

## Cardiovascular journals

### EUROPEAN HEART JOURNAL



### Obesity increases blood pressure and cholesterol levels

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

**1** The authors studied the prevalence of being overweight or obese in the high-priority group of patients with established coronary heart disease (CHD), and the therapeutic control of manageable coronary risk factors in relation to body mass index.

**2** Data were gathered from 15 European centres participating in the EUROASPIRE II study between 1999–2000. In total, 5535 patients who had experienced a recent cardiac event before the age of 71 years were included.

**3** Thirty-one percent of patients were diagnosed as obese, and 48% as overweight.

**4** Overweight and obese patients had more frequently raised blood pressure and elevated cholesterol after adjustment for age, gender, education, diabetes and centre.

**5** Of the patients using blood pressure lowering agents, 56% of obese and 51% of overweight patients were still having raised blood pressure, compared with 42% of normal-weight patients. A similar result was observed for the therapeutic control of total cholesterol.

**6** Results emphasise the need for urgent reinforcing of current intervention strategies for combating the growing obesity epidemic in patients with CHD.

**7** Reducing obesity and sedentary life through reorienting of lifestyle behaviour is crucial to the health and quality of life of at least a third of all patients with established CHD.

DeBacquer D, DeBacker G, Cokkinos D et al (2004) Overweight and obesity in patients with established coronary heart disease: are we meeting the challenge? *European Heart Journal* **25**: 121–28

### Overweight and obesity in patients with established coronary heart disease: are we meeting the challenge?



Mark Kearney, Cardiologist, King's College Hospital, London

**T**his large study (5535 patients) looked at the prevalence of overweight and obesity in patients with established coronary artery disease (CAD). The investigators aimed to establish the prevalence of obesity in patients with CAD and define their risk factor profile and management of these risk factors.

Patients were sampled from 15 European centres with the following diagnoses: first elective or emergency coronary bypass surgery; first elective or emergency coronary angioplasty; first or recurrent acute myocardial infarction without previous revascularisation; acute myocardial ischaemia without previous revascularisation or acute myocardial infarction.

In total, 4225 men and 1310 women were identified. The average body mass index in men was 28.2 kg/m<sup>2</sup> and in women was 29.2 kg/m<sup>2</sup>; average waist circumferences were 101.1 cm and 94.8 cm, respectively. Overweight patients comprised 48.2% of men and 31.3% of women.

As one would expect, the prevalence of type 2 diabetes and hypertension was greater in the obese patients. In obese patients treated with lipid

lowering drugs, control of cholesterol was significantly worse than in non-obese patients. Furthermore, in obese patients after correcting for age, sex, smoking, location, education and diabetes, control of blood pressure was suboptimal, with > 50% of the obese patients receiving antihypertensive drugs still having a blood pressure > 140/80 mmHg.

Of those patients found to be obese at first hospital admission > 93% remained so at 6 months' follow-up, despite 80% receiving advice to lose weight. Even more worrying was the finding that almost 25% actually gained at least 5 kg between index admission and follow-up interview at least 6 months later.

This important observational study should be a 'wake-up call' for all of us dealing with patients suffering from the end results of CAD. Despite an increasing awareness of obesity as a major healthcare problem, obese patients with CAD are remaining obese, have suboptimal management of other risk factors, and, worse still, many are actually putting on weight. The index admission is a crucial point in our patients' lives, and integrated, tailored packages of care addressing the complex abnormalities associated with obesity should be administered at that point.

### THROMBOSIS AND HAEMOSTASIS



### Light alcoholic drinking associated with lower CHD risk

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

**1** Light-to-moderate alcohol consumption is associated with a lower risk of coronary heart disease (CHD) than observed in non-drinkers.

**2** The study examined the effects of total alcohol intake and type of alcoholic beverage on plasma lipids, insulin and haemostatic and inflammatory factors in a large, population-based study of men aged 60–79 years. In total, 3158 men with

no history of myocardial infarction, stroke or diabetes and who were not on warfarin were studied.

**3** Total alcohol consumption showed a significant relationship with factors associated with CHD risk, including high-density lipoprotein cholesterol (HDL-C) (positively), insulin (inversely) and haemostatic and inflammatory factors (inversely).

**4** The findings are consistent with the suggestion that HDL-C in particular, but also insulin and haemostatic factors, may contribute to the beneficial effect of light-to-moderate drinking on risk of CHD.

**5** Wine has effects that may confer greater protection than other alcoholic beverages.

Wannamethee SG, Lowe GDO, Shaper G et al (2003) The effects of different alcoholic drinks on lipids, insulin and haemostatic and inflammatory markers in older men. *Thrombosis and Haemostasis* **90**: 1080–87

**‘The objective of this study was to examine the long-term stroke mortality risk in diabetic and non-diabetic women with and without prior myocardial infarction (MI) or stroke.’**

**‘Patients with diabetes without cardiovascular disease have a fatal stroke risk similar to that of patients without diabetes but with a history of prior stroke and similar risk factor profile.’**



## STROKE

### Diabetes is a stroke risk equivalent

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

**1** Diabetes is an independent risk factor for stroke and is associated with a 1.8–6-fold increased risk compared with controls without diabetes.

