Complete Summary

GUIDELINE TITLE

Heart failure in patients with left ventricular systolic dysfunction: HFSA 2006 comprehensive heart failure practice guideline.

BIBLIOGRAPHIC SOURCE(S)

Heart Failure Society of America. Heart failure in patients with left ventricular systolic dysfunction. J Card Fail 2006 Feb;12(1):e38-57. [120 references] PubMed

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: Heart Failure Society of America. Heart Failure Society of America (HFSA) practice guidelines. HFSA guidelines for management of patients with heart failure caused by left ventricular systolic dysfunction--pharmacological approaches. J Card Fail 1999 Dec;5(4):357-82.

** REGULATORY ALERT **

FDA WARNING/REGULATORY ALERT

Note from the National Guideline Clearinghouse: This guideline references a drug(s) for which important revised regulatory and/or warning information has been released.

- August 16, 2007, Coumadin (Warfarin): Updates to the labeling for Coumadin to include pharmacogenomics information to explain that people's genetic makeup may influence how they respond to the drug.
- October 6, 2006, Coumadin (warfarin sodium): Revisions to the labeling for Coumadin to include a new patient Medication Guide as well as a reorganization and highlighting of the current safety information to better inform providers and patients.

COMPLETE SUMMARY CONTENT

** REGULATORY ALERT **
SCOPE
METHODOLOGY - including Rating Scheme and Cost Analysis
RECOMMENDATIONS
EVIDENCE SUPPORTING THE RECOMMENDATIONS
BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS
QUALIFYING STATEMENTS
IMPLEMENTATION OF THE GUIDELINE

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES
IDENTIFYING INFORMATION AND AVAILABILITY
DISCLAIMER

SCOPE

DISEASE/CONDITION(S)

Heart failure in patients with left ventricular systolic dysfunction

GUIDELINE CATEGORY

Treatment

CLINICAL SPECIALTY

Cardiology
Family Practice
Internal Medicine

INTENDED USERS

Pharmacists
Physicians

GUIDELINE OBJECTIVE(S)

To provide recommendations for the treatment of heart failure in patients with left ventricular systolic dysfunction

TARGET POPULATION

Heart failure patients with left ventricular systolic dysfunction

INTERVENTIONS AND PRACTICES CONSIDERED

1. Angiotensin-converting enzyme (ACE) inhibitors
2. Angiotensin receptor blockers (ARBs)
3. Beta-adrenergic receptor blockers
4. Aldosterone antagonists
5. Oral nitrates and hydralazine
6. Polypharmacy
7. Diuretic therapy
8. Digoxin
9. Anticoagulation and antiplatelet drugs
10. Amiodarone therapy

MAJOR OUTCOMES CONSIDERED

- Signs and symptoms
- Quality of life
- Progression of cardiac and peripheral dysfunction
- Mortality rates

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases
Searches of Unpublished Data

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Databases searched included Medline and Cochrane. In addition, the guideline developers polled experts in specific areas for data.

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

Level A: Randomized, Controlled, Clinical Trials
May be assigned based on results of a single trial

Level B: Cohort and Case-Control Studies
Post hoc, subgroup analysis, and meta-analysis
Prospective observational studies or registries

Level C: Expert Opinion
Observational studies – epidemiologic findings
Safety reporting from large-scale use in practice

METHODS USED TO ANALYZE THE EVIDENCE

Review of Published Meta-Analyses
Systematic 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

The Heart Failure Society of America (HFSA) Guideline Committee sought resolution of difficult cases through consensus building. Written documents were essential to this process, because they provided the opportunity for feedback from all members of the group. On occasion, consensus of Committee opinion was sufficient to override positive or negative results of almost any form or prior evidence.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

"Is recommended": Part of routine care
Exceptions to therapy should be minimized.

"Should be considered": Majority of patients should receive the intervention. Some discretion in application to individual patients should be allowed.

