



Guideline Summary NGC-10025

Guideline Title

Adults with systolic heart failure.

Bibliographic Source(s)

Michigan Quality Improvement Consortium. Adults with systolic heart failure. Southfield (MI): Michigan Quality Improvement Consortium; 2013 Jan. 1 p.

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: Michigan Quality Improvement Consortium. Adults with systolic heart failure. Southfield (MI): Michigan Quality Improvement Consortium; 2011 Jan. 1 p.

Scope

Disease/Condition(s)

- Left-ventricular systolic dysfunction
- Systolic heart failure

Guideline Category

Counseling
Diagnosis
Evaluation
Management
Treatment

Clinical Specialty

Cardiology
Family Practice
Geriatrics
Internal Medicine

Intended Users

Advanced Practice Nurses
Health Plans
Physician Assistants
Physicians

Guideline Objective(s)

- To achieve significant, measurable improvements in the management of left-ventricular systolic dysfunction, including systolic heart failure, through the development and implementation of common evidence-based clinical practice guidelines
- To design concise guidelines that are focused on key management components of left-ventricular systolic dysfunction, including systolic heart failure, to improve outcomes

Target Population

Adults with suspected or diagnosed left-ventricular systolic dysfunction, including heart failure

Interventions and Practices Considered

Evaluation/Diagnosis

1. History and physical examination
2. Depression screening
3. Assessment for coronary artery disease and risk factors
4. Chest x-ray
5. 12-lead electrocardiogram
6. Laboratory tests including lipid profile, complete blood count (CBC), serum electrolytes, calcium, magnesium, blood urea nitrogen (BUN), serum creatinine, blood glucose, liver function tests, thyroid-stimulating hormone (TSH), and urinalysis
7. Echocardiography with Doppler
8. Serial monitoring including weight, volume status, electrolytes, renal function, and activity tolerance

Management/Treatment

1. Angiotensin-converting enzyme (ACE) inhibitors
2. Beta-blockers (carvedilol, sustained-release metoprolol, bisoprolol)
3. Diuretics and sodium restriction
4. Spironolactone
5. Angiotensin receptor blockers (ARBs)
6. Hydralazine and isosorbide dinitrate

Education/Counseling/Risk Factor Modification

1. Careful review of medication regimen
2. Daily self-monitoring of weight and adherence to patient action plan
3. Symptom recognition
4. Dietary sodium restriction
5. Risk factor modification (regular exercise; smoking cessation; control of blood pressure, diabetes mellitus, lipids, etc.)
6. Avoidance of excessive alcohol intake, illicit drug use, and use of non-steroidal anti-inflammatory drugs (NSAIDs)
7. Vaccination against influenza and pneumococcal disease
8. Referral for evaluation for implantable defibrillator, biventricular pacemaker, ventricular assist device, or transplant
9. Referral to an advanced heart failure management program
10. Discussing goals of care, prognosis, and advanced directives

Major Outcomes Considered

Not stated

Methodology

Methods Used to Collect/Select the Evidence

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

The Michigan Quality Improvement Consortium (MQIC) health care analyst conducts a search of current literature in support of the guideline topic. Computer database searches are used to identify published studies, existing protocols and/or national guidelines on the selected topic developed by organizations such as the American Diabetes Association, American Heart Association, American Academy of Pediatrics, etc. If available, clinical practice guidelines from participating MQIC health plans and Michigan health systems are also used to develop a framework for the new guideline.

For this guideline update, PubMed, Google, and the American Heart Association and American College of Cardiology Foundation databases were searched from January 1, 2009, to October 31, 2012. No inclusion/exclusion criteria were used. Search terms included spironolactone, LVEF, and heart failure assistive devices.

Number of Source Documents

Not stated

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Levels of Evidence for the Most Significant Recommendations

LEVELS OF EVIDENCE FOR THE MOST SIGNIFICANT RECOMMENDATIONS

- A. Randomized controlled trials
- B. Controlled trials, no randomization
- C. Observational studies
- D. Opinion of expert panel

Methods Used to Analyze the Evidence

Review

Description of the Methods Used to Analyze the Evidence

Not stated

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

Using information obtained from literature searches and available health plan guidelines on the designated topic, the Michigan Quality Improvement Consortium (MQIC) health care analyst prepares a draft guideline to be reviewed by the Medical Directors' Committee at one of their scheduled meetings. Priority is given to recommendations with [A] and [B] levels of evidence (see the "Rating Scheme for the Strength of the Evidence" field).

The initial draft guideline is reviewed, evaluated, and revised by the committee resulting in draft two of the guideline. Additionally, the Michigan Academy of Family Physicians participates in guideline development at the onset of the process and throughout the guideline development procedure. The MQIC guideline feedback form and draft two of the guideline are distributed to the Medical Directors, as well as the MQIC measurement and implementation group members, for review and comments. Feedback from members is collected by the MQIC health care analyst and prepared for review by the Medical Directors' Committee at their next scheduled meeting. The review, evaluation, and revision process with several iterations of the guideline may be repeated over several meetings before consensus is reached on a final draft guideline.