**2** The objective of this study was to examine the long-term stroke mortality risk in women with and without diabetes and with and without prior myocardial infarction (MI) or stroke.

**3** Data were pooled from nine prospective, epidemiological studies in the USA. In total, 27 269 women (8.5% with diabetes, 2.9% with prior MI and 2.3% with prior stroke) were followed up for an average of 8.3 years, during which time 238 deaths from stroke were observed.

**4** Patients with diabetes without cardiovascular disease and patients without diabetes but with a history of prior stroke had a significantly increased risk of 10-year stroke mortality compared with patients without diabetes and without prior cardiovascular disease.

**5** History of prior MI was not associated with long-term stroke mortality. After adjustment for risk factors, patients with diabetes had similar risk compared with patients with a history of prior stroke.

**6** Patients with diabetes without cardiovascular disease have a fatal stroke risk similar to that of patients without diabetes but with a history of prior stroke and similar risk factor profile.

**7** This suggests that diabetes may be classified as a stroke risk equivalent and may warrant more aggressive treatment strategies in the future prevention of stroke.

Ho JE, Paultre F, Mosca L (2003) Is diabetes mellitus a cardiovascular disease risk equivalent for fatal stroke in women? *Stroke* **34**: 2812–16



## AMERICAN JOURNAL OF CARDIOLOGY

### Metabolic syndrome score indicates CAD risk

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

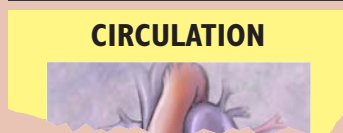
**1** The metabolic syndrome is a frequent cause of coronary artery disease (CAD). This study looked at the relation between the metabolic syndrome score (MSS) and the degree of abdominal obesity, risk factor profile and severity of CAD.

**2** In total, 1108 patients with symptoms of CAD were divided into six groups based on their MSS.

**3** An increasing MSS was significantly related to more severe coronary angiographic alterations and higher frequencies of unstable angina, myocardial infarction, percutaneous coronary intervention and coronary artery bypass grafting.

**4** MSS provides a useful index of metabolic syndrome severity and the associated atherosclerotic risk factor profile.

Solyomoss BC, Bourassa MG, Campeau L et al (2004) Effect of increasing metabolic syndrome score on atherosclerotic risk profile and coronary artery disease angiographic severity. *American Journal of Cardiology* **93**: 159–64



## CIRCULATION

### Diabetes is a strong risk factor for CHD and stroke

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

**1** Risks of coronary heart disease (CHD) and stroke events and mortality from cardiovascular disease were compared in 13 790 people with and without diabetes and with and without a history of myocardial infarction (MI).

**2** There were 634 fatal CHD or non-fatal MI events, 312 fatal or non-fatal strokes and 358 deaths from CVD during an average of 9 years' follow-up.

**3** Patients without diabetes and with MI had a carotid artery wall thickness similar to patients with diabetes and without MI.

**4** Patients with diabetes and without MI had a lower risk of CHD events and mortality from CVD compared with patients without diabetes and with MI, but stroke risk was similar between these two groups.

Lee CD, Folsom AR, Pankow JS, Brancati FL for the Atherosclerosis Risk in Communities Study Investigators (2004) Cardiovascular events in diabetic and non-diabetic adults with or without history of myocardial infarction. *Circulation* **109**: 855–60



## CIRCULATION

### Type 2 diabetes and EHT increase sympathetic activity

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

**1** This investigation aimed to determine whether or not the magnitude of central sympathetic output in patients with essential hypertension (EHT) and type 2 diabetes is greater than that in EHT alone, to quantify this output in type 2 diabetes alone, and to examine any contribution of type 2

diabetes to the sympathetic hyperactivity in combined EHT and diabetes.

**2** The resting mean frequency of central sympathetic nerve output to the periphery was measured in age-, bodyweight- and arterial pressure-matched patients with treated EHT and type 2 diabetes, EHT alone or diabetes alone and in a normal control group.

**3** The magnitude of peripheral sympathetic nerve hyperactivity in patients with EHT and diabetes was greater than in patients with either EHT or diabetes alone. This hyperactivity could constitute a mechanism for the increased risks of this condition.

