Cardiovascular journals

JOURNAL OF THE AMERICAN COLLEGE OF CARDIOLOGY

ACE inhibitors and ARBs prevent onset of type 2 diabetes

Readability	✓✓✓✓
Applicability to practice	✓✓✓✓
WOW! factor	✓✓✓✓

1 The prevalence of diabetes is increasing. However, even in high-risk individuals, diabetes is a preventable condition.

2 This study investigated the role of angiotensin-converting enzyme (ACE) inhibitors and angiotensin receptor blockers (ARBs) in preventing the new onset of type 2 diabetes.

3 A meta-analysis was conducted of 12 randomised controlled trials of ACE inhibitors (seven studies) and ARBs (five studies) to determine the efficacy of these medications in diabetes prevention.

4 These trials involved 116 220 people, of whom 72 333 did not have diabetes at baseline. Individuals included in these studies had hypertension or at least one other cardiovascular risk factor.

5 The ACE inhibitors and ARBs were compared with placebo, diuretics, beta-blockers and calcium-channel antagonists. The mean duration of follow-up ranged from 1 to 6.1 years.

6 The reduction in risk of new-onset type 2 diabetes was 27 % for ACE inhibitors, 23 % for ARBs and 25 % for either ACE inhibitors or ARBs.

7 This meta-analysis confirms that ACE inhibitors and ARBs play an important role in the prevention of type 2 diabetes, although additional trials are needed, as their mechanism of action is speculative.

8 No pharmacologic agent is currently approved for this indication.

Abuissa H, Jones PG, Marso SP, O'Keefe JH Jr (2005) Angiotensin-converting enzyme inhibitors or angiotensin receptor blockers for prevention of type 2 diabetes. *Journal of the American College of Cardiology* **46**: 821–6

Angiotensin-converting enzyme inhibitors or angiotensin receptor blockers for prevention of type 2 diabetes

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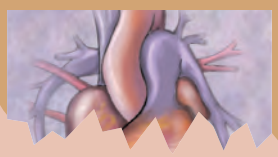
The meta-analysis of Abuissa and colleagues (see left) examines the role of angiotensin-converting enzyme (ACE) inhibitors and angiotensin receptor blockers (ARBs) in preventing the onset of type 2 diabetes. This meta-analysis involved the examination of 12 randomised controlled clinical trials of ACE inhibitors or ARBs, which were identified through a MEDLINE search.

The meta-analysis demonstrated that ACE inhibitors and ARBs are associated with reductions in the incidence of newly diagnosed diabetes by 27 % and 23 %, respectively, and by 25 % in the combined analysis.

The authors therefore suggest that the use of an ACE inhibitor or an ARB should be considered in patients with prediabetic conditions such as the metabolic syndrome, hypertension, impaired fasting glucose, a family history of diabetes, obesity, congestive cardiac failure or coronary artery disease.

EUROPEAN HEART JOURNAL



Guidelines for CV disease prevention need global consensus

Readability	✓✓✓✓
Applicability to practice	✓✓✓✓
WOW! factor	✓✓✓✓

1 Elevated low-density lipoprotein cholesterol and triglyceride levels, reduced high-density lipoprotein cholesterol levels, hypertension, type 2 diabetes and smoking are key modifiable risk factors that contribute to cardiovascular (CV) disease.

2 Such risk factors are present in 80–90 % of people with coronary heart disease.

3 The need to identify and treat these risk factors has led many national and local groups to develop clinical practice guidelines for the management of CV disease; however, this plethora of guidelines can cause confusion. In addition, guidelines are not being optimally implemented.

4 This review considers these practical issues and highlights the goals that are shared by many guidelines.

5 All guidelines promote screening and identification of at-risk patients. They concur that risk factors increase CV risk in a compound manner, they all recommend systems to calculate total risk and they all provide advice on treatment and follow-up regimens that are based on different risk levels.

6 Areas in which the guidelines differ include the selection and weighting of risk factors, risk algorithms and treatment thresholds.

7 Countries that have not developed their own guidelines may consider using those of the International Atherosclerosis Society.

Ballantyne C, Arroll B, Shepherd J (2005) Lipids and CVD management: towards a global consensus. *European Heart Journal* **26**: 2224–31

'The results suggest that pre-dialysis blood pressure should be considered when defining therapeutic strategies.'

'The thromboxane A_2 receptor antagonist inhibits inflammation and accelerated atherogenesis caused by diabetes.'

CIRCULATION

S18886 lessens atherogenesis in diabetic mice

Readability	✓✓✓
Applicability to practice	✓✓✓
WOW! factor	✓✓✓

1 S18886 is an orally active thromboxane A_2 receptor (TP) antagonist in clinical development for the secondary prevention of thrombotic cardiovascular events.

2 This study determined if S18886 lessened the increased atherogenesis in diabetic mice with apolipoprotein E deficiency (apoE$^{-/-}$).

