The utilization of American Heart Association heart failure guidelines for beta-blocker and angiotensin converting enzyme inhibitor/angiotensin receptor blocker optimization

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Background

- The American College of Cardiology Foundation (ACCF)/American Heart Association (AHA) clinical guidelines address the pharmacological treatment of heart failure (HF)
- Beta-blockers and angiotensin converting enzyme (ACE) inhibitors or angiotensin II receptor blockers (ARBs) are recommended if patients have:
  - Current or prior symptoms of HF
  - Ejection fraction (EF) less than 40 percent
  - No contraindications
- Target doses are recommended by the ACCF/AHA guidelines for both classes
- The addition of these agents in indicated patients has been shown to decrease the rates morbidity and mortality
- The purpose of this interim analysis is to determine whether the majority of patients are being treated according to these guidelines

Objectives

Primary Objective

- To recognize the percentage of patients being optimally treated with ACE inhibitors or ARBs and beta-blockers

Secondary Objectives

- To determine contraindications to recommended dose titrations in therapy
- To identify the percentage of patients with documented non-adherence
- To analyze comorbidities among the patients studied

Expected Outcomes

- It is expected that many patients will not be taking target doses of recommended ACE inhibiotrs or ARBs and beta-blockers
- It is presumed that few contraindications to recommended titration of therapy exist
- It is probable that the patients reviewed will have many similar comorbidities

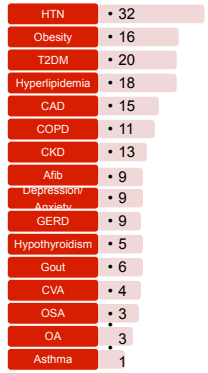
Recommended Target Doses

Beta-Blockers	
Bisoprolol	10mg daily
Carvedilol	25mg BID
Carvedilol ER	80mg daily
Metoprolol succinate	200mg daily
ACE Inhibitors	
Captopril	50-100mg TID
Enalapril	10-20mg BID
Fosinopril	20-40mg daily
Lisinopril	20-40mg daily
Quinapril	10-20mg BID
Ramipril	5-10mg daily
Trandolapril	4mg daily
ARBs	
Candesartan	32 mg daily
Losartan	50-100mg daily
Valsartan	160 mg BID

Methods

- Medical charts were reviewed retrospectively to evaluate the pharmacological therapy of patients with heart failure
- The sample was selected from outpatient heart failure patients who were followed at various University-affiliated outpatient primary care clinics between July 1, 2009 and July 31, 2010
- Inclusion Criteria:
  - Ejection fraction of less than 40
  - ICD-9 code for systolic heart failure
- Exclusion Criteria:
  - Diastolic heart failure
  - Patients 19 years of age or younger
  - Patients who are pregnant
  - Patients who are prisoners
  - Patients not having CHF ICD-9 code
- Adherence to the 2009 ACC/AHA updated treatment guidelines will be evaluated by analyzing:
  - Recorded medications
  - Dose prescribed
  - Contraindications to therapy

Figure 1
Comorbidities in a Random Subset of 39 Patients



*Patients from two clinics involved with this research

Figure 2
Preliminary Results

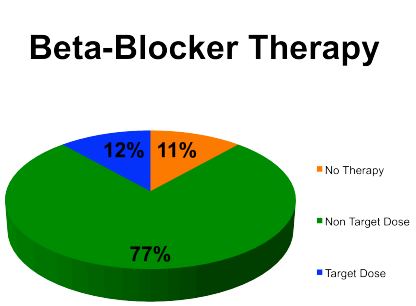
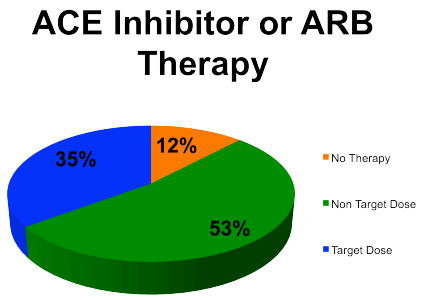


Figure 3
Preliminary Results



Results n=137

- After reviewing the list generated using ICD-9 codes for heart failure, 137 patients were included in this secondary analysis
- Two patients hospitalized on optimal therapy were discharged at lower doses than original target
- Out of 137 patients, 18 patients (13%) were not on any beta-blocker therapy
- 119 patients (86.8%) were not on optimized beta-blocker therapy
- Out of 137 patients, 20 patients (14.6%) were not on any ACE inhibitor/ARB therapy
- 87 patients (63.5%) were not on optimized ACE inhibitor/ARB therapy
- Only 10 patients (7.3%) were optimized in both drug classes
- 7 patients had contraindications to dose titration of a beta blocker and/or an ACEI/ARB
  - Reported dizziness impeding optimization
  - HF exacerbation requiring discontinuation
  - Low BP
  - Low HR
  - Deteriorating renal function
- Target therapy was not achieved in one patient (2%) due to documented poor adherence
- 82%, 51%,46% of the patients of a subset (n=39) also had HTN, T2DM, and hyperlipidemia respectively

Conclusions

- Overall, both beta blockers and ACE inhibitors/ARBs have low rates of optimization
- Hypertension, diabetes, and hyperlipidemia seem to be the most common comorbidities in this patient population with heart failure
- ACE inhibitors/ARBs have an increased rate of optimization in comparison to beta blockers
- In the majority of cases there is no written documentation as to why CHF therapy with BB and/or ACEI/ARB could not be optimized
- Additional education and interventions are needed to encourage optimization of therapies for CHF

Disclosure

This data was drawn from four clinical sites. Authors of this presentation have the following to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation: Brad Wright is currently receiving funding from Novartis Pharmaceuticals; all other authors have nothing to disclose.