Cardiovascular journals

AMERICAN JOURNAL OF CARDIOLOGY

ß-blockers are associated with an increased risk for new-onset diabetes

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

1 A 12-study meta-analysis of 94 492 people with ß-blocker-treated hypertension was conducted to assess the relationship of treatment with the incidence of new-onset diabetes.

2 Therapy with ß-blockers increased the risk for new-onset diabetes by 22 % (relative risk: 1.22; 95 % CI: 1.12–1.33) compared with non-diuretic antihypertensive agents.

3 Other individual predictors of new-onset diabetes found to be present in the ß-blocker group were higher baseline fasting glucose levels (OR: 1.01; 95 % CI: 1.00–1.02; $P=0.004$), and greater systolic (OR: 1.05; 95 % CI: 1.05–1.08; $P=0.001$) and diastolic (OR: 1.06; 95 % CI: 1.01–1.10; $P=0.011$) blood pressure.

4 A higher baseline BMI also predicted new-onset diabetes significantly (OR: 1.17; 95 % CI: 1.01–1.33; $P=0.034$).

5 In addition, ß-blockers were associated with a 15 % increased risk for stroke and did not improve end points for myocardial infarction or death compared with other agents.

6 For people with high BMI or fasting glucose, where ß-blockers were less efficacious than other antihypertensives, this risk increased.

Bangalore S, Parkar S, Grossman E, Messerli FH (2007) A meta-analysis of 94,492 patients with hypertension treated with beta blockers to determine the risk of new-onset diabetes mellitus. *American Journal of Cardiology* **100**: 1254–62

ß-blockers: A new risk factor for diabetes?

Jiten Vora, Consultant Physician, Royal Liverpool University Hospital

It has been proposed that ß-blockers, when used for treatment of hypertension may increase the risk of new-onset diabetes. In 1994, 4992 people from 12 studies identified as using ß-blockers for first-line therapy of hypertension for longer than 1 year demonstrated that ß-blockade resulted in a 22 % increase in the risk for new-onset diabetes (relative risk: 1.22; 95 % CI 1.12–1.33) compared with non-diuretic antihypertensive agents. New-onset diabetes was associated with higher baseline fasting glucose levels, greater systolic and diastolic blood pressures and higher BMI (ratio: 1:17). Risk of diabetes was greater with atenolol, in the elderly and in studies where ß-blockers were less efficacious antihypertensive agents; here, the risk of new-onset diabetes increased exponentially with increased duration of ß-blockade. Thus ß-blockers appear to be associated with an increased risk of new-onset diabetes and the risk is greater in people with a higher baseline BMI and fasting glucose levels, and in people where ß-blockade was less efficacious in easing blood pressure.

CIRCULATION

Metabolic syndrome is risk for macrovascular complications

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

1 Analyses were conducted on 4542 people with type 2 diabetes.

2 Metabolic syndrome (MeS) was diagnosed by National Cholesterol Education Program Adult Treatment Panel III, WHO, IDF and European Group for the study of Insulin Resistance criteria in 61 %, 38 %, 54 % and 24 % of people, respectively.

3 Having MeS increased the relative risk of cardiovascular disease by 1.33 (95 % CI: 1.14–1.54), 1.45 (95 % CI: 1.26–1.66), 1.23 (95 % CI: 1.07–1.42) and 1.31 (95 % CI: 1.10–1.57), respectively.

4 Microvascular complications were not associated with MeS.

Cull CA, Jensen CC, Retnakaran R, Holman RR (2007) Impact of the metabolic syndrome on macrovascular and microvascular outcomes in type 2 diabetes mellitus: United Kingdom Prospective Diabetes Study 78. *Circulation* **116**: 2119–26

STROKE

Sulphonylureas are beneficial for people who have had an acute ischaemic stroke

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

1 People with diabetes who were hospitalised within 24 hours of acute ischaemic stroke onset were monitored from admission to discharge.

2 Primary outcome was a decrease in the National Institutes of Health Stroke Scale of ≥4 points, or a score of 0.

3 This outcome was reached by 36.4 % of people taking a sulphonylurea at admission (total n = 33) and 7.1 % of those not taking sulphonylureas (n = 28; $P=0.007$).

4 Improvements were only observed in people with nonlacunar strokes, independent of gender, previous transient ischaemic attack or blood glucose levels.

Kunte H, Schmidt S, Eliasziw M et al (2007) Sulfonylureas improve outcome in patients with type 2 diabetes and acute ischemic stroke. *Stroke* **38**: 2526–30

"A sixth of people with diabetes had reduced LVEF, which was associated with increased stress and mortality."

