# Cardiovascular journals

## CIRCULATION

### Hyperglycaemia is an independent risk factor for ischaemic stroke in Korean men

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

1 The authors of his Korea-based study aimed to evaluate the association between fasting blood glucose (FBG) levels and cardiovascular disease, in terms of occurrence of stroke or myocardial infarction, in people below the threshold for diagnosing diabetes.

2 Using the Korean National Health Insurance System database, data from 652 901 men who met the study inclusion criteria were categorised into eight groups based on their FBG level at baseline, and were followed up for any occurrence of cardiovascular diseases between 1992 and 2001.

3 Age-adjusted analyses revealed linear associations between FBG and myocardial infarction, ischaemic stroke and intracerebral hemorrhagic stroke. However, following adjustment for socioeconomic position, behaviours and other known cardiovascular risk factors a linear increase in risk of ischaemic stroke persisted from FBG levels of ≥5.6 mmol/L, but did not persist for myocardial infarction or intracerebral hemorrhagic stroke.

4 In this study population, an independent linear increase in the risk of ischaemic stroke was observed at a level that falls below the current FPG criteria for impaired fasting glucose. In light of this, the authors suggest that the criteria for diagnosis of impaired glucose may require revision.

Sung J, Song YM, Ebrahim S, Lawlor DA (2009) Fasting blood glucose and the risk of stroke and myocardial infarction. *Circulation* **119**: 812–19

## *Recognising chronic kidney disease as a risk equivalent for coronary heart disease*

*Marc Evans, Consultant Physician, Llandough Hospital, Cardiff*

Despite the association between chronic kidney disease (CKD) and coronary heart disease (CHD), current guidelines do not regard CKD as a CHD risk equivalent. Whether CKD should be considered as such is an important question, with data suggesting that CKD is associated with a 1.4- to 3.7-fold increase in cardiovascular mortality – a similar order of magnitude to the cardiovascular risk associated with diabetes.

Rashidi and colleagues recently published a study (summarised below) that looked at whether CKD in older people was as important a cardiovascular risk factor as either diabetes or previous myocardial infarction (MI). The authors assessed data from the longitudinal population-based Cardiovascular Health Study database. Study participants were required to be ≥65 years of age, most being in their early to mid-70s. Cardiovascular mortality during follow-up was 15.7% among those who had experienced a previous MI (no diabetes, no CKD), 15.8% among those with diabetes (no previous MI, no CKD) and 13% among those with CKD (no diabetes, no previous MI).

Following adjustment for age, race, gender lipid profile, blood pressure and smoking, the hazard ratio (HR) for cardiovascular mortality was similar between the diabetes (HR 1.0 [95% CI, 0.8–1.4]) and CKD groups (HR 0.8 [95% CI, 0.6–1.1]) when compared with those who had experienced a previous MI.

The observations from this study suggest that CKD in older people represents a CHD risk equivalent. Following on from these findings, CKD screening and estimated glomerular filtration rate measurement in clinical practice may serve to identify a cohort of people with CKD (≥stage 3) who should be treated to secondary prevention targets for cardiovascular risk factors such as blood pressure and cholesterol.

## AMERICAN JOURNAL OF CARDIOLOGY

### CKD a risk equivalent for CHD

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

1 Chronic kidney disease (CKD) is not currently recognised as a coronary heart disease (CHD) risk equivalent.

2 The authors hypothesised that cardiovascular mortality among older people with CKD would be equal to that of the traditional risk factors for CHD, diabetes and previous myocardial infarction.

3 Participants ($n$=5432, ≥65 years of age, community dwelling) were drawn from the US-based Cardiovascular Health Study, stratified at baseline for the presence of diabetes, previous myocardial infarction (MI) and CKD.

4 Following baseline examination, participants were followed-up (mean 8.3 years) every 6 months by telephone and annually in person, primarily to ascertain occurrence of cardiovascular events.

5 CKD at baseline conferred an overall risk of cardiovascular death that was equal to a baseline diagnosis of either diabetes or previous MI, and no significant ($P$>0.05) difference was found between the cardiovascular mortality rates of the three risk-factor groups.

6 The authors concluded that CKD in those aged ≥65 years confers a 10-year risk of cardiovascular mortality equal to that of preexisting diabetes or MI.

Rashidi A, Sehgal AR, Rahman M, O'Connor AS (2008) The case for chronic kidney disease, diabetes mellitus, and myocardial infarction being equivalent risk factors for cardiovascular mortality in patients older than 65 years. *Am J Cardiol* **102**: 1668–73

*"Compared with children of normoglycaemic pregnancies, children exposed to gestational diabetes had significantly greater adiposity ... and higher mean systolic blood pressure."*

## AMERICAN JOURNAL OF HYPERTENSION

# Child adiposity and SBP higher at 3 years following GD exposure

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

1 Exposure to gestational diabetes (GD) in utero has been linked to obesity and above average systolic blood pressure (SBP) by adolescence, but there is a paucity of data relating to the effects in early childhood.

