

Cardiovascular journals

Metabolic syndrome: Believe in it or not, the risk factors matter



Vinod Patel,
Consultant Physician
at the George Eliot
Hospital, Nuneaton,
and Associate
Professor at the
University of Warwick

A considerable amount of debate has taken place over the last 2 years on whether or not the metabolic syndrome (MS) exists as a bona fide clinical entity. Practically, the vast majority of clinicians have felt that it is a useful concept identifying patients at highest risk of cardiovascular disease.

The paper by Ho et al, summarised alongside, provides hard mortality-outcome-based data on the effect of the individual risk factors making up the various definitions of MS and their combined effects. The study involved 30 365 men, with an average baseline age of 44.4 years, who were followed for a median of 13.6 years.

For cardiovascular mortality, the hazard ratio for each of the five main MS parameters was as follows: hypertension 1.84; abdominal obesity 1.52; high triglycerides 1.31; low HDL-cholesterol and impaired fasting glucose levels showed an increased risk, but this was not

significant. For all-cause mortality, the hazard ratios were: hypertension 1.42; abdominal obesity 1.32; high triglycerides 1.13; again low HDL-cholesterol and impaired fasting glucose levels had no significant effect.

The presence of just one MS component was found to significantly increase cardiovascular mortality (hazard ratio for one MS component 1.83, for two 2.43, for three 2.82, for four 2.81, for five 5.52). Furthermore, the all-cause mortality was increased when two MS components were present (hazard ratio for two MS components 1.58, for three 1.70, for four 1.83, for five 2.60).

This observational study clearly demonstrates that due consideration should be given to all the individual components that make up MS, whether one believes in the clinical entity of metabolic syndrome or not.

As we move on to a primary prevention programme in cardiovascular disease from the next financial year, close attention must focus on the management of hypertension, abdominal obesity and triglycerides according to this study.

AMERICAN JOURNAL OF CARDIOLOGY



MS risk factors increase mortality

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

1 Metabolic syndrome (MS) comprises risk factors associated with diabetes, such as central obesity, hypertension, low HDL-cholesterol, raised triglycerides and impaired glucose metabolism.

2 It is uncertain how many risk factors should be present for diagnosis of MS to be made, and whether the number of risk factors increases the risk of cardiovascular (CV) and all-cause mortality.

3 In order to more clearly understand the relationship between risk factors for MS and all-cause and CV mortality, 30 365 men were followed for an average of 13.6 years.

4 During follow-up, 1449 participants died from all-cause mortality; of these, 527 participants died from CV disease.

5 Risk factors for MS were significantly related to all-cause and CV mortality; the more risk factors for MS present, the higher the all-cause and CV mortality rates.

6 Mortality risk increased with the presence of a single MS risk factor for CV mortality, and from the presence of two MS risk factors for all-cause mortality, with continuing increasing risk the more MS risk factors were present.

7 Hypertension was the strongest predictor of all-cause and CV mortality, with central obesity and hypertriglyceridaemia significantly increasing all-cause and CV mortality.

8 As the number of MS risk factors increase, all-cause and CV mortality rates also grow.

Ho JS, Cannaday JJ, Barlow CE et al (2008) Relation of the number of metabolic syndrome risk factors with all-cause and cardiovascular mortality. *Am J Cardiol* **102**: 689–92

INTERNATIONAL JOURNAL OF CARDIOLOGY



Aspirin therapy in type 2 diabetes

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

1 Eighty percent of people with diabetes will die from cardiovascular (CV) events.

2 Antiplatelet medication, in particular aspirin therapy, is recommended in many clinical guidelines for the prevention of CV events in people with type 2 diabetes.

3 A search of Medline and Embase databases was undertaken to retrieve studies published since 1990, evaluating the effect of aspirin on cardiovascular outcomes in people with type 2 diabetes.

4 Four studies were identified that met the established inclusion criteria.

5 Three clinical trials that were retrieved could not prove, statistically, the benefits of aspirin therapy for people with type 2 diabetes; a reduction in mortality due to CV events was evident in only one observational study.

6 The findings of this study suggest that existing clinical guidelines have based their recommendations on the expected benefit of aspirin therapy previously observed in other high-risk populations.

7 Given the lack of hard evidence, the use of aspirin therapy at the highest level of evidence in guidelines for people with type 2 diabetes should be revisited.