"May be considered": Individualization of therapy is indicated

"Is not recommended": Therapeutic intervention should not be used

COST ANALYSIS

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

METHOD OF GUIDELINE VALIDATION

Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

The process of moving from ideas of recommendations to a final document includes many stages of evaluation and approval. Every section, once written, had a lead reviewer and 2 additional reviewers. After a rewrite, each section was assigned to another review team, which led to a version reviewed by the Committee as a whole and then the Heart Failure Society of America (HFSA) Executive Council, representing 1 more level of expertise and experience. Out of this process emerged the final document.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

The strength of evidence (A, B, C) and strength of recommendations are defined at the end of the "Major Recommendations" field.

Angiotensin-converting Enzyme (ACE) Inhibitors

- ACE inhibitors are recommended for routine administration to symptomatic and asymptomatic patients with left ventricular ejection fraction (LVEF) ≤40%. (Strength of Evidence = A) ACE inhibitors should be titrated to doses used in clinical trials, as tolerated during concomitant up-titration of beta-blockers. (Strength of Evidence = C).
- It is recommended that other therapy be substituted for ACE inhibitors in the following circumstances:
    - In patients who cannot tolerate ACE inhibitors from cough, angiotensin receptor blockers (ARBs) are recommended. (Strength of Evidence = A) The combination of hydralazine and an oral nitrate may be considered in such patients not tolerating ARB therapy. (Strength of Evidence = C)
    - Patients intolerant to ACE inhibitors from hyperkalemia or renal insufficiency are likely to experience the same side effects with ARBs. In these cases, the combination of hydralazine and an oral nitrate should be considered. (Strength of Evidence = C)

Beta-adrenergic Receptor Blockers

Table 7.1: Summary of Recommendations for the Administration of Beta-Blocker Therapy

General	• Initiate at low doses. • Uptitrate gradually, generally no sooner than at 2-week intervals. • Use target doses shown to be effective in clinical trials. • Aim to achieve target dose in 8 to 12 weeks. • Maintain at maximum tolerated dose.
Considerations if symptoms worsen or other side effects appear	• Adjust dose of diuretic or other concomitant vasoactive medication. • Continue titration to target dose after symptoms return to baseline.
Considerations if up-titration continues to be difficult	• Prolong titration interval • Reduce target dose • Consider referral to a heart failure (HF) specialist
If an acute exacerbation of chronic HF occurs	• Maintain therapy if possible. • Reduce dosage if necessary. • Avoid abrupt discontinuation. • If discontinued or reduced, reinstate gradually before discharge.

- Beta-blockers shown to be effective in clinical trials of patients with HF are recommended for patients with an LVEF ≤40%. (Strength of Evidence = A)
- The combination of a beta-blocker and an ACE inhibitor is recommended as routine therapy for asymptomatic patients with a LVEF ≤40%
    - Post-myocardial infarction (MI) (Strength of Evidence = B)
    - Non Post-MI (Strength of Evidence = C)
- Beta-blocker therapy is recommended for patients with a recent decompensation of HF after optimization of volume status and successful discontinuation of intravenous diuretics and vasoactive agents, including inotropic support. Whenever possible, beta-blocker therapy should be initiated in the hospital setting at a low dose prior to discharge in stable patients. (Strength of Evidence = B)
- Beta-blocker therapy is recommended in the great majority of patients with LV systolic dysfunction, even if there is concomitant diabetes, chronic obstructive lung disease, or peripheral vascular disease. Beta-blocker therapy should be used with caution in patients with diabetes with recurrent hypoglycemia, with asthma, or with resting limb ischemia. Considerable caution should be used if beta-blockers are initiated in patients with marked bradycardia (<55 beats/min) or marked hypotension (systolic blood pressure <80 mm Hg). Beta-blockers are not recommended in patients with asthma with active bronchospasm. (Strength of Evidence = C)
- It is recommended that beta-blockade be initiated at low doses and uptitrated gradually, typically no sooner than at 2-week intervals. Doses found to be effective in HF trials are generally achieved in 8 to 12 weeks. Patients developing worsening HF symptoms or other side effects during titration may require a dosage adjustment of diuretic or concomitant vasoactive medications. If side effects resolve with medication adjustment, patients can subsequently be titrated to target or maximally tolerated doses. Some patients may require a more prolonged interval during uptitration, a temporary reduction in beta-blocker dose, or, in rare cases, withdrawal of therapy. (Strength of Evidence = B)
- It is recommended that beta-blocker therapy be continued in most patients experiencing a symptomatic exacerbation of HF during chronic maintenance treatment. (Strength of Evidence = C)

