Identification, Treatment, and Control of Cardiometabolic Disease Risk Factors in Minorities

National Minority Quality Forum
Washington, D.C.
April 22, 2013

Keith C. Ferdinand, MD, FACC, FAHA, FASH, FNLA
Association of Black Cardiologists, Inc
Professor of Clinical Medicine
Tulane University School of Medicine
Chair, National Forum for Heart Disease & Stroke Prevention
Keith C. Ferdinand, MD

Has disclosed the following affiliations. Any real or apparent COIs related to the presentation have been resolved.

Speaker’s Bureau
- Astra Zeneca, Forest, Takeda, Novartis

Grant/Research Support
- Daiichi Sankyo, Forest, Novartis, Lilly

Consultant
- Astra Zeneca, Daiichi Sankyo, Forest, Novartis
Learning Objectives

- Describe the increased prevalence of DM, but less than expected MetS, as a major CVD risks for African Americans

- Describe lifestyle and drug therapy in persons with high cardiometabolic risk to control hypertension and prevent DM, especially in minorities
Learning Objectives

• Note recent reports & guideline updates on improving hypertension standards of care in persons at cardiometabolic risk
• Describe the reasons for and recent findings of the Association of Black Cardiologists’ CODE RED initiative
Prevalence T2DM by Race/Ethnicity

2007-2009 National Survey Data (people aged 20+)

- Non Hispanic White: 7.1%
- Non Hispanic Black: 12.6%
- Hispanic: 11.8%
- Asian American: 8.4%

National Diabetes Fact Sheet, CDC, 2011
www.cdc.gov/diabetes/pubs/factsheet11.htm
# Metabolic Syndrome: NCEP ATP III Definition

Diagnosis based on the presence of

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Defining Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abdominal obesity (waist circumference*)</td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>&gt;102 cm (&gt;40 in)</td>
</tr>
<tr>
<td>Women</td>
<td>&gt;88 cm (&gt;35 in)</td>
</tr>
<tr>
<td>Triglycerides</td>
<td>≥150 mg/dL</td>
</tr>
<tr>
<td>HDL cholesterol</td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>&lt;40 mg/dL</td>
</tr>
<tr>
<td>Women</td>
<td>&lt;50 mg/dL</td>
</tr>
<tr>
<td>Blood pressure</td>
<td>≥130/≥85 mm Hg</td>
</tr>
<tr>
<td>Fasting glucose</td>
<td>≥100 mg/dL† modified</td>
</tr>
</tbody>
</table>

Prevalence of the NCEP Metabolic Syndrome NHANES III by Sex and Race/Ethnicity

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>25%</td>
<td>36%</td>
</tr>
<tr>
<td>African American</td>
<td>16%</td>
<td>23%</td>
</tr>
<tr>
<td>Mexican American</td>
<td>28%</td>
<td>26%</td>
</tr>
<tr>
<td>Other</td>
<td>21%</td>
<td>20%</td>
</tr>
</tbody>
</table>

Ford et al JAMA 2002;287:356-9
TG and HDL-C Axis in Population Studies

► NHANES: blacks lower TG and higher HDL-C and thus prevalence of MetS lower in blacks than whites
► Also, black vs. white Canadians and London-based Afro-Caribbeans vs. whites.
► Racial difference also true in children and more prominent in men than women.
► Considering higher stroke and MI vs. whites, favorable lipid profile of low TG and high HDL-C in blacks both surprising and paradoxical.

Yu SK et al, Metabol Synd & Rel Dis 2012:10:77-82
The widespread use of TG levels to predict insulin resistance, CVD and T2DM needs re-evaluation.
Treatment of the Metabolic Syndrome

- Therapeutic lifestyle interventions
  - Diet
    - Increase fruits, vegetables
    - Increase omega-3 fatty acids
  - Exercise
- Correct atherogenic dyslipidemia
  - Elevated triglycerides
  - Low HDL-C
  - Small, dense LDL particles
- Correct hypertension
- Aspirin for prothrombotic state

A Cheeseburger from a Five Guys Restaurant

• Calories-840
• Calories from Fat-500
• Total Fat (g)-55
• Saturated Fat (g)-26.5
• Cholesterol (mg)-165
• Sodium (mg)-1050
• Carbs (g)-40
• Protein (g)-47

Incidence of Type 2 DM: Diabetes Prevention Program (DPP)

Cumulative Incidence of Diabetes (%)

Year

0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

Placebo

Metformin (-31%)

Intensive lifestyle modification (-58%)

P<0.001 for comparison between each group

1500 mg of sodium may further lower blood pressure and is particularly effective for middle-aged and older individuals, African Americans, and individuals with HTN.

http://www.iom.edu/Reports/2010
Effects of Intensive Blood-Pressure Control in Type 2 Diabetes Mellitus

The ACCORD Study Group

Primary Outcome: Nonfatal MI, Nonfatal Stroke or CVD Death

HR = 0.88
95% CI (0.73-1.06)
Original Article

Intensive Blood-Pressure Control in Hypertensive Chronic Kidney Disease

Appel, LJ, Wright, JT, et al., for the AASK Collaborative Research Group

N Engl J Med
Volume 363(10):918-929
September 2, 2010
Composite Primary Outcome, Baseline Proteinuria Status

Revised SBP goal for many people with DM and HTN should be <140 mmHg. Lower SBP targets (such as <130 mmHg) may be appropriate for certain individuals, e.g. younger patients, if it can be achieved without undue treatment burden.

