Diabetes journals

Determining risk of myocardial infarction in men and women with type 2 diabetes in the UK

Jiten Vora, Consultant Physician, Royal Liverpool University Hospital

The aims of this study were to establish reliable and generalisable estimates for the risk of myocardial infarction for men and women with type 2 diabetes compared with those without diabetes. Additionally, the sex differential of the incidence of myocardial infarction was established. The data emanates from a cohort study using the General Practice Research Database (1992–1999), which comprised 40727 people with type 2 diabetes, and 194913 age- and sex-matched individuals without diabetes. The rate of myocardial infarction in men with type 2 diabetes was 19.74 per 1000 person-years compared with 16.18 per 1000 person-years in women with type 2 diabetes. Overall, adjusted relative risk of myocardial infarction in diabetes versus no diabetes was 2.13 (95% conference interval 2.01–2.26) in men and 2.95 (2.75–3.17) in women. The overall adjusted relative risk declined with age in both sexes but women with type 2 diabetes aged 35–54 years were at five times the risk of myocardial infarction compared with women of the same age without diabetes.

"... women with type 2 diabetes are at a much greater relative risk of myocardial infarction than men"

Consequently, this study concludes that women with type 2 diabetes are at a much greater relative risk of myocardial infarction than men, even when adjusted for other risk factors.

DIABETES CARE

Progression of CV autonomic dysfunction linked to poor glycaemic control

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

1 In this longitudinal observational study, the authors investigated whether glycaemic control status in people with type 2 diabetes was associated with cardiovascular autonomic dysfunction.

2 Those enrolled in the study group (n=1021) had returned normal cardiovascular autonomic nerve function tests at baseline. HbA_{1c} was measured biannually until trial end.

3 Follow-up occurred at a median of 7.5 years, at which time cardiovascular autonomic dysfunction had developed in 34.5% of participants, and was found to be strongly associated with mean HbA_{1c} level status during the follow-up period (mean HbA_{1c} >9.0% versus ≤7.0%; odds ratio 2.984; 95% confidence interval, 1.177–7.561; P=0.021).

4 The development of cardiovascular autonomic dysfunction was significantly associated with increased age (P<0.001); longer duration of diabetes (P<0.001); hypertension (P=0.005); retinopathy (P<0.001); and higher levels of microalbuminuria (P=0.002).

5 The authors found cardiovascular autonomic dysfunction to be independently associated with glycaemic control status, and microvascular complications.

Ko SH, Park SA, Cho AH (2008) Progression of cardiovascular automonic dysfunction in patients with type 2 diabetes. *Diabetes Care* **31**: 1832–6

DIABETOLOGIA

Risk of MI differs with gender among people with type 2 diabetes

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

1 Using data from the General Practice Research Database (1992–1999, representing 5% of the UK general population at any one time), the authors sought to establish a reliable estimate of the risk of myocardial infarction (MI) for both men and women, with and without type 2 diabetes, in the UK.

2 The cohort studied had no prior MI and was age- and sex-matched. Some 40727 people with type 2 diabetes and 194913 without were selected. MI rates and hazard ratios, in men and women, both with and without diabetes, were determined and adjusted for known risk factors.

3 The rate of MI in men and women with type 2 diabetes was 19.74 (95% confidence interval [CI], 18.83–20.69) and 16.18 (95% CI, 15.33–17.08) per 1000 person-years, respectively.

4 Men and women with type 2 diabetes versus those with no diabetes experienced an overall adjusted relative risk of MI of 2.13 (95% CI, 2.01–2.26) and 2.95 (95% CI, 2.75–3.17), respectively.

5 Independent of diabetes, MI risk was consistently higher in men than in women. However, the relative risk of MI associated with type 2 diabetes was higher in women – five times greater than their comparison group women without diabetes.

Mulnier HE, Seaman HE, Raleigh VS et al (2008) Risk of myocardial infarction in men and women with type 2 diabetes in the UK: A cohort study using the General Practice Research Database. *Diabetologia* **51**: 1639–45

DIABETIC MEDICINE

Relationship between ethnicity and CV outcomes among people with type 2 diabetes

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

1 In this prospective cohort study, the authors investigated whether an association existed between ethnicity and risk of first cardiovascular (CV) event in people with type 2 diabetes in New Zealand.

