Complete Summary

GUIDELINE TITLE

The evidence base for tight blood pressure control in the management of type 2 diabetes mellitus.

BIBLIOGRAPHIC SOURCE(S)

Snow V, Weiss KB, Mottur-Pilson C. The evidence base for tight blood pressure control in the management of type 2 diabetes mellitus. Ann Intern Med 2003 Apr 1;138(7):587-92. [30 references] PubMed

GUIDELINE STATUS

This is the current release of the guideline.

COMPLETE SUMMARY CONTENT

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SCOPE

DISEASE/CONDITION(S)

Hypertension in patients with type 2 diabetes mellitus

GUIDELINE CATEGORY

Management
Risk Assessment
Treatment

CLINICAL SPECIALTY

Endocrinology
Family Practice
Internal Medicine

INTENDED USERS

Advanced Practice Nurses
Allied Health Personnel
Nurses
Physician Assistants
Physicians

GUIDELINE OBJECTIVE(S)

To provide clinicians with evidence-based recommendations regarding treatment of hypertension in type 2 diabetes mellitus: setting treatment goals, choosing optimal agents for treatment, and setting priorities in patients with type 2 diabetes

TARGET POPULATION

Type 2 diabetes patients with concomitant hypertension, including patients with some form of microvascular complications and premenopausal women.

INTERVENTIONS AND PRACTICES CONSIDERED

Treatment/Prevention

Antihypertensive Drugs

1. Thiazide diuretics
2. Calcium-channel blockers
3. Beta-blockers
4. Angiotensin-converting enzyme (ACE) inhibitors
5. Angiotensin-II receptor blockers
6. Alpha-blockers (should be reserved for hypertension refractory to other agents)

MAJOR OUTCOMES CONSIDERED

- All-cause mortality
- Cardiovascular mortality
- Cardiovascular events (myocardial infarction, stroke, congestive heart failure)
- Microvascular complications (photocoagulation, nephropathy, neuropathy, amputation)

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Hand-searches of Published Literature (Secondary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

The literature review was limited to randomized, controlled trials that included patients with diabetes. Only studies that measured major clinical end points were included. Four classes of clinical end points were defined: all-cause mortality, cardiovascular mortality, major cardiovascular events (that is, myocardial infarction or stroke), and advanced microvascular outcomes (photocoagulation or visual loss, nephropathy or end-stage renal disease, neuropathy, or amputation). The authors separated the literature review into two categories. The first category evaluated the effects of hypertension control if the comparison examined an antihypertensive drug versus placebo or the effects of different target blood pressure levels. The second category evaluated the effects of different classes of drugs.

Several sources were used to identify the relevant literature. For older literature, the authors started with the Cochrane Collaboration Diabetes Group report on treatment of hypertension in diabetes, which was published in 1997. This report has now been withdrawn because it is out of date, but it served as a reasonable starting point to identify pre-1997 literature. A MEDLINE search was then performed in May 2000 and updated in April 2002. The authors used the keywords *exp diabetes mellitus* and *exp hypertension [therapy or prevention and control]* and limited the search to randomized, controlled trials. The final search produced 322 results. Of these, most were discarded because they did not measure major clinical outcomes, were observational in nature, were reviews or editorials, or did not primarily address the issue of treatment of hypertension. The search was then updated through consultation with experts and through examining references from meta-analyses and review articles.

NUMBER OF SOURCE DOCUMENTS

322 articles

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Not stated

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review with Evidence Tables

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Data were extracted from the primary study reports by the primary author and were reviewed by the senior author. Accuracy and quality of the abstraction were confirmed through reabstraction and comparison with the original abstraction. The outcomes were broken into categories as described, and data on absolute and relative risk reduction and numbers needed to treat for benefit were derived from the primary reports or were calculated in standard fashion.

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

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

This paper was developed by the Clinical Efficacy Assessment Subcommittee of the American College of Physicians (ACP). It was peer reviewed by the American Diabetes Association, the National Diabetes Education Program (National Heart, Lung, and Blood Institute), and the American Academy of Family Physicians. Approved by the ACP Board of Regents in October 2001.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Recommendation 1: Blood pressure control must be a priority in the management of persons with hypertension and type 2 diabetes.