*Diabetes Care January 2013 vol. 36 no.Supplement 1 S3*
Obesity-Related Hypertension: Pathogenesis, Cardiovascular Risk, and Treatment: A Position Paper of The Obesity Society and the American Society of Hypertension

Lewis Landsberg, Louis J. Aronne, Lawrence J. Beilin, Valerie Burke, Leon I. Igel, Donald Lloyd-Jones and James Sowers

Journal of Clin Hypertension January 2013

Volume 15, Issue 1| DOI: 10.1111/jch.12049
Lifestyle Management of Obesity-Related HTN

- Hypertension
- Weight loss
- Dietary Approaches to Stop Hypertension (DASH) diet
- Salt restriction
- Physical activity; exercise
- Alcohol moderation
- Behavioral modification

Journal of Clin Hypertension January 2013
Volume 15, Issue 1| DOI: 10.1111/jch.12049
Position Paper: Obesity-Related Hypertension

- Angiotensin is over-expressed in obesity, directly contributing to obesity-related HTN.
- Making the case to consider ACE inhibitors/ARBs as first-line agents.
- In comparison, thiazide regimens increase insulin resistance and associated with increase in new cases of DM.

J Clin Hypertens (Greenwich). 2013; 15:14-33
“In general, the positive effects of antihypertensive drugs on cardiovascular outcomes outweigh the negative effects of antihypertensive drugs on glucose metabolism.”

Ferrannini, E; Cushman, W.; The Lancet, Volume 380, Issue 9841, Pages 601 - 610, 11 August 2012
Pharmacotherapy for HTN with MetS/DM

- Culturally-sensitive lifestyle modification needed
  - Diuretics may be particularly useful for CVD outcomes even with patients with MetS/DM
  - Adequate thiazide-type diuretics for most as first step agent, with chlorthalidone for resistant or high risk patients
Pharmacotherapy for HTN with MetS/DM

- Multiple classes, in combination, effective for high risk HTN with MetS/DM
- B-blockers troublesome adverse effects with obesity
- ACE-I /ARBs useful for cardiorenal protection
CONSORTIUM FOR THE DEVELOPMENT OF EDUCATION TO REDUCE HEALTH CARE DISPARITIES

WHAT/WHY? AN UPDATE
• Code Red is an initiative developed by The Association of Black Cardiologists,
• Applied Clinical Education, and
• Intelligent Medical Decisions,
• in cooperation with the Endocrine Society, the National Lipid Association, and the American Society for Preventive Cardiology
CODE RED COnsortium for the Development of Education to REduce Health Care Disparities

Sponsored by the Association of Black Cardiologists and Applied Clinical Education

Association of Black Cardiologists, Inc.
Saving the Hearts of a Diverse America

Produced in cooperation with The Endocrine Society, National Lipid Association, and The American Society of Preventive Cardiology

Supported by educational grants from Boehringer-Ingelheim, Abbott, Eli Lilly and Company, and Merck
Why?

- Health care quality and access are suboptimal, especially for minority and low-income groups.
- Quality improving; access and disparities are *not improving*
- Urgent attention warranted to ensure continued improvements in quality and progress on reducing disparities in certain services, geography, and populations, including:
  - DM care and adverse events.
  - States in the South.
  - Progress lagging in racial/ethnic minorities
  - Disparities related to race/ethnicity, and SES are present in all priority areas.*

2011 National Healthcare Disparities Report1 (NHDR)
54-question Survey Examining Healthcare Provider Attitudes and Knowledge

- Group of national experts all contributed to development and execution
- Health disparities in obesity, HTN, dyslipidemia, and type 2 DM.
- CME initiative supported by educational grants from Abbott, Boehringer Ingelheim, and Lilly USA, LLC Alliance, Abbott, Eli Lilly and Company, and Merck.
National experts contributing to question development:

Samuel Dagogo-Jack, MD (co-chair)
- A. C. Mullins Professor in Translational Research
- Professor of Medicine and Director
- Division of Endocrinology, Diabetes & Metabolism
- Director, Clinical Research Center
- University of Tennessee Health Science Center Memphis, TN

Karol Watson, MD (co-chair)
- Associate Professor of Medicine
- Co-Director, UCLA Center for Cholesterol and Lipid Management
- David Geffen School of Medicine
- University of California, Los Angeles, CA

Enrique Caballero, MD
- Director, the Latino Diabetes Initiative and Medical Affairs
- Department of Professional Education
- Joslin Diabetes Center
- Professor of Medicine
- Harvard University Boston, MA
National experts contributing to question development:

