

## Diabetes journals



### The metabolic syndrome? Time to reconsider its clinical usefulness

**Vinod Patel**

Principal Teaching Fellow, Warwick Medical School, University of Warwick and Honorary Consultant in Diabetes and Endocrinology, George Eliot Hospital NHS Trust, Nuneaton

**M**etabolic syndrome (MetS) has had its advocates and many detractors. Academics have often concluded that a diagnosis of MetS does not add any greater value to the management of a patient for cardiovascular disease than considering all the patient's individual risk factors.

The research by Bhatti et al (summarised alongside) studied the prevalence of MetS in a cohort of South Asian individuals with diagnosed diabetes. My interest in this study stems from both the fact that most South Asian individuals I see, over the age of 40, appear to have the "Asian Tummy" consistent with a high risk of MetS (i.e. a waist circumference  $\geq 90$  cm in men or  $\geq 80$  cm in women), and that 1 in 6 of England's 3 million people with diabetes are thought to be of South Asian origin. In the study by Bhatti et al, the diagnosis of MetS was made if there was central obesity as defined by the waist circumference parameters above and at least two of the following four components were present (Alberti et al, 2009): elevated blood pressure ( $\geq 130$  mmHg systolic or  $\geq 85$  mmHg diastolic, or on treatment for hypertension); elevated triglycerides ( $\geq 1.7$  mmol/L); low HDL-cholesterol ( $< 1.0$  mmol/L in men or  $< 1.3$  mmol/L in women); or hyperglycaemia (fasting glucose  $\geq 5.6$  mmol/L).

Of the cohort of 1522 people with diabetes, 72% had MetS according to these parameters. More women (86%) had MetS than men (58%;  $P < 0.001$ ), and MetS was the most powerful independent risk or predictor of coronary artery disease ([CAD] odds ratio=3.44), more so than hypertension, family history, physical inactivity, BMI and age, even though the last four factors were

also significantly associated with an increased risk of CAD.

To quote the first line of the paper "India is witnessing a depressing situation due to escalating incidence and prevalence of type 2 diabetes mellitus (T2DM) and its inevitable outcome of diabetic neuropathy, nephropathy, retinopathy and CAD". This is something we are also experiencing in the UK, especially among South Asian people with diabetes. Could we not reinstate MetS as a diagnosis for identification of the individuals at high-risk of complications? We can then identify these people early and treat them aggressively via the combined strategy of patient education and clinical intervention, which could lead to the prevention of MetS (and, therefore, diabetes itself and cardiovascular disease complications). The conclusion that the increased CAD risk is due to the various components of MetS alone was refuted by this study as there was no significant increase in the risk of CAD whether three, four or five components of the diagnostic criteria for MetS were present.

Reliant as the diagnosis is on the waist circumference in most cases, MetS is one diagnosis where the high-risk patient can be identified from visual inspection alone. Even when type 2 diabetes is diagnosed, the paper by Bhatti et al provides firm evidence that the patient with MetS is at a far higher risk of CAD than those without. ■

Alberti KG, Eckel RH, Grundy SM et al (2009) Harmonizing the metabolic syndrome: a joint interim statement of the International Diabetes Federation Task Force on Epidemiology and Prevention; National Heart, Lung, and Blood Institute; American Heart Association; World Heart Federation; International Atherosclerosis Society; and International Association for the Study of Obesity. *Circulation* **120**: 1640–5

### J Diabetes Complications

#### MetS prevalence in the North Indian population

Readability ////  
 Applicability to practice ////  
 WOW! Factor ////

**1** Data of Asian Indian participants with T2D of the NIDCVD (North Indian Diabetes and Cardiovascular Disease) study were used to estimate the prevalence of metabolic syndrome (MetS) and its association with cardiovascular events and coronary arterial disease (CAD).