3 Diabetes was induced in apoE$^{-/-}$ mice with streptozotocin. After 6 weeks, aortic lesion area was increased more than four-fold by diabetes in apoE$^{-/-}$ mice, which was associated with similar increases in serum glucose and cholesterol.

4 S18886 largely prevented the diabetes-related increase in lesion area without affecting hyperglycaemia or hypercholesterolaemia.

5 S18886 prevented the deterioration of endothelial function and endothelial nitric oxide synthase expression, as well as diabetes-associated increases in intimal markers of inflammation.

6 In human aortic endothelial cells in culture, S18886 also prevented the induction of vascular cell adhesion molecule-1 and prevented the decrease in endothelial nitric oxide synthase expression caused by high glucose.

7 The TP antagonist inhibits inflammation and accelerated atherogenesis caused by diabetes, most likely by counteracting effects on endothelial function and adhesion molecule expression of eicosanoids stimulated by diabetes.

Zuccollo A, Shi C, Mastroianni R et al (2005) The thromboxane A_2 receptor antagonist S18886 prevents enhanced atherogenesis caused by diabetes mellitus. *Circulation* **112**: 3001–8

STROKE

Activity reduces the risk of all stroke subtypes

Readability	✓✓✓✓
Applicability to practice	✓✓✓✓
WOW! factor	✓✓✓✓

1 This study assessed the relationship of different types of physical activity with total and type-specific stroke risk.

2 The study included 47 721 Finnish people, aged 25–64 years, without a history of coronary heart disease, stroke or cancer at baseline. Hazard ratios (HRs) for incident stroke were estimated for different levels of leisure time, occupational and commuting physical activity.

3 There were 2863 stroke events during a mean follow-up of 19.0 years.

4 The respective multivariate-adjusted HRs for low, moderate and high leisure time physical activity were 1.00, 0.86 and 0.74 (P<0.001) for total stroke, 1.00, 0.87 and 0.46 (P=0.011) for subarachnoid haemorrhage, 1.00, 0.77 and 0.63 (P=0.024) for intracerebral haemorrhage and 1.00, 0.87 and 0.80 (P=0.001) for ischaemic stroke.

5 The respective multivariate-adjusted HRs associated with none, 1–29 minutes and ≥30 minutes of active commuting were 1.00, 0.92 and 0.89 (P=0.043) for total stroke and 1.00, 0.93 and 0.86 (P=0.028) for ischaemic stroke.

6 Occupational activity had a modest association with ischaemic stroke in the multivariate analysis (P=0.046).

Hu G, Sarti C, Jousilahti P, Silventoinen K, Barengo NC, Tuomilehto J (2005) Leisure time, occupational and commuting physical activity and the risk of stroke. *Stroke* **36**: 1994–9

AMERICAN JOURNAL OF HYPERTENSION

Pulse pressure has prognostic value as indicator for CV morbidity

Readability	✓✓
Applicability to practice	✓✓
WOW! factor	✓✓

1 This study examined systolic blood pressure (SBP), diastolic blood pressure (DBP), mean arterial pressure and pulse pressure (PP) in order to assess the relationships between these parameters and cardiovascular (CV) events.

2 Eighty Afro-Caribbean patients with type 2 diabetes who were undergoing haemodialysis were included. Pre- and post-dialysis BP were recorded.

3 The mean age was 62.2 years. A total of 24 patients had one or more CV events, 16 had coronary disease, 15 had cardiac failure and seven had both.

4 The median for pre-dialysis PP was higher in patients with CV comorbidity (84.5 mmHg) than in patients without a history of CV (69.5 mmHg; P=0.003).

5 Areas under the ROC (receiver operating characteristic) curves indicated that, of the four BP parameters, only SBP and PP can discriminate patients with significant CV history.

6 Furthermore, regression analysis pointed to a stronger association of CV morbidity with PP than with SBP pre-dialysis.

7 The results suggest that pre-dialysis BP should be considered when defining therapeutic strategies.

8 In addition to adequate SBP and DBP control, PP, which is associated with CV comorbidity, should be calculated and taken into account.

Foucan L, Deloumeaux J, Hue K et al (2005) High pulse pressure associated with cardiovascular events in patients with type 2 diabetes undergoing hemodialysis. *American Journal of Hypertension* **18**: 1457–62

'In patients treated with intensive statin therapy after acute coronary syndrome, there did not seem to be a relationship between achieved low-density lipoprotein cholesterol levels and the risk of complications from statin therapy.'

'Metabolic syndrome is common and is associated with an increased risk for cardiovascular disease and type 2 diabetes in both sexes; thus there may be value in diagnosing this condition.'