Michael H. Davidson, MD
- Executive Medical Director, Radiant Research
- Director, Preventive Cardiology Center
- Professor of Medicine
- University of Chicago
- Chicago, Illinois

Keith C. Ferdinand, MD * now Tulane
- Clinical Professor, Cardiology Division
- Emory University
- Chief Science Officer, Association of Black Cardiologists
- Atlanta, Georgia

Nathan D. Wong, PhD
- Professor, Director, Heart Disease Prevention Program
- Division of Cardiology
- University of California, Irvine School of Medicine
- Irvine, California
Survey Priority Areas Include:

- Making care safer
- Ensuring person- and family-centered care
- Promoting effective communication and care coordination
- Promoting effective prevention and treatment of leading causes of mortality, starting with CVD
- Working with communities to promote wide use of best practices to enable healthy living
- Making quality care more affordable.

54-question Survey

- On survey completion, participants presented with answer key highlighting correct and incorrect answers for knowledge-based questions.
- Statistical analysis conducted using R statistical package V.2.13.1 on RStudio platform.
- To ensure data integrity, only fully completed surveys screened for data validity.
- Participants could claim 1.0 AMA PRA Category 1 Credit™ for survey participation
http://codered.imedicaldecisions.com
### Survey Respondents

**Table 1 - Respondent Characteristics (N=139)**

<table>
<thead>
<tr>
<th>Race (%)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>74.1</td>
</tr>
<tr>
<td>Black/African American</td>
<td>12.9</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>4.3</td>
</tr>
<tr>
<td>Asian</td>
<td>7.2</td>
</tr>
<tr>
<td>Other/Decline to answer</td>
<td>1.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gender (%)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>46.8</td>
</tr>
<tr>
<td>Female</td>
<td>50.4</td>
</tr>
<tr>
<td>Decline to answer</td>
<td>2.9</td>
</tr>
</tbody>
</table>
Phase I

- An online CME survey on cardiometabolic disease in racial/ethnic minorities.
- Outcomes will direct creation of programs designed to meet the educational needs of physicians.

Figure 3 – Results for Question: “Do clinically similar patients receive different care on the basis of race/ethnicity ... “
Figure 4 – Results for Question: “Do you think most African Americans/Hispanics receive ... quality health care as most whites?”
Guideline Knowledge

- When asked to identify NHLBI cut-points or risk factors for metabolic syndrome
- Only 19% of respondents recognized all 5 cut-off points.
- Nearly 40% of participants incorrectly recognized the metabolic syndrome cut-off points for fasting blood glucose, blood pressure and HDL-cholesterol.
Fasting Blood Glucose

- >=100 mg/dL
- >=110 mg/dL
- >=120 mg/dL
- >=90 mg/dL

Percentage Responses
Blood Pressure

- >=135/90 mm Hg
- >=130/90 mm Hg
- >=135/85 mm Hg
- >=130/85 mm Hg

Percentage Responses
Which of the following statements regarding the comparison between black and white patients is TRUE?

- Black patients tend to have more visceral fat despite similar body mass index (BMI).
- Black patients with T2DM tend to have lower A1c levels.
- Black patients tend to have lower triglyceride levels.
- Black patients tend to have lower BP levels.
Goal of the CODE RED Survey

- Phase I was to examine provider attitudes and knowledge toward health disparities and cardiometabolic disease treatment in racial/ethnic minorities, and
- Use this information toward the development of CME content and a quality improvement initiative in phase II.
Phase II

- CODE RED collaborative will create educational and quality improvement interventions that will:
  1. Raise awareness at individual practice level through outcomes-driven quality improvement project
  2. Identify and present practical, evidence-based solutions to address health disparities

Phase II

(3) Address and overcome common stereotypes about minority patients that may lead to disparate care

(4) Improve provider knowledge of current cardiometabolic disease guidelines and variance in presentation and management of cardiometabolic disease among minority populations.

The CODE RED: Cardiometabolic Disease survey project demonstrates

Need: more structured interventions at the health care provider level to address growing issue of U.S. health disparities.

- Survey provides valuable guidance toward developing these interventions in Phase II of CODE RED: Cardiometabolic Disease.
- Phase II, the CODE RED collaborative will create educational and quality improvement interventions.
Conclusion

1. Raise awareness among individual providers as to the presence of disparities in their practices through an outcomes-driven quality improvement project.
Conclusion

1. Raise awareness among individual providers as to the presence of disparities in their practices through an outcomes-driven quality improvement project.

2. Identify and present practical, evidence-based solutions to address health disparities that can be implemented at the individual and practice level.
Conclusion

1. Raise awareness among individual providers as to the presence of disparities in their practices through an outcomes-driven quality improvement project.

2. Identify and present practical, evidence-based solutions to address health disparities that can be implemented at the individual and practice level.

3. Address and overcome common stereotypes about minority patients that may lead to disparate care.