  A temporary reduction of dose in this setting may be considered. Abrupt discontinuation in patients with symptomatic exacerbation should be avoided. (Strength of Evidence = C)

  If discontinued or reduced, beta-blockers should be reinstated or the dose should be gradually increased before the patient is discharged.

- It is recommended that patients in whom difficulty is encountered in initiating, uptitrating or maintaining beta-blocker therapy be referred to clinicians with special expertise in HF. (Strength of Evidence = B)

Angiotensin Receptor Blockers (ARBs)

- ARBs are recommended for routine administration to symptomatic and asymptomatic patients with an LVEF ≤40% who are intolerant to ACE inhibitors for reasons other than hyperkalemia or renal insufficiency. (Strength of Evidence = A)

- Individual ARBs may be considered as initial therapy rather than ACE inhibitors for patients with the following conditions:
    - HF Post-MI (Strength of Evidence = A)
    - Chronic HF and systolic dysfunction (Strength of Evidence = B)
- ARBs should be considered in patients experiencing angioedema while on ACE inhibitors based on their underlying risk and with recognition that angioedema has been reported infrequently with these agents. (Strength of Evidence = B)

  The combination of hydralazine and oral nitrates may be considered in this setting in patients who do not tolerate ARB therapy. (Strength of Evidence = C)

- The routine administration of an ARB is not recommended in addition to ACE inhibitor and beta-blocker therapy in patients with a recent acute MI and LV dysfunction. (Strength of Evidence = A)

Aldosterone Antagonists

- Administration of an aldosterone antagonist is recommended for patients with New York Heart Association (NYHA) class IV (or class III, previously class IV) HF from LV systolic dysfunction (LVEF $\leq$35%) while receiving standard therapy, including diuretics. (Strength of Evidence = A)
- Administration of an aldosterone antagonist should be considered in patients following an acute MI, with clinical HF signs and symptoms and an LVEF <40%. Patients should be on standard therapy, including an ACE inhibitor (or ARB) and a beta blocker. (Strength of Evidence = A)
- Aldosterone antagonists are not recommended when creatinine is >2.5 mg/dL (or creatinine clearance is <30 mL/min) or serum potassium is >5.0 mmol/L or in conjunction with other potassium-sparing diuretics. (Strength of Evidence = A)
- It is recommended that serum potassium concentration be monitored frequently following initiation or change in an aldosterone antagonist. Monitoring should reflect protocols followed in clinical trials. (Strength of Evidence = A)
- In the absence of persistent hypokalemia (<4.0 mmol/L), supplemental potassium is not recommended in patients taking an aldosterone antagonist. (Strength of Evidence = A)

Oral Nitrates and Hydralazine

- A combination of hydralazine and isosorbide dinitrate is recommended as part of standard therapy in addition to beta-blockers and ACE inhibitors for African Americans with LV systolic dysfunction.
    - NYHA III or IV HF (Strength of Evidence = A)
    - NYHA II HF (Strength of Evidence = B) (See National Guideline Clearinghouse [NGC] summary of Heart Failure Society of American [HFSA] guideline, Management of Heart Failure in Special Populations)
- A combination of hydralazine and isosorbide dinitrate may be considered in non–African-American patients with LV systolic dysfunction who remain symptomatic despite optimized standard therapy. (Strength of Evidence = C)

