Client: HMSA: PQSR 2009

Measure Title: AVOIDANCE OF SELECTIVE CALCIUM CHANNEL BLOCKERS FOR CONGESTIVE HEART FAILURE

Disease State: Congestive Heart Failure
Indicator Classification: Disease Management

Strength of Recommendation:
- B (Heart failure with decreased left ventricular ejection fraction)
- C (Heart failure with normal left ventricular ejection fraction)

Organizations Providing Recommendation:
- American College of Cardiology
- American College of Chest Physicians
- Institute for Clinical System Improvement

Clinical Intent: To ensure that eligible members identified with congestive heart failure do not receive selected calcium channel blocker medication.

Physician Specialties (suggested): Refer to PQSR 2009 Clinical Measures by Specialty.

Background:

- In 2003, approximately 5 million Americans had Congestive Heart Failure (CHF) and each year, approximately 550,000 new cases are diagnosed while 57,000 people die from the disease.[1]
- CHF affects 1% of individuals 65 and older yet it represents 20% of all hospital admissions for this population.[1]
- From 1979 to 2003, hospitalizations for CHF increased 174%.[1]

Reason for Indicated Intervention or Treatment:

- Calcium channel blockers can lead to worsening congestive heart failure (CHF) and have been associated with an increased risk of cardiovascular events.[2-6]
- Appropriate pharmacologic therapy can prevent or reduce the frequency and severity of CHF exacerbations.

Evidence Supporting Intervention or Treatment:

- Verapamil and diltiazem possess negative chronotropic activity. An early open-label trial showed marked hemodynamic and clinical deterioration in patients with an ejection fraction (EF) of less than 35% treated with verapamil after 1 year.[7] Although diltiazem has less negative inotropy and chronotropy than verapamil, it has also been associated with HF deterioration in patients with an EF of less than 40% at baseline.[8]
- In addition, dihydropyridine calcium channel blockers (CCBs) administered for 2 to 4 months had marked increases in clinical deterioration and hospital admissions for HF exacerbations likely
Secondary to activation of detrimental neurohormonal systems. These agents were compared with placebo, isosorbide, or standard heart failure therapy that included an ACE inhibitor.[9, 10]

- Amlodipine, another CCB, may be safer in this patient population. The 1996 PRAISE study demonstrated no adverse effects on survival or cardiac morbidity when amlodipine was given to patients with Class II or III heart failure with EF less than 30% who were already taking an ACE inhibitor, digoxin, or diuretic.[3]

**Clinical Recommendations**

- The American College of Cardiology (ACC) and the American Heart Association (AHA), state that some CCBs may be harmful in asymptomatic patients with low LVEF and no symptoms of HF after MI (Level of Evidence: C).[11] Of all the calcium channel blockers only amlodipine has not been adversely associated with survival.
- The ACC/AHA guidelines state that CCBs are not indicated as routine treatment for HF in patients with current or prior symptoms of reduced LVEF and HF. (Level of Evidence, A).[11]
- The ACC/AHA guidelines support the avoidance or withdrawal of CCBs because of the potential for this class to adversely affect the clinical status of patients with HF, as they may lead to worsening of HF and are associated with an increased risk of cardiovascular events. Only vasoselective CCBs have been shown not to adversely affect survival (Level of Evidence: B).[11]
- In addition, their use is not recommended to treat patients with HF who have comorbid disease (hypertension or chronic atrial fibrillation). On the basis of current guidelines and previous studies, verapamil, and diltiazem, are not recommended for long-term treatment of patients with HF.[8, 11, 12]
- The Institute of Clinical Systems Improvement suggests that diltiazem, nifedipine and verapamil should all be avoided in patients with diminished LV and HF (Level of Evidence, A).[13]
- Guidelines from 2006 Heart Failure Society of America (HFSA) state “Calcium channel blockers should be considered in patients with HF who have angina despite the optimal use of beta blockers and nitrates. Amlodipine and felodipine are the preferred calcium channel blockers in patients with angina and decreased systolic function (Strength of Evidence C).”[14]
- For individuals with preserved left ventricular systolic function HFSA states that “Calcium channel blockers should be considered in patients with:
  
  (1) Atrial fibrillation requiring control of ventricular rate in whom beta blockers have proven inadequate for this purpose because of intolerance. In these patients, diltiazem or verapamil should be considered (Strength of
Evidence C);
(2) Symptom-limiting angina (Strength of Evidence A); and
(3) In those with hypertension, amlodipine should be considered (Strength of Evidence C).”[14]

Source
Health Benchmarks, Inc.

<table>
<thead>
<tr>
<th>Denominator</th>
<th>Definition</th>
<th>Continuously enrolled members ages 20 years and older by the end of the measurement year, who were identified as having congestive heart failure in the year prior to the measurement year.</th>
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<tbody>
<tr>
<td>Denominator Exclusion Definition</td>
<td>Members with atrial fibrillation who filled at least 1 prescription and had a 180 days supply for a beta-blocker 0-365 days after the index date.</td>
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</tbody>
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| Numerator Definition | Members who did NOT fill a prescription for a selective calcium channel blocker (i.e., diltiazem, isradipine, nifedipine, nimodipine, nisoldipine, nicardipine, verapamil, mibefradil) during the 0-365 days after the index date. |

| Physician Attribution | If the member did not receive a prescription (i.e. NOT numerator criteria [A]; a numerator hit), score all physicians the member saw 0–365 days after the index date. 
If member received a prescription (i.e. numerator criterion [A]; a non-numerator hit), score all prescribing providers who prescribed the member a numerator script during the 0-365 days after the index date. |

References


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