Available guidelines for diabetes and cardiovascular disease

Reflections on the needs of educating cardiologists, diabetologists and general practitioners

Lars Rydén
Cardiology Unit
Department of Medicine
Karolinska Institutet
Stockholm, Sweden
Guidelines and clinical practice

General aspects on purpose and needs
Prevalence of DM and IGT in Europe

<table>
<thead>
<tr>
<th></th>
<th>Diabetes</th>
<th>IGT</th>
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<tbody>
<tr>
<td>2003</td>
<td>7.8 %</td>
<td>10 %</td>
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<tr>
<td>2025</td>
<td>9.1 %</td>
<td>11 %</td>
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<tr>
<td></td>
<td>48 mill</td>
<td>63 mill</td>
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<tr>
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<td>56 mill</td>
<td>71 mill</td>
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</table>
Diabetes and cardiovascular risk
Follow up of newly detected type 2 diabetes

(Niskanen et al Diabetes Care 1998;21:1861)
Management of coronary artery disease in patients with and without diabetes mellitus. Acute management reasonable but secondary prevention unacceptably poor: a report from the euro heart survey on diabetes and the heart
Matteo Anselmino, Malgorzata Bartnik, Klas Malmberg and Lars Rydén on behalf of the Euro Heart Survey Investigators

Is present management satisfactory

Elective consultation
2 854 (58%)

Diabetes
860 (30%)

No diabetes
1 994 (70%)

### Variable

<table>
<thead>
<tr>
<th></th>
<th>Target 98-03</th>
<th>Outside %</th>
<th>Target 2007</th>
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<tbody>
<tr>
<td><strong>Blood lipids (mmol/l)</strong></td>
<td></td>
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<td></td>
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<tr>
<td>n=589 Cholesterol</td>
<td>&lt;5.0</td>
<td>53</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>n=559 HDL</td>
<td>&gt;1.0</td>
<td>37</td>
<td></td>
<td></td>
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<tr>
<td>n=585 Triglycerides</td>
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<td><strong>Blood pressure (mm Hg)</strong></td>
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<td></td>
</tr>
<tr>
<td>n=746</td>
<td>&lt;140/90</td>
<td>27</td>
<td></td>
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<td><strong>FP-glucose (mmol/l)</strong></td>
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<tr>
<td>n=573</td>
<td>&lt;7.2</td>
<td>54</td>
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<tr>
<td><strong>HbA1c (%)</strong></td>
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<tr>
<td>n=397</td>
<td>&lt;7.0</td>
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A considerable improvement potential at least in Europe

(Anselmino and Rydén. Data on file)
Guidelines and clinical practice

What is the consequence?
The Swedish CCU registry 1995-2007
Time trends in 1-year mortality in patients with and without diabetes

(Norhammar et al Heart J 2007; 93:1577)
Guidelines and clinical practice

What can be done?
Guidelines on diabetes, pre-diabetes, and cardiovascular diseases: executive summary

The Task Force on Diabetes and Cardiovascular Diseases of the European Society of Cardiology (ESC) and of the European Association for the Study of Diabetes (EASD)

Authors/Task Force Members, Lars Rydén, Co-Chairperson (Sweden)*, Eberhard Standl, Co-Chairperson (Germany)*, Malgorzata Bartnik (Poland), Greet Van den Berghe (Belgium), John Betteridge (UK), Menko-Jan de Boer (The Netherlands), Francesco Cosentino (Italy), Bengt Jönsson (Sweden), Markku Laakso (Finland), Klas Malmberg (Sweden), Silvia Priori (Italy), Jan Östergren (Sweden), Jaakko Tuomilehto (Finland), Inga Thrainsdottir (Iceland)

Other Contributors, Ilse Vanhorebeek (Belgium), Marco Stramba-Badiale (Italy), Peter Lindgren (Sweden), Qing Qiao (Finland)

Europ Heart J 2007; 28: 88-136
Can be downloaded from http://www.escardio.org or http://www.easd.org
Can be downloaded from http://www.idf.org
Hyperglycemia and Acute Coronary Syndrome. A Scientific Statement From the American Heart Association Diabetes Committee of the Council on Nutrition, Physical Activity, and Metabolism
Prakash Deedwania, Mikhail Kosiborod, Eugene Barrett, Antonio Ceriello, William Isley, Theodore Mazzone and Philip Raskin
Circulation published online Feb 25, 2008;
DOI: 10.1161/CIRCULATIONAHA.107.188629
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Copyright © 2008 American Heart Association. All rights reserved. Print ISSN: 0009-7322. Online ISSN: 1524-4539

Circulation. 2008;117:2172-2177
Medical Management of Hyperglycemia in Type 2 Diabetes: A Consensus Algorithm for the Initiation and Adjustment of Therapy

A consensus statement of the American Diabetes Association and the European Association for the Study of Diabetes

David M. Nathan, MD
John B. Buse, MD, PhD
Mayer B. Davidson, MD
Ele Ferrannini, MD

Rury R. Holman, FRCP
Robert Sherwin, MD
Bernard Zinman, MD

Diabetologia 2009; 52: 17-30
Position Statement

Standards of Medical Care in Diabetes—2010

American Diabetes Association

Executive Summary

Executive Summary: Standards of Medical Care in Diabetes—2010

Diabetes Care Volume 33: Suppl 1, January 2010
Critical views on guidelines

Special Article
International Diabetes Federation guideline for management of postmeal glucose: a review of recommendations

A. Ceriello and S. Colagiuri*

Clinical Science Research Institute, Warwick Medical School, Coventry, UK and *Institute of Obesity, Nutrition, and Exercise, University of Sydney, Sydney, NSW, Australia

Diabetic Medicine 2008; 25: 1151-1156
Guidelines for the management of type 2 diabetes: is ADA and EASD consensus more clinically relevant than the IDF recommendations?