Polypharmacy

- Additional pharmacologic therapy should be considered in patients with HF due to systolic dysfunction who have persistent symptoms or progressive worsening despite optimized therapy with an ACE inhibitor and beta-blocker. The choice of specific agent will be influenced by clinical considerations, including renal function status, chronic serum potassium concentration, blood pressure, and volume status. The triple combination of an ACE inhibitor, an ARB, and an aldosterone antagonist is not recommended because of the high risk of hyperkalemia. (Strength of Evidence = C)
    - Addition of an ARB. (Strength of Evidence = A)
    - Addition of an aldosterone antagonist:
        - for severe HF (Strength of Evidence = A)
        - for moderate HF (Strength of Evidence = C)
    - Addition of the combination of hydralazine/isosorbide dinitrate:
        - for African Americans (Strength of Evidence = A)
        - for others (Strength of Evidence = C)
- Additional pharmacological therapy should be considered in patients with HF due to systolic dysfunction who are unable to tolerate a beta-blocker and have persistent symptoms or progressive worsening despite optimized therapy with an ACE inhibitor. The choice of specific agent will be influenced by clinical considerations, including renal function status, chronic serum potassium concentration, blood pressure and volume status. The triple combination of an ACE inhibitor, an ARB, and an aldosterone antagonist is not recommended due to the high risk of hyperkalemia. (Strength of Evidence = C)
    - Addition of an ARB. (Strength of Evidence = C)
    - Addition of an aldosterone antagonist:
        - for severe HF (Strength of Evidence = C)
        - for moderate HF (Strength of Evidence = C)
    - Addition of the combination of hydralazine/isosorbide dinitrate:
        - for African Americans (Strength of Evidence = C)
        - for others (Strength of Evidence = C)

Diuretic Therapy

- Diuretic therapy is recommended to restore and maintain normal volume status in patients with clinical evidence of fluid overload, generally manifested by congestive symptoms (orthopnea, edema, and shortness of breath), or signs of elevated filling pressures (jugular venous distention, peripheral edema, pulsatile hepatomegaly, and, less commonly, rales). (Strength of Evidence = A) Loop diuretics rather than thiazide-type diuretics are typically necessary to restore normal volume status in patients with HF. (Strength of Evidence = B)
- The initial dose of diuretic may be increased as necessary to relieve congestion. Restoration of normal volume status may require multiple adjustments over many days and occasionally weeks in patients with severe fluid overload evidenced by massive edema or ascites. After a diuretic effect is achieved with short-acting loop diuretics, increasing administration frequency to twice or even 3 times per day will provide more diuresis with less physiologic perturbation than larger single doses. (Strength of Evidence = B)

Oral torsemide may be considered in patients in whom poor absorption of oral medication or erratic diuretic effect may be present, particularly those with right-sided HF and refractory fluid retention despite high doses of other loop diuretics. (Strength of Evidence = C)

Intravenous administration of diuretics may be necessary to relieve congestion. (Strength of Evidence = A)

Diuretic refractoriness may represent patient noncompliance, a direct effect of diuretic use on the kidney, or progression of underlying cardiac dysfunction.