AMERICAN JOURNAL OF HYPERTENSION

PP predicts CHD in type 2 diabetes

Readability	✓✓✓✓
Applicability to practice	✓✓✓✓
WOW! factor	✓✓✓✓

1 The authors hypothesised that pulse pressure (PP) would be a better predictor of cardiovascular (CV) events than systolic or diastolic blood pressure (BP) in 2911 patients with type 2 diabetes, because this condition occurs predominantly in older people and is associated with premature arterial stiffening.

2 Data were analysed using logistic regression to assess the relationship among BP components and the risk of coronary heart disease, cerebrovascular disease and peripheral vascular disease.

3 PP emerged as the best predictor of coronary heart disease events, and systolic BP as the best predictor of cerebrovascular disease and peripheral vascular disease events.

Cockcroft JR, Wilkinson IB, Evans M et al (2005) Pulse pressure predicts cardiovascular risk in patients with type 2 diabetes mellitus. *American Journal of Hypertension* **18**: 1463–7

AMERICAN JOURNAL OF CARDIOLOGY

Diabetes does not affect outcome of DES implantation

Readability	✓✓✓
Applicability to practice	✓✓✓
WOW! factor	✓✓✓

1 This study evaluated and compared the effect of drug-eluting stents (DESs) on angiographic and clinical outcomes of 226 people with diabetes and 560 people without who underwent percutaneous coronary intervention.

2 The incidence of 6-month angiographic restenosis and 9-month major adverse cardiac events (MACEs) was compared between patients with and without diabetes.

3 Patients who had diabetes compared with those who did not had similar 6-month angiographic and 9-month clinical results. Also, incidences of MACEs and target lesion revascularisation were similar in both groups.

4 Patients who had type 1 diabetes showed higher prevalences of restenosis and MACEs compared with patients who had type 2 diabetes.

Yang TH, Park SW, Hong MK et al (2005) Impact of diabetes mellitus on angiographic and clinical outcomes in the drug-eluting stents era. *American Journal of Cardiology* **96**:1389–92

CIRCULATION

Metabolic syndrome increases risk for CVD and diabetes

Readability	✓✓✓✓
Applicability to practice	✓✓✓✓
WOW! factor	✓✓✓✓

1 The risk for cardiovascular disease (CVD), coronary heart disease (CHD) and type 2 diabetes was investigated based on the presence of metabolic syndrome (defined as at least three of abdominal adiposity, low high-density lipoprotein cholesterol, high triglycerides, hypertension and impaired fasting glucose).

2 The study followed 3323 middle-aged adults for the development of new CVD, CHD and type 2 diabetes over 8 years.

3 Risk estimates associated with the metabolic syndrome for CVD, CHD and type 2 diabetes were 34%, 29% and 62% in men and 16%, 8% and 47% in women, respectively.

4 Metabolic syndrome is common and is associated with an increased risk for CVD and type 2 diabetes in both sexes; thus there may be value in diagnosing this condition.

Wilson PWF, D'Agostino RB, Parise H, Sullivan L, Meigs JB (2005) Metabolic syndrome as a precursor of cardiovascular disease and type 2 diabetes mellitus. *Circulation* **112**: 3066–72

JOURNAL OF THE AMERICAN COLLEGE OF CARDIOLOGY

Low levels of LDL-c caused by statin therapy are safe

Readability	✓✓✓✓
Applicability to practice	✓✓✓✓
WOW! factor	✓✓✓✓

1 Intensive statin therapy reduces clinical events occurring after acute coronary syndrome (ACS) and may result in low-density lipoprotein cholesterol (LDL-c) levels markedly lower than guideline levels. Previous studies have raised concerns about the safety of low cholesterol levels.

2 To assess these concerns the authors analysed the outcomes of patients in the PROVE IT-TIMI 22 trial treated with intensive statin therapy over 2 years.

3 PROVE IT-TIMI 22 was a randomised controlled trial of intensive and moderate cholesterol lowering with statins and infection therapy with gatifloxacin compared with placebo in patients stablised from ACS.

4 A total of 4162 patients were enrolled, and 2099 were randomised to the intensive treatment arm. Of these, 1949 had 4-month LDL-c levels checked.

5 Of the patients who had 4-month LDL-c levels checked 91% met treatment goals of LDL-c (<100 mg/dl); the distribution was >80–100 mg/dl in 14%, >60–80 mg/dl in 31%, >40–60 mg/dl in 34%, and ≤40 mg/dl in 11%.

6 In patients treated with intensive statin therapy after ACS, there did not seem to be a relationship between achieved LDL-c levels and the risk of complications from statin therapy.

7 Thus it is not necessary to reduce the dose of a statin based on resultant low LDL-c levels.

Wiviott SD, Cannon CP, Morrow DA et al (2005) Can low-density lipoprotein be too low? The safety and efficacy of achieving very low low-density lipoprotein with intensive statin therapy. *Journal of the American College of Cardiology* **46**: 1411–16