2 In this prospective cohort study, the authors examined the impact of GD (defined as two or more maternal abnormal fasting glucose levels: >95 mg/dL at baseline, >180 mg/dL at 1 hour, >155 mg/dL at 2 hours, or >140 mg/dL at 3 hours) on child BMI Z-scores, skinfold tests and SBP at 3 years of age.

3 Mother–child pairs ($n$=1238) recruited from a US clinic between April 1999 and July 2002 met all inclusion criteria and were followed-up in the first and second trimesters of pregnancy, directly after delivery, and at 6 months and 3 years postpartum. Fifty-one (4%) mothers had GD.

4 Compared with children of normoglycaemic pregnancies, children exposed to GD had significantly ($P$=0.04) greater adiposity as the sum of skinfolds (but not as measured by BMI Z-scores, $P$=0.61), and higher mean SBP by 3.2 mmHg (95% confidence interval (CI) 0.4–5.9; $P$=0.02).

5 When adjusted for the sum of skinfolds, there was an attenuation of the relationship between GD and SBP (difference of 2.6 mmHg; 95% CI –0.2 to 5.4; $P$=0.07). The authors suggest that higher adiposity in GD-exposed children may mediate the higher SBP.

Wright CS, Rifas-Shiman SL, Rich-Edwards JW (2009) Intrauterine exposure to gestational diabetes, child adiposity, and blood pressure. *Am J Hypertens* **22**: 215–20

## HEART

# Women with diabetes are a high-risk group following MI

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

1 The authors looked at prognostic, risk factor and evidence-based treatment differences between Swedish men and women with diabetes following acute myocardial infarction (MI) .

2 Data were collected from 1995–2002 in coronary care units and yielded 70 882 people (<80 years) with a first-recorded acute MI, of whom 21% had diabetes and 31% were women. More detailed analyses were conducted in those aged <65 years.

3 Outcomes for women (<65 years) with diabetes were poorer following MI than men; long-term mortality was significantly higher (95% confidence interval 1.16–1.55), and women also experienced an increased risk burden for hypertension (49% vs. 43%) and heart failure (10% vs. 8%).

Norhammar A, Stenestrand U, Lindbäck J, Wallentin L (2008) Women younger than 65 years with diabetes mellitus are a high-risk group after myocardial infarction. *Heart* **94**: 1565–70

## JOURNAL OF THE AMERICAN COLLEGE OF CARDIOLOGY

# Long-term effects of fenofibrate therapy

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

1 The authors looked at whether surrogate measures of atherosclerosis, inflammation and endothelial activation were reduced by long-term fenofibrate therapy.

2 Participants ($n$=170) with type 2 diabetes where randomised to receive micronized fenofibrate (200 mg/day) or placebo. Carotid intima-media thickness (IMT) and augmentation index (AI) were the primary outcomes measured, taken over 5 years.

3 Increases from baseline to study end in mean IMT and AI were similar in both arms ($P$=0.987). No significant effect on makers of inflammation and endothelial activation was seen for any of the measures in the fenofibrate arm.

4 The authors found that fenofibrate therapy in people with type 2 diabetes could not be associated with beneficial change in the outcomes measured.

Hiukka A, Westerbacka J, Leinonen et al (2008) Long-term effects of fenofibrate on carotid intima-media thickness and augmentation index on subjects with type 2 diabetes mellitus. *J Am Coll Cardiol* **52**: 2190–7

## CIRCULATION

# CHD episode risk in people with diabetes, CHD and HIV

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

1 The risk of subsequent coronary heart disease (CHD) events in people with Human Immunodeficiency Virus (HIV) with reference to pre-existing CHD or diabetes at baseline was investigated by the authors as part of the prospective D:A:D (Data Collection on Adverse Event of Anti-HIV Drugs) Study.

2 Participants were followed-up at least every 8 months at 2121 outpatient clinics in Europe, Australia and the US.

3 Adjusted for a range of factors including age, smoking, ethnicity and HIV transmission, the rate of a CHD episode was 7.52 time higher ($P$=0.0001) among participants with pre-existing CHD, and 2.41 time higher ($P$=0.0001) among those with diabetes.

4 The authors concluded that diabetes and pre-existing CHD in HIV-positive people are important risk factors for CHD events that require targeted interventions.

Worm SW, De Wit S, Weber R et al (2009) Diabetes mellitus, preexisting coronary heart disease, and the risk of subsequent coronary heart disease events in patients infected with human immunodeficiency virus. *Circulation* **119**: 805–11