AMERICAN JOURNAL OF CARDIOLOGY

Fasting blood glucose predicts vascular outcomes

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

1 For an average of 7.5 years, 2372 people with no diabetes, stroke or MI history were followed.

2 Incidences per 1000 person years of MI, ischemic stroke and combined vascular events were 5.5, 6.3 and 20.0, respectively, adjusting for other variables.

3 A 1-standard deviation increase in fasting blood glucose (FBG; 27 mg/dl) increased the risk of combined vascular events (HR: 1.20; 95 % CI: 1.09–1.31) and MI (HR: 1.21; 95 % CI: 1.02–1.44) but had a lesser effect on stroke (HR: 1.13; 95 % CI: 0.95–1.34).

4 FBG predicted ischemic stroke more in African–Americans (HR: 1.38; 95 % CI: 1.09–1.74) and MI in Hispanic people (HR: 1.24; 95 % CI: 0.99–1.55).

Eguchi K, Boden-Albala B, Jin Z et al (2007) Usefulness of fasting blood glucose to predict vascular outcomes among individuals without diabetes mellitus (from the Northern Manhattan Study). *American Journal of Cardiology* **100**: 1404–9

AMERICAN JOURNAL OF HYPERTENSION

Masked hypertension is associated with left ventricular remodelling

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

1 People with type 2 diabetes but no overt cardiac disease or history of antihypertensive drug use (n = 71) were monitored fro 24-hour blood pressure and echocardiography readings.

2 Participants were sub-divided into groups: 45 normotensive (clinic BP<130/85 mm Hg) and 26 sustained hypertensive (SH; clinic BP≥140/90 mm Hg and 24-hour BP≥125/80 mm Hg).

3 Masked hypertension (MH) was defined as clinic BP<130/85mm Hg and 24-hour BP≥125/80mm Hg.

4 MH was present in 21 (47 %) of the normotensive group.

5 Left ventricular mass was greatest for SH, followed by MH then normotensives ($P < 0.001$).

Marchesi C, Maresca AM, Solbiati F et al (2007) Masked hypertension in type 2 diabetes mellitus. Relationship with left-ventricular structure and function. *American Journal of Hypertension* **20**: 1079–84

"Weight control, in addition to lipid and renal management, may reduce atherosclerosis progression."

AMERICAN JOURNAL OF CARDIOLOGY

Weight gain adds to risk factors of coronary artery calcium progression

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

1 People with type 1 diabetes who had undergone two electron beam tomographic screenings 4 years apart (n = 222) were assessed for coronary artery calcium.

2 Progression was defined as an increase in the square root-transformed CAC score of >2.5.

3 CAC progression was predicted by BMI (OR: 1.13; 95 % CI: 1.01–1.26), non-HDL-c (OR: 1.01; 95 % CI: 1.003–1.03) and albumin excretion rate (OR: 1.30; 95 % CI: 1.03–1.63).

4 An increase in BMI was also a significant risk factor (OR: 1.38; 95 % CI: 1.10–1.72); therefore, weight control, in addition to lipid and renal management, may reduce atherosclerosis progression.

Costacou T, Edmundowicz D, Prince C et al (2007) Progression of coronary artery calcium in type 1 diabetes mellitus. *American Journal of Cardiology* **100**: 1543–7

AMERICAN HEART JOURNAL

Reduced left ventricular ejection fraction leads to increased mortality

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

1 People with diabetes (n = 1046) without other symptoms or coronary artery disease underwent stress single-photon emission computed tomography (SPECT) and assessment of left ventricular ejection fraction (LVEF).

2 Normal LVEF was defined as ≥50 %, mildly reduced LVEF as 35–49 % and moderately/severely reduced LVEF as <35 %.

3 Reduced LVEF was prevalent in 16.7 % of people (n = 175; mean LVEF: 40.0±7.7 %), who were generally older (63±11 vs 59±14 years; $P < 0.001$), more likely to have peripheral arterial disease (45 vs 29 %; $P < 0.001$) and had a higher prevalence of electrocardiographic Q waves (21 vs 9 %; $P < 0.001$) than those with normal LVEF.

4 Mean summed stress scores were more abnormal in the group with reduced LVEF (44.8±9.8 vs 51.7±6.3, normal being 56; $P < 0.001$) and high-risk stress scores were more common (46 vs 16 %; $P < 0.001$).

5 There were significantly lower survival rates in the reduced LVEF group (10-year survival: 29 %) versus those with normal LVEF (57 %; $P < 0.0001$).

6 In conclusion, a sixth of people with diabetes had reduced LVEF, which was associated with increased stress and mortality.

Chareonthaitawee P, Sorajja P, Rajagopalan N et al (2007) Prevalence and prognosis of left ventricular systolic dysfunction in asymptomatic diabetic patients without known coronary artery disease referred for stress single-photon emission computed tomography and assessment of left ventricular function. *American Heart Journal* **154**: 567–74