- Addition of chlorothiazides or metolazone, once or twice daily, to loop diuretics should be considered in patients with persistent fluid retention despite high-dose loop diuretic therapy. But chronic daily use, especially of metolazone, should be avoided if possible because of the potential for electrolyte shifts and volume depletion. These drugs may be used periodically (every other day or weekly) to optimize fluid management. Metolazone will generally be more potent and much longer-acting in this setting and in patients with chronic renal insufficiency, so administration should be adjusted accordingly. Volume status and electrolytes must be monitored closely when multiple diuretics are used. (Strength of Evidence = C)
- Careful observation for the development of side effects, including electrolyte abnormalities, symptomatic hypotension, and renal dysfunction, is recommended in patients treated with diuretics, especially when used at high doses and in combination. Patients should undergo routine laboratory studies and clinical examination as dictated by their clinical response. (Strength of Evidence = B)
- Patients requiring diuretic therapy to treat fluid retention associated with HF generally require chronic treatment, although often at lower doses than those required initially to achieve diuresis. Decreasing or even discontinuing diuretics may be considered in patients experiencing significant improvement in clinical status and cardiac function or in those who successfully restrict dietary sodium intake. These patients may undergo cautious weaning of diuretic dose and frequency with careful observation for recurrent fluid retention. (Strength of Evidence = C)
- It is recommended that patients and caregivers be given education that will enable them to demonstrate understanding of the early signs of fluid retention and the plan for initial therapy. (Strength of Evidence = C)

  Selected patients may be educated to adjust daily dose of diuretic in response to weight gain from fluid overload (typically short-term weight gain of 2 to 4 lb). (Strength of Evidence = C)

Digoxin

- Digoxin should be considered for patients with LV systolic dysfunction (LVEF $\leq$40) who have signs or symptoms of HF while receiving standard therapy, including ACE inhibitors and beta-blockers:
  - NYHA class II-III (Strength of Evidence = A)
  - NYHA class IV (Strength of Evidence = B)
- It is recommended that the dose of digoxin, which should be based on lean body mass, renal function, and concomitant medications, should be 0.125 mg

daily in the majority of patients and the serum digoxin level should be <1.0 ng/mL. (Strength of Evidence = C)

- Adequate control of the ventricular response to atrial fibrillation in patients with HF is recommended. (Level of Evidence = B)
- High doses of digoxin (maintenance dose >0.25 mg daily) for the purpose of rate control are not recommended. (Strength of Evidence = C)

Anticoagulation and Antiplatelet Drugs

- Treatment with warfarin (goal international normalized ratio [INR] 2.0 to 3.0) is recommended for all patients with HF and chronic or documented paroxysmal atrial fibrillation (Strength of Evidence = A) or a history of systemic or pulmonary emboli, including stroke or transient ischemic attack (Strength of Evidence = C), unless contraindicated.
- It is recommended that patients with symptomatic or asymptomatic ischemic cardiomyopathy and documented recent large anterior MI or recent MI with documented LV thrombus be treated with warfarin (goal international normalized ratio 2.0 to 3.0) for the initial 3 months post-MI (Strength of Evidence = B) unless contraindicated.

  Other patients with ischemic or nonischemic cardiomyopathy and LV thrombus should be considered for chronic anticoagulation, depending on the characteristics of the thrombus, such as its size, mobility, and degree of calcification. (Strength of Evidence = C)

- In the absence of the indications included in the two recommendations above, warfarin anticoagulation may be considered in patients with dilated cardiomyopathy and LVEF $\leq$35%. Careful assessment of the potential risks and benefits should be undertaken in individual patients. (Strength of Evidence = C)
- Long-term treatment with an antithrombotic agent is recommended for patients with HF due to ischemic cardiomyopathy, whether or not they are receiving ACE inhibitors. (Strength of Evidence = B)

  Aspirin is recommended in most patients for whom anticoagulation is not specifically indicated because of its proven efficacy in non-HF patients with ischemic heart disease, its convenience, and lower cost. Lower doses of aspirin (75 or 81 mg) may be preferable. (Strength of Evidence = C)

  Warfarin (goal international normalized ratio 2.0 to 3.5) and clopidogrel (75 mg) also have prevented vascular events in post-MI patients and may be considered as alternatives to aspirin. (Strength of Evidence = B)

- Routine use of aspirin is not recommended in patients with HF not from ischemic cardiomyopathy and without other evidence of atherosclerotic vascular disease. (Strength of Evidence = C)
- Aspirin and an ACE inhibitor in combination may be considered for patients with HF where an indication for both drugs exists. (Strength of Evidence = C)