Huggett RJ, Scott EM, Gilbey SG et al (2003) Impact of type 2 diabetes mellitus on sympathetic neural mechanisms in hypertension. *Circulation* **108**: 3097–3101

**‘The dependence of blood pressure on a balance between superoxide and nitric oxide may be amplified in diabetes. This study used tempol to test the hypothesis that superoxide mediates the hypertensive response.’**

**‘Thus, the hypertension and decrease in GFR caused by onset of diabetes in rats without a functioning nitric oxide system was prevented by chronic administration of the superoxide dismutase mimetic tempol.’**



## CIRCULATION

### Diabetes predicts adverse cardiac events after PCI

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

**1** Diabetes portends an adverse prognosis in patients undergoing percutaneous coronary intervention (PCI). The aim of this study was to determine the influence of diabetes on 9 month outcomes of patients undergoing PCI.

**2** In total, 11 482 patients enrolled in the Prevention of Restenosis with Trilast and its Outcomes Trial were stratified according to the presence or absence of diabetes. The primary endpoint of death, myocardial infarction or target vessel revascularisation was analysed as time-to-first event within 9 months of the index PCI.

**3** Diabetes is associated with adverse events, including death, after PCI, although the effect of diabetes on angiographic restenosis appears to be less striking than estimated previously.

Mathew V, Gersh BJ, Williams BA et al (2004) Outcomes in patients with diabetes mellitus undergoing percutaneous coronary intervention in the current era. *Circulation* **109**: 476–80



## AMERICAN JOURNAL OF CARDIOLOGY

### Metabolic syndrome associated with coronary risk

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

**1** The metabolic syndrome is a set of lipid and non-lipid risk factors of metabolic origin linked with insulin resistance, which is thought to be associated with an elevated risk for cardiovascular disease.

**2** However, few have studied this association in prospective, long-term cardiovascular outcome trials.

**3** Placebo data from the Scandinavian Simvastatin Survival Study (4S) and the Air Force/Texas Coronary Atherosclerosis Prevention Study (AFCAPS/TextCAPS) were used post hoc to estimate the long-term relative risk of major coronary events (MCEs) associated with the metabolic syndrome, after excluding diabetes.

**4** In 4S and AFCAPS/TextCAPS, respectively, placebo-treated

patients with the metabolic syndrome were 1.5 (95% CI 1.2–1.8) and 1.4 (1.04–1.9) times more likely to have MCEs than those without it.

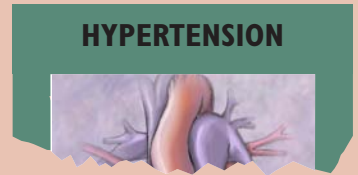
**5** Low high-density lipoprotein levels were associated with elevated risk of MCEs in both studies, whereas high triglycerides in 4S and elevated blood pressure and obesity in AFCAPS/TextCAPS were associated with a significantly increased relative risk.

**6** Patients with the metabolic syndrome had an increased risk of MCEs irrespective of Framingham calculated 10 year risk score category.

**7** The metabolic syndrome was shown to be associated with increased risk of MCEs in hypercholesterolaemic patients with coronary heart disease in 4S, and in those with low high-density lipoprotein cholesterol but without coronary heart disease in AFCAPS/TextCAPS.

**8** The metabolic syndrome is associated with risk that is not entirely accounted for by traditional risk scoring paradigms.

Girman CJ, Rhodes T, Mercuri M et al (2004) The metabolic syndrome and risk of major coronary events in the Scandinavian Simvastatin Survival Study and the Air Force/Texas Coronary Atherosclerosis Prevention Study. *American Journal of Cardiology* **93**: 136–41



## HYPERTENSION

### Superoxide mediates hypertensive response

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

**1** The dependence of blood pressure on a balance between superoxide and nitric oxide may be amplified in diabetes.

**2** This study used tempol to test the hypothesis that superoxide mediates the hypertensive response.

**3** Induction of diabetes in untreated rats had no significant effect on mean arterial pressure (MAP), and glomerular filtration rate (GFR) increased significantly during the 2 weeks of diabetes.

**4** Chronic infusion of L-NAME in a separate group of rats, which blocks nitric oxide synthesis chronically, increased baseline MAP from ~90 mmHg to a stable level of ~120 mmHg after 6 days of infusion, and induction of diabetes in those rats caused a rapid, progressive increase in MAP that averaged 156±5 mmHg by day 14 of diabetes that was associated with a decrease in GFR and 4-fold increase in isoprostane excretion.

**5** Tempol infusion was begun on day 2 of diabetes in a subgroup of those rats, and the progressive hypertensive response was prevented, with MAP averaging 134±10 mmHg by day 14. In addition, the normal renal hyperfiltration response was restored by tempol, and the increase in isoprostane did not occur.

**6** Thus, the hypertension and decrease in GFR caused by onset of diabetes in rats without a functioning nitric oxide system was prevented by chronic administration of the superoxide dismutase mimetic tempol.

Brands MW, Bell TD, Gibson B (2004) Nitric oxide may prevent hypertension early in diabetes by counteracting renal actions of superoxide. *Hypertension* **43**: 57–63