Leszek Czupryniak*

Internal Diseases and Diabetology Department, Medical University of Lodz, Poland

Some comments

- Originally most glycemic management and targets
- Guidelines relatively new in this field – lack of trials
- Presently more directed to a comprehensive patient management
- Look for
  - composition of authors/task forces
  - solid evidence analysis
  - transparent evidence grading
- New guidelines will appear and those existing will be updated
Guidelines and clinical practice

Who should be addressed?
Target audience
Specialists and residents in cardiology, diabetology, general practice and vascular and thoracic surgery who frequently have to address the problems related to the patient population in focus.
Guidelines for diabetes and prediabetes
The two sides of a coin

Coronary artery disease (CAD) and diabetes (DM)

Main diagnosis DM ± CAD

- CAD known
  - ECG, Echocardiography, Exercise test
  - Positive finding
  - Cardiology consultation
- CAD unknown
  - ECG, Echocardiography, Exercise test
  - Follow up

Abnormal
- Cardiology consultation
- Ischemia treatment
- Noninvasive or invasive

Normal
- Follow up

Main diagnosis CAD ± DM

- DM known
  - Screening nephropathy
  - If poor glucose control (HbA1c >6.5%)
  - Diabetology consultation
- DM unknown
  - OGTT
  - Blood lipids & glucose
  - HbA1c
  - If MI or ACS
  - aim for normoglycemia

Abnormal
- Cardiology consultation
- Ischemia treatment
- Noninvasive or invasive

Normal
- Follow up

Newly detected DM or IGT
- ± metabolic syndrome
- Diabetology consultation

Follow up
Guideline recommendations

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Class</th>
<th>Level</th>
</tr>
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<tbody>
<tr>
<td>Early stages of hyperglycemia and asymptomatic type 2 DM best diagnosed by an OGTT that gives fasting and 2-hour post-load glucose values</td>
<td>I</td>
<td>B</td>
</tr>
</tbody>
</table>
**QUESTION 1**

Is postmeal hyperglycaemia harmful?

<table>
<thead>
<tr>
<th>MAJOR EVIDENCE STATEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Postmeal and postchallenge hyperglycaemia are independent risk factors for macrovascular disease. [Level 1+]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RECOMMENDATION</th>
</tr>
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<tbody>
<tr>
<td>Postmeal hyperglycaemia is harmful and should be addressed.</td>
</tr>
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</table>
Three targets for glucose control
Fasting, postprandial and HbA1c

HbA1c
Average longterm glucose
<6.5%

Fasting glucose
<5.5 mmol/l (100 mg/dl)

Postprandial Glucose
<7.8 mmol/l (140 mg/dl)

(After Ceriello et al. Diab Medicine 2008)
Guideline recommendations

- Glucose levels should be part of evaluation of all patients with ACS.
- It is reasonable to consider intensive glucose control in patients with significant hyperglycemia (>10 mmol/L or >180 mg/dl).
- Approximation towards normoglycemia seems as a reasonable goal (5.0-7.7 mmol/L or 90-140 mg/dl).
- Insulin intravenously is currently the most effective method of controlling blood glucose in intensive care and should be instituted as soon as feasible.
- Plans for future glucose control to be made for patients with diabetes, and impaired glucose tolerance.
The ten most important recommendations 1

- To reach (all) treatment targets including those for glycaemic control
- To screen for DM and IGT by means of an OGTT in all patients with coronary artery disease and in other high risk individuals
- To let life style counselling be the cornerstone in preventing DM and CVD
- To offer patients with DM and ACS standard guideline based treatment, early angiography and mechanical revascularisation
- To apply strict, when needed insulin based, glucose control in acutely ill DM patients
The ten most important recommendations

- To favour CABG over PCI when revascularising DM patients
- To use drug-eluting stents in PCI with stent implantation
- To include investigations for cardiac autonomic dysfunction, heart failure, arrhythmias, hypotension, PVD (Doppler-Index), and (micro-)albuminuria
- To use a multifactorial (tight glucose, BP and lipid-control and antiplatelet therapy) approach
- To establish a collaboration between cardiologists and diabetologists
A clear need for the guidelines

- Diabetes and coronary artery disease - more common than imagined
- The negative impact of dysglycemia apparent before onset of diabetes
- The prognosis remains unfavorable
- Present management alarmingly unsatisfactory
- These patients deserve increased attention
- Therapeutic success depend on collaboration across speciality borders
Available guidelines for diabetes and cardiovascular disease

Reflections on the needs of educating cardiologists, diabetologists and general practitioners

Thanks for the attention