Rating Scheme for the Strength of the Recommendations

Not applicable

Cost Analysis

A formal cost analysis was not performed and published cost analyses were not reviewed.

Method of Guideline Validation

External Peer Review

Internal Peer Review

Description of Method of Guideline Validation

When consensus is reached on the final draft guideline, the Medical Directors approve the guideline for external distribution to practitioners with review and comments requested via the Michigan Quality Improvement Consortium (MQIC) health plans (health care analyst distributes final draft to Medical Directors' Committee, measurement and implementation groups to solicit feedback).

The MQIC health care analyst also forwards the approved guideline draft to appropriate state medical specialty societies and physicians with expertise in the related field for their input. After all feedback is received from external reviews, it is presented for discussion at the next scheduled committee meeting. Based on feedback, subsequent guideline review, evaluation, and revision may be required prior to final guideline approval.

The MQIC Medical Directors approved this updated guideline in January 2013.

Recommendations

Major Recommendations

The level of evidence grades (**A-D**) are provided for the most significant recommendations and are defined at the end of the "Major Recommendations" field.

Adults with Suspicion of Left Ventricular Systolic Dysfunction, Including Heart Failure

Evaluation

Initial assessment should include:

- Thorough history and physical examination [**C**], including depression screening, and assessment for coronary artery disease and risk factors
- Testing includes: chest x-ray, 12-lead electrocardiogram, lipid profile, complete blood count (CBC), electrolytes, calcium, magnesium, blood urea nitrogen (BUN), creatinine, blood glucose, liver function tests, thyroid-stimulating hormone (TSH), urinalysis, and echocardiography with Doppler [**C**]

- Serial monitoring should include: weight, volume status, electrolytes, renal function, and activity tolerance

Adults Diagnosed with Left Ventricular Systolic Dysfunction, Including Heart Failure

Pharmacological Management

Note from the National Guideline Clearinghouse (NGC): Please refer to the "Contraindications" field in this summary and/or the original guideline document for information on contraindications to these medications.

Drugs recommended for routine use:

- Angiotensin-converting enzyme (ACE) inhibitors in all patients, unless contraindicated **[A]**
- Beta-blockade using carvedilol, sustained-release metoprolol, bisoprolol in all stable patients, unless contraindicated **[A]**

Drugs recommended for use in select patients:

- Diuretics and sodium restriction for evidence of fluid retention **[A]**
- Spironolactone for patients with moderate or severe symptoms of heart failure, preserved renal function (creatinine <2.0 in women; creatinine <2.5 in men), and normal serum potassium concentration **[A]**
- In patients who cannot tolerate ACE inhibitors due to cough or angioedema, use angiotensin receptor blockers (ARBs) **[A]**
- Consider hydralazine and isosorbide dinitrate for patients who cannot tolerate ACE inhibitors or ARBs, or African-American patients who remain symptomatic despite therapy **[A]**

Education, Counseling and Risk Factor Modification

Educate patient and family regarding:

- Careful review of medication regimen with patient and caregivers at hospitalization or other changes in treatment
- Daily self-monitoring of weight and adherence to recommended patient action plan
- Recognition of symptoms and when to seek medical attention
- Moderate dietary sodium restriction (e.g., 2,000 to 2,500 mg sodium/day)
- Risk factor modification (regular exercise 5 times per week as tolerated **[B]**); smoking cessation; control of blood pressure, diabetes mellitus, lipids)
- Avoid excessive alcohol intake, illicit drug use, and the use of non-steroidal anti-inflammatory drugs (NSAIDs)
- Vaccination against influenza and pneumococcal disease
- Consider referral for evaluation for implantable defibrillator, ventricular assist device or transplant in patients with left ventricular ejection fraction (LVEF) <35%, New York Heart Association (NYHA) Class III-V patients and those with worsening congestive heart failure (CHF)
- Consider referral to an advanced heart failure management program
- Discuss goals of care, prognosis and advance directives with all patients

Definitions:

Levels of Evidence for the Most Significant Recommendations

- A. Randomized controlled trials
- B. Controlled trials, no randomization
- C. Observational studies
- D. Opinion of expert panel

Clinical Algorithm(s)

None provided

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The type of evidence is provided for the most significant recommendations (see the "Major Recommendations" field).

This guideline is based on the 2009 Focused Update: American College of Cardiology Foundation/American Heart Association (ACCF/AHA) Guidelines for the Diagnosis and Management of Heart Failure in Adults: A Report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines: Developed in Collaboration with the International Society for Heart and Lung Transplantation.