  Generally the lowest effective aspirin dose (75 or 81 mg/day) should be administered in this setting. (Strength of Evidence = C)

Antiarrhythmic Agents

- Antiarrhythmic agents, including amiodarone, are not recommended for the primary prevention of sudden death in patients with HF. (Strength of Evidence = A).
- In patients with HF and an implantable cardioverter defibrillator (ICD), amiodarone may be considered to reduce the frequency of repetitive discharges. (Strength of Evidence = C)
- It is recommended that patients taking amiodarone therapy and digoxin or warfarin generally have their maintenance doses of many commonly used agents, such as digoxin, warfarin, and statins, reduced when amiodarone is initiated and then carefully monitored for the possibility of adverse drug interactions. Adjustment in doses of these drugs and laboratory assessment of drug activity or serum concentration after initiation of amiodarone is recommended. (Strength of Evidence = A)

Definitions:

Strength of Evidence

Level A: Randomized, Controlled, Clinical Trials
May be assigned based on results of a single trial

Level B: Cohort and Case-Control Studies
Post hoc, subgroup analysis, and meta-analysis
Prospective observational studies or registries

Level C: Expert Opinion
Observational studies – epidemiologic findings
Safety reporting from large-scale use in practice

Strength of Recommendations

"Is recommended": Part of routine care
Exceptions to therapy should be minimized.

"Should be considered": Majority of patients should receive the intervention.
Some discretion in application to individual patients should be allowed.

"May be considered": Individualization of therapy is indicated

"Is not recommended": Therapeutic intervention should not be used

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for each recommendation (see the "Major Recommendations").

The recommendations are supported by randomized controlled clinical trials, cohort and case-control studies, and expert opinion.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

- Improving symptoms and quality of life
- Slowing the progression of cardiac and peripheral dysfunction
- Reducing mortality

POTENTIAL HARMS

- The major side effects of angiotensin-converting enzyme (ACE) inhibitors in patients with heart failure (HF) are hypotension and azotemia. The major symptomatic side effect is a dry cough that usually does not require discontinuation of the drug.
- Angiotensin receptor blockers (ARBs) appear as likely as ACE inhibitors to produce hypotension, worsening renal function, and hyperkalemia.
- Beta-blocking agents with intrinsic sympathomimetic activity are likely to worsen survival and should be avoided in patients with HF.
- Abrupt withdrawal of beta-blockade should be avoided, especially in patients with coronary artery disease. Studies of the withdrawal of beta-blockade in patients with persistent left ventricular (LV) systolic dysfunction, but improved and stable clinical HF, have revealed a substantial risk of worsening HF and early death after beta-blocker discontinuation.
- ACE inhibitors can have some troublesome side effects, including cough and angioedema, which may limit therapy with these agents. ARBs have been demonstrated to be well tolerated in randomized trials of patients judged to be intolerant of ACE inhibitors by their clinicians, although these primarily reflect intolerance from cough, skin rashes, and angioedema. Both drugs have similar effects on blood pressure, renal function, and potassium.
- In addition to hyperkalemia, gynecomastia or breast pain may be important side effects of spironolactone.
- Hyperkalemia is a life-threatening complication of aldosterone antagonists and is much more likely to occur in patients with diabetes or renal insufficiency or in those taking ACE inhibitors or ARBs.
- Diuretics may cause activation of the rennin angiotensin-aldosterone system (RAAS), potentiate hypotensive effects of ACE inhibitors, and may decrease cardiac output, especially in patients with diastolic left ventricular dysfunction. Diuretics also may induce hypokalemia and hypomagnesemia.
- Loop diuretics may be associated with a variety of other side effects that may require additional treatment to correct. Rapid intravenous administration of high-dose loop diuretics should be avoided whenever possible, because hearing loss to the point of deafness can result from middle ear toxicity. Skin reactions from photosensitivity to rashes are not uncommon, and other hypersensitivity reactions including interstitial nephritis may occur. High doses of loop diuretics can worsen glucose tolerance and may result in

hyperuricemia and symptoms of gout, prompted by increased uric acid reabsorption. Thiazide diuretics share most of the side effects seen with loop diuretics, although an association with pancreatitis appears be unique to loop diuretics.

