

Major journals

The independent effect of type 2 diabetes on ischaemic heart disease, stroke and death



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Despite significant epidemiological studies that demonstrate that patients with type 2 diabetes have increased mortality and morbidity from cardiovascular disease, there has been a considerable degree of controversy. Of particular note has been the involvement of other risk factors, as some studies have been performed in selected patient groups.

The Copenhagen City Heart Study has prospectively assessed the impact of type 2 diabetes on cardiovascular mortality and morbidity in an unselected population, thus allowing adjustment for other relative risk factors (see paper summarised right). Thus, over a period of 20 years adjusted

relative risks of first, incident, admission for, or death from ischaemic heart disease, acute myocardial infarction, or stroke, as well as total mortality were estimated for patients with type 2 diabetes versus healthy controls.

The results demonstrate that the relative risk of first, incident, and admission for myocardial infarction was increased 1.5–4.5-fold in women and 1.5–2-fold in men, with a significant difference between the sexes. The relative risks of first, incident and admission for stroke was increased 2–6-fold in women and 1–2-fold in men.

This paper, therefore, corroborates the previous findings that people with type 2 diabetes have a 2–3-fold increase in incidence of myocardial infarction/stroke independent of other known risk factors for cardiovascular disease.

ARCHIVES OF INTERNAL MEDICINE



Type 2 diabetes increases risk of death 2-fold

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

1 This study aimed to prospectively assess the impact of type 2 diabetes on cardiovascular mortality and morbidity in an unselected population, because most studies to date have been performed in selected patient groups.

2 A total of 13 105 participants from the Copenhagen City Heart Study were prospectively followed-up for 20 years.

3 Adjusted relative risks of first, incident, death from or admission for ischaemic heart disease, acute myocardial infarction or stroke, in addition to total mortality in people with type 2 diabetes compared with the healthy controls, were estimated.

4 The relative risk of first, incident and admission for myocardial infarction was increased 1.5–2-fold in men and 1.5–4.5-fold in women; the difference between the sexes was significant.

5 The relative risk of first, incident and admission for stroke was increased 1.5–2-fold in men and 2–6.5-fold in women; the difference between the sexes was significant.

6 In both sexes the relative risk of death was increased 1.5–2 times.

7 In people who have type 2 diabetes, the risk of having an incident myocardial infarction or stroke is increased 2–3-fold and the risk of death is increased 2-fold, independent of other known risk factors for cardiovascular diseases.

Almdal T, Scharling H, Jensen JS, Vestergaard H (2004) The independent effect of type 2 diabetes mellitus on ischemic heart disease, stroke, and death. *Archives of Internal Medicine* **164**: 1422–26

AMERICAN JOURNAL OF MEDICINE



Insulin resistance and the endothelium: a review

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

1 This review article discusses the relationship between cardiovascular disease and endothelial dysfunction and assesses the endothelium in the spectrum of insulin resistance.

2 The effect of the thiazolidinediones on endothelial function are outlined in some detail.

3 Evidence is mounting that indicates a parallel progression between endothelial dysfunction and

insulin resistance, which suggests a close association between the endothelium and insulin action.

4 A large amount of research illustrates that endothelial dysfunction happens early in the insulin-resistant state and can predict future cardiovascular events.

5 Insulin resistance has also been associated with the metabolic syndrome – this also increases the risk of adverse cardiovascular outcomes.

6 Some approaches improve endothelial dysfunction, including: treatment with statins; angiotensin receptor blockers; angiotensin-converting enzyme inhibitors; and peroxisome proliferator-activated receptor γ ligands.

7 Approaches such as these have been shown to prevent both diabetes and cardiovascular disease.

Hsueh WA, Lyon CJ, Quinones MJ (2004) Insulin resistance and the endothelium. *American Journal of Medicine* **117**: 109–117

‘People with diabetes who developed an acute coronary syndrome were at greater risk for each hospital outcome examined.’