Sirois C, Poirier P, Moisan J, Grégoire JP (2008) The benefit of aspirin therapy in type 2 diabetes: what is the evidence? *Int J Cardiol* **129**: 172–9

EUROPEAN HEART JOURNAL

The PREDICT study

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

1 For people with type 2 diabetes, cardiovascular disease (CVD) is the most common complication and the principal cause of death.

2 Coronary artery calcium is a well-established index of atherosclerosis, and coronary artery calcium scores (CACS) predict coronary heart disease in people without diabetes.

3 The PREDICT (Prospective Evaluation of Diabetic Ischaemic Disease by Computed Tomography) study aimed to evaluate CACS as a predictor of first CV events in people with type 2 diabetes without existing clinical CVD.

4 CACS were measured in 589 participants with type 2 diabetes and no history of CV disease; participants were followed for a median of 4 years and first CHD and stroke were identified as primary endpoints.

5 During follow-up, 66 participants experienced CV events, including 10 strokes; the overall incidence was 31 per 1000 person-years.

6 Fatal primary endpoints comprised seven coronary events and two strokes; non-fatal primary endpoints comprised 36 episodes of coronary artery disease, seven myocardial infarctions, one revascularisation, five cases of unstable angina and eight strokes.

7 CACS was found to be a highly significant predictor of CV events ($P < 0.001$); a doubling in CACS was associated with a 32% increase in the risk of CV events.

8 CACS is highly predictive of CV events in people with type 2 diabetes with no history of CVD.

Elkeles RS, Godsland IF, Feher MD et al (2008) Coronary calcium measurement improves prediction of cardiovascular events in asymptomatic patients with type 2 diabetes: the PREDICT study. *Eur Heart J* **29**: 2244–51

AMERICAN JOURNAL OF CARDIOLOGY

CKD as a risk factor in CV mortality

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

1 This study tested the hypothesis that risk of cardiovascular (CV) mortality in people aged >65 years with chronic kidney disease (CKD) is equivalent to that for people with either diabetes or previous myocardial infarction (MI).

2 A total of 5888 subjects were categorised into three groups: people with diabetes (no CKD or MI); people with previous MI (no diabetes or CKD); people with CKD (no diabetes or MI).

3 Participants were followed for a mean of 8.6 years, and rates of CV mortality were compared.

4 The risk of CV mortality in people with moderate CKD was found to be as high as that in people with diabetes or previous 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

AMERICAN JOURNAL OF HYPERTENSION

“Physician factors” in hypertension

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

1 Control of hypertension has increased three-fold over the past 20 years, yet studies show only 20–30% of people reach their blood pressure (BP) target.

2 Factors previously studied to explain this inadequacy have been related to either treatment or patients; this study explored the “physician factor” to explain the discrepancy between treatment efficacy in trials and in daily practice.

3 A total of 993 GPs completed 2455 questionnaires relating to uncontrolled hypertension, and they noted the systolic BP (SBP) level they targeted for each patient.

4 In 24% of cases, SBP targets set by physicians were higher than those recommended, and the higher the coronary heart disease risk score, the lower the percentage of people with correctly targeted SBP goals.

5 When considering CV risk factors, physicians did not take into account that a lower BP goal is advocated for people with diabetes and renal impairment.

Ducher M, Juillard L, Leutenegger E, Fauvel JP (2008) Major cardiovascular risk factors are not taken into account by physicians when targeting blood pressure values for uncontrolled hypertensive patients. *Am J Hypertens* **21**: 1264–8

AMERICAN JOURNAL OF CARDIOLOGY

Exercise capacity, BMI and coronary artery disease

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

1 This study investigated the effect of exercise capacity and BMI on mortality in people with an intermediate to high risk of coronary artery disease (CAD).

2 The outcomes of 2119 people without known CAD were studied with stress myocardial perfusion imaging, resulting in 183 deaths over an average follow-up of 8.4 ± 1.4 years.

3 Age, exercise time, BMI, male gender and diabetes were identified as significant predictors of all-cause mortality.

4 Increased exercise capacity and BMI were associated with lower mortality in people with intermediate to high risk of CAD.

Johnson NP, Wu E, Bonow RO, Holly TA (2008) Relation of exercise capacity and body mass index to mortality in patients with intermediate to high risk of coronary artery disease. *Am J Cardiol* **102**: 1028–33

“High adiponectin levels were associated with a lower incidence of type 2 diabetes, and this association appeared stronger in women than in men.”