- Post-hoc analyses of large randomized trials involving ACE inhibitors in HF and post-myocardial infarction (MI) have raised the possibility of an adverse drug interaction between aspirin (ASA) and ACE inhibitors.
- There are justifiable concerns about antiarrhythmic therapy in patients with HF. Patients with HF are at higher risk for proarrhythmic effects of antiarrhythmic agents. This has been demonstrated with class Ia (quinidine, procainamide), class Ic, and class III (dofetilide) agents. Virtually all antiarrhythmic agents have been shown to have adverse hemodynamic effects sufficient to have negative consequences in patients with HF.

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

It must be recognized that the evidence supporting recommendations is based largely on population responses that may not always apply to individuals within the population. Therefore, data may support overall benefit of 1 treatment over another but cannot exclude that some individuals within the population may respond better to the other treatment. Thus guidelines can best serve as evidence-based recommendations for management, not as mandates for management in every patient. Furthermore, it must be recognized that trial data on which recommendations are based have often been carried out with background therapy not comparable to therapy in current use. Therefore, physician decisions regarding the management of individual patients may not always precisely match the recommendations. A knowledgeable physician who integrates the guidelines with pharmacologic and physiologic insight and knowledge of the individual being treated should provide the best patient management.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

IMPLEMENTATION TOOLS

Pocket Guide/Reference Cards
Slide Presentation

For information about availability, see the "Availability of Companion Documents" and "Patient Resources" fields below.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Living with Illness

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Heart Failure Society of America. Heart failure in patients with left ventricular systolic dysfunction. J Card Fail 2006 Feb;12(1):e38-57. [120 references] PubMed

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

1999 (revised 2006 Feb)

GUIDELINE DEVELOPER(S)

Heart Failure Society of America, Inc - Disease Specific Society

SOURCE(S) OF FUNDING

Heart Failure Society of America, Inc

GUIDELINE COMMITTEE

Comprehensive Heart Failure Practice Guideline Committee

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Committee Members: Kirkwood F. Adams, Jr, MD (*Co-Chair*); JoAnn Lindenfeld, MD (*Co-Chair*); J. Malcolm O. Arnold, MD; David W. Baker, MD; Denise H. Barnard, MD; Kenneth Lee Baughman, MD; John P. Boehmer, MD; Prakash Deedwania, MD; Sandra B. Dunbar, RN, DSN; Uri Elkayam, MD; Mihai Gheorghiade, MD; Jonathan G. Howlett, MD; Marvin A. Konstam, MD; Marvin W. Kronenberg, MD; Barry M. Massie, MD; Mandeep R. Mehra, MD; Alan B. Miller, MD; Debra K. Moser, RN, DNSc; J. Herbert Patterson, PharmD; Richard J. Rodeheffer, MD; Jonathan Sackner-Bernstein, MD; Marc A. Silver, MD; Randall C. Starling, MD, MPH; Lynne Warner Stevenson, MD; Lynne E. Wagoner, MD

HFSA Executive Council: Gary S. Francis, MD, *President*; Michael R. Bristow, MD, PhD; Jay N. Cohn, MD; Wilson S. Colucci, MD; Barry H. Greenberg, MD; Thomas Force, MD; Harlan M. Krumholz, MD; Peter P. Liu, MD; Douglas L. Mann, MD; Ileana L. Piña, MD; Susan J. Pressler, RN, DNS; Hani N. Sabbah, PhD; Clyde W. Yancy, MD

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Committee members and reviewers from the Executive Council received no direct financial support from the Heart Failure Society of America (HFSA) or any other source for the development of the guideline. Administrative support was provided by the Heart Failure Society of America staff, and the writing of the document was performed on a volunteer basis by the Committee. Financial relationships that might represent conflicts of interest were collected for all members of the Guideline Committee and of the Executive Council, who were asked to disclose potential conflicts and recuse themselves from discussions when necessary. Current relationships are shown in Table 1.5 of the "Development and Implementation" companion document (see the "Availability of Companion Documents" field).