ARCHIVES OF INTERNAL MEDICINE

More awareness of people with ACS and diabetes

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

1 This study aimed to examine the differences in the outcomes, management and presenting characteristics of people with and without diabetes who have an acute coronary syndrome (ACS) because there is a current lack of data in this particular area.

2 People with ST-segment elevation acute myocardial infarction, non-ST-segment elevation acute myocardial infarction and unstable angina were enrolled in a large multinational coronary disease registry, named The Global Registry of Acute Coronary Events.

3 The prospective observational study of people hospitalised with an ACS at 94 hospitals in 14 countries comprised 5403 people with ST-segment elevation acute myocardial infarction, 4725 people with non-ST-segment elevation acute myocardial infarction and 5988 people with unstable angina.

4 About 25 % of people presenting to hospitals had a history of diabetes.

5 Those with diabetes were older, more often female, had more comorbidities and were less likely to be treated with effective cardiac therapies than people without diabetes.

6 People with diabetes who developed an ACS were at greater risk for each hospital outcome examined.

7 A more widespread awareness of the increased risk for people with diabetes is indicated for people with diabetes who develop an ACS.

Franklin K, Goldberg RJ, Spencer F et al (2004) Implications of diabetes in patients with acute coronary syndromes. *Archives of Internal Medicine* **164**: 1457–63

ANNALS OF INTERNAL MEDICINE

Thiazide diuretics still first step for hypertension

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

1 The results of the Anti-hypertensive and Lipid-Lowering treatment to prevent Heart Attack Trial (ALLHAT) generated an international response from both researchers and clinicians.

2 This article reviews aspects of the ALLHAT design, analysis, findings and conclusions, so as to

lend a perspective on a recently published commentary about the results of the study.

3 The most frequent points about the results of ALLHAT are addressed, particularly those regarding diabetes outcomes and heart failure.

4 Responses to the comments reiterate the original conclusion of the investigative group – thiazide-type diuretics should still continue to be the preferred first-step drug class for the treatment of hypertension.

5 The perspective article concludes that thiazide-type diuretics should generally be part of any multidrug regimen.

Davis BR, Fuberg CD, Wright Jr JT, Cutler JA, Whelton P for the ALLHAT Collaborative Research Group (2004) ALLHAT: Setting the record straight. *Annals of Internal Medicine* **141**: 39–46

ARCHIVES OF INTERNAL MEDICINE

Diabetes and MI similar predictors of mortality

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

1 The importance of coronary mortality risk associated with diabetes or previous myocardial infarction is debatable and effects of age, risk factors and length of follow-up could explain differences in previous research.

2 This study aimed to compare patterns of mortality in males with a history of diabetes or myocardial infarction, and to assess the modulating effects on mortality of age, cardiovascular risk factors and the duration of follow-up.

3 The 25-year mortality of 4809 men with diabetes and 4625 men

with myocardial infarction (men were aged 35–57 years) were compared

4 The adjusted hazard ratio (HR) for all-cause mortality for those with myocardial infarction vs those with diabetes was 0.97.

5 There was higher coronary mortality and lower mortality from non-cardiovascular causes in males with myocardial infarction compared with males with diabetes.

6 HRs for coronary mortality significantly declined over follow-up, but HRs for non-cardiovascular mortality remained relatively constant.

7 Diabetes and myocardial infarction were similar predictors of mortality.

8 The difference in coronary mortality between the two groups was most evident in the first 10-years of follow-up.

Vaccaro O, Eberly LE, Neaton JD, Yang L, Riccardi G, Stamler J for the Multiple Risk Factor Intervention Trial (MRFIT) Research Group (2004) Impact of diabetes and previous myocardial infarction on long-term survival. *Archives of Internal Medicine* **164**: 1438–43

‘Hazard ratios for coronary mortality significantly declined over follow-up, but hazard ratios for non-cardiovascular mortality remained relatively constant.’