Recommendation 2: Clinicians should aim for a target blood pressure of no more than 135/80 mm Hg for their patients with diabetes.

Recommendation 3: Thiazide diuretics or angiotensin-converting enzyme (ACE) inhibitors can be used as first-line agents for blood pressure control in most patients with diabetes.

Recommendation 4: Further studies are warranted on the relative contributions of glucose control and blood pressure control to clinical outcomes such as microvascular and macrovascular complications.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The recommendations are supported by data from randomized controlled trials that included patients with diabetes. See related background article: Vijan S, Hayward RA. Treatment of hypertension in type 2 diabetes mellitus: blood pressure goals, choice of agents, and setting priorities in diabetes care. Ann Intern Med 2003 Apr 1; 138(7): 593-602.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

- Improved blood pressure control
- Reduction in overall mortality
- Reduction in cardiovascular events and microvascular complications

POTENTIAL HARMS

In the United Kingdom Prospective Diabetes Study (UKPDS) patients taking beta-blockers gained more weight than those taking angiotensin-converting enzyme (ACE) inhibitors, and beta-blocker therapy was more frequently discontinued. In addition, patients taking beta-blockers required the addition of new glucose-lowering agents more frequently than those taking ACE inhibitors.

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

- Clinical practice guidelines are "guides" only and may not apply to all patients and all clinical situations. Thus, they are not intended to override clinicians' judgment.
- All American College of Physicians (ACP) clinical practice guidelines are considered automatically withdrawn or invalid 5 years after publication or once an update has been issued.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

IMPLEMENTATION TOOLS

Patient Resources

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

Getting Better
Living with Illness

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Snow V, Weiss KB, Mottur-Pilson C. The evidence base for tight blood pressure control in the management of type 2 diabetes mellitus. Ann Intern Med 2003 Apr 1;138(7):587-92. [30 references] PubMed

ADAPTATION

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

DATE RELEASED

2003 Apr 1

GUIDELINE DEVELOPER(S)

American College of Physicians - Medical Specialty Society

SOURCE(S) OF FUNDING

American College of Physicians

GUIDELINE COMMITTEE

Clinical Efficacy Assessment Subcommittee (CEAS)

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Authors: Vincenza Snow, MD; Kevin B. Weiss, MD; Christel Mottur-Pilson, PhD

Clinical Efficacy Assessment Subcommittee Members: Kevin Weiss, MD (Chair); Mark Aronson, MD; Patricia Barry, MD; Nick Fitterman, MD; E. Rodney Hornbake, MD; Keith Michl, MD; Doug Owens, MD; Allan Ronald, MD; Katherine Sherif, MD

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

None disclosed

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available from the American College of Physicians (ACP) Web site.

Print copies: Available from the American College of Physicians (ACP), 190 N. Independence Mall West, Philadelphia PA 19106-1572.

AVAILABILITY OF COMPANION DOCUMENTS

The following background document is available:

- Treatment of hypertension in type 2 diabetes mellitus: blood pressure goals, choice of agents, and setting priorities in diabetes care. Ann Intern Med 2003 Apr 1;138(7):593-602.

Electronic copies: Available from the American College of Physicians (ACP) Web site.

Print copies: Available from the American College of Physicians (ACP), 190 N. Independence Mall West, Philadelphia PA 19106-1572.

PATIENT RESOURCES

The following is available:

- Summaries for patients. Blood pressure control in people with type 2 diabetes mellitus: recommendations from the American College of Physicians. Ann Intern Med 2003 Apr 1;138(7):I70.

Electronic copies: Available from the American College of Physicians (ACP) Web site.

Print copies: Available from the American College of Physicians (ACP), 190 N. Independence Mall West, Philadelphia PA 19106-1572.

Please note: This patient information is intended to provide health professionals with information to share with their patients to help them better understand their health and their diagnosed disorders. By providing access to this patient information, it is not the intention of NGC to provide specific medical

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NGC STATUS

This NGC summary was completed by ECRI on July 9, 2003. The information was verified by the guideline developer on July 23, 2003.

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