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: Heart Failure Society of America. Heart Failure Society of America (HFSA) practice guidelines. HFSA guidelines for management of patients with heart failure caused by left ventricular systolic dysfunction--pharmacological approaches. J Card Fail 1999 Dec;5(4):357-82.

GUIDELINE AVAILABILITY

Electronic copies: Available from the Heart Failure Society of America, Inc. Web site.

Print copies: Available from the Heart Failure Society of America, Inc., Court International - Suite 240 S, 2550 University Avenue West, Saint Paul, Minnesota 55114; Phone: (651) 642-1633

AVAILABILITY OF COMPANION DOCUMENTS

The following are available:

- Heart Failure Society of America. Executive summary: HFSA 2006 comprehensive heart failure practice guideline. J Card Fail 2006 Feb;12(1):10-38.
- Heart Failure Society of America. Development and implementation of a comprehensive heart failure practice guideline. J Card Fail 2006 Feb;12(1):e3-9.
- Heart Failure Society of America. Conceptualization and working definition of heart failure. J Card Fail 2006 Feb;12(1):e10-11.

Electronic copies: Available from the Heart Failure Society of America, Inc. Web site.

- PowerPoint slides. HFSA 2006 comprehensive heart failure guideline.

  Electronic copies: Available from the Heart Failure Society of America, Inc. Web site.

The following is also available:

- Heart Failure Society of America. Pocket guide. HFSA 2006 comprehensive heart failure practice guideline.

Electronic copies: Not available at this time.

Print copies: Available from the Heart Failure Society of America, Inc., Court International - Suite 240 South, 2550 University Avenue West, Saint Paul, Minnesota 55114; Phone: (651) 642-1633

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI on July 31, 2006. The information was verified by the guideline developer on August 10, 2006. This summary was updated by ECRI on March 6, 2007 following the U.S. Food and Drug Administration (FDA) advisory on Coumadin (warfarin sodium). This summary was updated by ECRI Institute on September 7, 2007 following the revised U.S. Food and Drug Administration (FDA) advisory on Coumadin (warfarin).

COPYRIGHT STATEMENT

This NGC summary is based on the original guideline, which is subject to the guideline developer's copyright restrictions. Please direct inquiries to info@hfsa.org.

DISCLAIMER

NGC DISCLAIMER

The National Guideline Clearinghouse™ (NGC) does not develop, produce, approve, or endorse the guidelines represented on this site.

All guidelines summarized by NGC and hosted on our site are produced under the auspices of medical specialty societies, relevant professional associations, public or private organizations, other government agencies, health care organizations or plans, and similar entities.

Guidelines represented on the NGC Web site are submitted by guideline developers, and are screened solely to determine that they meet the NGC Inclusion Criteria which may be found at http://www.guideline.gov/about/inclusion.aspx .

NGC, AHRQ, and its contractor ECRI Institute make no warranties concerning the content or clinical efficacy or effectiveness of the clinical practice guidelines and related materials represented on this site. Moreover, the views and opinions of developers or authors of guidelines represented on this site do not necessarily state or reflect those of NGC, AHRQ, or its contractor ECRI Institute, and inclusion or hosting of guidelines in NGC may not be used for advertising or commercial endorsement purposes.

Readers with questions regarding guideline content are directed to contact the guideline developer.

© 1998-2008 National Guideline Clearinghouse

Date Modified: 11/3/2008