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

Through a collaborative approach to developing and implementing common clinical practice guidelines and performance measures for left-ventricular systolic dysfunction, including heart failure, Michigan health plans will achieve consistent delivery of evidence-based services and better health outcomes. This approach also will augment the practice environment for physicians by reducing the administrative burdens imposed by compliance with diverse health plan

guidelines and associated requirements.

Potential Harms

Adverse reactions to medications

Contraindications

Contraindications

- **Angiotensin-converting enzyme (ACE) inhibitors:** Life-threatening adverse reactions (angioedema or anuric renal failure), pregnancy, hypotensive patients at immediate risk of cardiogenic shock, systolic blood pressure <80 mm Hg, serum creatinine >3 mg/dL, bilateral renal artery stenosis, or serum potassium >5.5 mmol/L
- **Beta-blockers:** Life-threatening adverse reactions (angioedema or anuric renal failure), pregnancy, hypotensive patients at immediate risk of cardiogenic shock, systolic blood pressure <80 mm Hg, serum creatinine >3 mg/dL, bilateral renal artery stenosis, or serum potassium >5.5 mmol/L, current or recent fluid retention history, unstable or poorly controlled reactive airway disease, symptomatic bradycardia or advanced heart block (unless treated with a pacemaker), or recent treatment with an intravenous positive inotropic agent

Qualifying Statements

Qualifying Statements

Individual patient considerations and advances in medical science may supersede or modify these recommendations.

Implementation of the Guideline

Description of Implementation Strategy

Approved Michigan Quality Improvement Consortium (MQIC) guidelines are disseminated through email, U.S. mail, and websites.

The MQIC health care analyst prepares approved guidelines for distribution. Portable Document Format (PDF) versions of the guidelines are used for distribution.

The MQIC health care analyst distributes approved guidelines to MQIC membership via email.

The MQIC health care analyst submits request to website vendor to post approved guidelines to MQIC website (www.mqic.org).

The MQIC health care analyst completes an annual statewide postcard mailing to physicians in all areas of medicine including primary care and specialties. The postcard provides the complete list of MQIC guidelines and includes which guidelines have been recently revised, which are coming up for revision, and any new published guidelines.

The statewide mailing list is derived from the Blue Cross Blue Shield of Michigan (BCBSM) provider database. Approximately 95% of the state's M.D.'s and 96% of the state's D.O.'s are included in the database.

The MQIC health care analyst submits request to the National Guideline Clearinghouse (NGC) to post approved guidelines to NGC website (www.guideline.gov).

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Living with Illness

IOM Domain

Effectiveness

Patient-centeredness

Identifying Information and Availability

Bibliographic Source(s)

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Adaptation

This guideline is based on the 2009 Focused Update: American College of Cardiology Foundation/American Heart Association (ACCF/AHA) Guidelines for the Diagnosis and Management of Heart Failure in Adults: A Report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines: Developed in Collaboration with the International Society for Heart and Lung Transplantation.

Date Released

2013 Dec (revised 2013 Jan)

2002 Dec (revised 2013 Jan)

Guideline Developer(s)

Michigan Quality Improvement Consortium - Professional Association

Source(s) of Funding

Michigan Quality Improvement Consortium

Guideline Committee

Michigan Quality Improvement Consortium Medical Directors' Committee

Composition of Group That Authored the Guideline

Physician representatives from the 13 participating Michigan Quality Improvement Consortium health plans, Michigan State Medical Society, Michigan Osteopathic Association, Michigan Association of Health Plans, Michigan Department of Community Health, Michigan Peer Review Organization, and the University of Michigan Health System.

Financial Disclosures/Conflicts of Interest

Standard disclosure is requested from all individuals participating in the Michigan Quality Improvement Consortium (MQIC) guideline development process, including those parties who are solicited for guideline feedback (e.g., health plans, medical specialty societies). Additionally, members of the MQIC Medical Directors' Committee are asked to disclose all commercial relationships.

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: Michigan Quality Improvement Consortium. Adults with systolic heart failure. Southfield (MI): Michigan Quality Improvement Consortium; 2011 Jan. 1 p.

Guideline Availability

Electronic copies: Available in Portable Document Format (PDF) from the [Michigan Quality Improvement Consortium Web site](#).

Availability of Companion Documents

None available

Patient Resources

None available

NGC Status

This NGC summary was completed by ECRI on April 14, 2004. The information was verified by the guideline developer on July 27, 2004. This NGC summary was updated by ECRI on February 24, 2005. The information was verified by the guideline developer on February 25, 2005. This NGC summary was updated by ECRI Institute on June 8, 2009. The updated information was verified by the guideline developer on June 30, 2009. This NGC summary was updated by ECRI Institute on May 13, 2011. The updated information was verified by the guideline developer on June 2, 2011. This NGC summary was updated by ECRI Institute on January 15, 2014. The updated information was verified by the guideline developer on February 11, 2014.

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