2 Data from 4844 people with type 2 diabetes, and no previous history of a CV event, were collected from a national primary care diabetes programme, linked to hospital admissions and mortality data. Ethnicity was recorded as European, Maori, Pacific, Indo–Asian, East-Asian or other.

3 Primary outcome measures were time to first fatal or non-fatal CV event. Median follow-up was at 2.4 years.

4 Hazard ratios for first CV event were 1.30 for Maori (95% confidnce interval [CI], 1.19–1.41), 1.04 for Pacific (95% CI, 0.95–1.13), 1.06 for Indo–Asian (95% CI, 0.91–1.24) and 0.73 for East-Asian (95% CI, 0.62–0.85), using combined European/other ethnicities as a reference group and controlling for other known risk factors.

5 Ethnicity was found to be independently associated with time to first CV event among people with type 2 diabetes in New Zealand (P<0.001), with Maori people being at a 30% higher risk of first CV event compared with those of European/other ethnicity.

Kenealy T, Elley CR, Robinson E (2008) An association between ethnicity and cardiovascular outcomes for people with type 2 diabetes in New Zealand. *Diabet Med* **25**: 1302–8

DIABETES CARE

Recurrent CVD events in people with type 2 diabetes

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

1 Given that people with type 2 diabetes are known to have a high frequency of recurrent cardiovascular disease (CVD), this observational study sought to determine the incidence of and risk factors for recurrence of CVD among that population.

2 Participants had type 2 diabetes and were recruited from a network of diabetes clinics in Italy; cohort A (n=2788) had CVD at enrolment, cohort B (n=844) experienced their first CV event during the study period.

3 Incidence of a recurrent CV event was 72.7 cases per 1000 patient-years (95% confidence interval [CI], 58.3– 87.1) in men and 32.5 cases per 1000 patient-years (95% CI, 21.2– 43.7) in women in cohort A, and 40.1 cases per 1000 patient-years (95% CI, 17.4–62.9) in men and 22.4 cases per 1000 patient-years (95% CI, 12.9 –32.0) in women in cohort B.

4 Male sex, older age and insulin use were all independent risk predictors of a recurrent event (cohort A, all P<0.001). However, in both cohorts, a prior CVD event was by far the strongest predictor of recurrent CVD (P <0.001).

Giorda CB, Avogaro A, Maggini M et al (2008) Recurrence of cardiovascular events in patients with type 2 diabetes. *Diabetes Care* **31**: 2154–9

DIABETES CARE

A biomarker for nephropathy and macrovascular complications

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1 Risk factors related to endothelial cell dysfunction and inflammation were studied, as they contribute to the complications of type 1 diabetes.

2 Analysis was based on a subgroup from the Diabetes Control and Complications Trial, and Epidemiology of Diabetes Intervention and Complications Study.

3 The authors found the biomarker plasma fibrinogen to be strongly associated with the progression of carotid intima-media thickening (IMT, P<0.01) – IMT being an indicator of nephropathy and macrovascular complications.

Lopes-Virella MF et al (2008) Risk factors related to inflammation and endothelial dysfunction in the DCCT/EDIC cohort and their relationship with nephropathy and macrovascular complications. *Diabetes Care* **31**: 2006–12

DIABETES CARE

Renal vascular resistance associated with albuminuria

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

1 Endothelial dysfunction resulting from ischaemic nephropathy and diabetic nephropathy can both cause albuminuria.

2 This study looked at whether renal vascular resistance (resistive index [RI]) of the main renal arteries could be associated with albuminuria.

3 One hundred and fifty people with type 2 diabetes free of overt renal artery stenosis were studied consecutively, with renal function expressed as the estimated glomerular filtration rate, and RI measured with duplex Doppler ultrasonography.

4 Increased RI (>0.72, median) was found to be significantly associated with age (P<0.01, 95% confidence interval [CI], 1.02–1.19), diastolic blood pressure (P<0.01, CI: 0.86–0.97), and albuminuria (P<0.01, CI: 1.53–15.46).

Hamano K, Nitta A, Ohtake T (2008) Associations of renal vascular resistance with albuminuria and other macroangiopathy in type 2 diabetic patients. *Diabetes Care* **31**: 1853–7

> *"Ethnicity was found to be independently associated with time to first cardiovascular event among people with type 2 diabetes in New Zealand."*