education, especially when focused on the application of practice guidelines. Provider education can be defined by the implementation of standardized learning about treatment and evaluation modalities, practice assessment, performance measures, metrics, and mechanisms that help to ensure that improvements in HF care are readily translated into daily practice. An approach that incorporates practice-based learning has the potential to improve compliance with HF guidelines in the ambulatory setting in large group practices and in hospital care.[49]

Components of provider education

The educational program of a HF clinic should be designed to update clinical competencies.[50] The components in a HF clinic include the following:

1. Participation in formal continuing education preferably reflecting the key components of the 2006 HFSA Comprehensive Heart Failure Practice Guideline or the ACC/AHA 2005 Practice Guideline.

A. Training for physicians especially if the clinic provides services for patients with advanced HF and recipients of heart transplants.

B. Training for nurses that includes pathophysiology, pharmacology, patient self-care management approaches, psychosocial influences on patient behaviors, and quality of-life and palliative care issues.

2. The availability of multiple educational modes in the critical areas of HF care to maximize the translation of education into practice.[51]

3. Periodic practice assessment as a component of practice-based learning.

CONCLUSION

Heart failure is associated with increased morbidity and mortality worldwide with worse outcomes in resource poor countries. The establishment of multidisciplinary heart failure clinics would provide comprehensive patient care, reduce hospitalization and should be an essential component of outpatient HF care.

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