**2** Adults with T2D aged 25–91 years ( $n=1522$ ) were screened for biomedical markers and the prevalence of MetS was estimated using the 2009 criteria of five parameters harmonised from various health bodies.

**3** The prevalence of MetS in the Asian Indian cohort of people with T2D was 71.9%, and it was significantly higher among women than men (86% vs. 57.9% respectively;  $P < 0.001$ ).

**4** Following regression analysis, family history, age, BMI, systolic blood pressure, physical inactivity and hypertension were independently and significantly associated with CAD outcome.

**5** The authors also found that MetS is an independent risk factor for CAD, increasing the risk four-fold (odds ratio=3.44; 65% confidence interval, 1.31–9.01;  $P=0.012$ ).

**6** The prevalence of MetS in this study was similar to other cohorts and is believed to be associated with a higher risk of diabetes and CAD in North Indian people with T2D. This poses a major health and economic burden, which may require targeted therapeutic and lifestyle interventions.

Bhatti GK, Bhadada SK, Vijayvergiya R et al (2015) Metabolic syndrome and risk of major coronary events among the urban diabetic patients: North Indian Diabetes and Cardiovascular Disease Study-NIDCVD-2. *J Diabetes Complications* 20 Jul [Epub ahead of print]

## Diabet Med

### Pharmacist in the primary care team: Is it cost effective?

Readability ✓✓✓✓  
 Applicability to practice ✓✓✓✓  
 WOW! Factor ✓✓✓

- 1 Including a pharmacist in the primary care team has been shown to significantly improve blood pressure control and reduce the cardiovascular risk in people with T2D. This sub-study of a randomised controlled trial from Canada aimed to evaluate the economic implications of having a pharmacist as part of the primary care team.
- 2 One-year outcomes and healthcare utilisation data were used to determine cost-effectiveness, which was based on annualised risk of cardiovascular events.
- 3 As part of the sub-study, 123 people were included. They had a mean age of 62±11 years and 62% were women.
- 4 Pharmacists provided approximately 3 additional hours of service for each patient, which cost \$226±\$143 per patient.
- 5 The overall one-year per-patient costs for healthcare utilisation were \$190 lower in the intervention group compared with usual care.
- 6 There was a significant 0.3% greater reduction in the annualised risk of cardiovascular event in the intervention group compared with the usual care group.
- 7 In this randomised controlled trial, adding a pharmacist to the primary care team improved clinical outcomes and was also cost-effective in reducing cardiovascular risk.

Simpson SH, Lier DA, Majumdar SR et al (2015) Cost-effectiveness analysis of adding pharmacists to primary care teams to reduce cardiovascular risk in patients with type 2 diabetes: results from a randomized controlled trial. *Diabet Med* **32**: 899–906

## Diabet Med

### Cardio health: Meta-analysis of intensive intervention

Readability ✓✓✓  
 Applicability to practice ✓✓✓  
 WOW! Factor ✓✓✓

- 1 A meta-analysis was conducted to quantify the effect of intensive treatment (i.e. drug treatment alone or as part of a multifactorial intervention) on non-fatal myocardial infarction (MI), non-fatal stroke, cardiovascular disease mortality and all-cause mortality in people with T2D.
- 2 Randomised controlled trials that evaluated intensive treatment in adults with T2D were included. Nineteen were included in the analysis.
- 3 The analysis suggested that intensive treatment reduced the risk of non-fatal MI, non-fatal stroke, cardiovascular mortality or all-cause mortality.
- 4 There did not appear to be an association between mean age, mean duration of T2D and the percentage of male patients across trials with how they responded to the interventions.
- 5 Apart from non-fatal MIs, there was no evidence that intensive glucose-lowering and multifactorial interventions reduced or increased the risk of cardiovascular and mortality outcomes.
- 6 The multifactorial interventions had a greater impact on reducing the rate of non-fatal MI and non-fatal stroke, but it did not affect the mean duration of T2D.
- 7 The authors theorise that intensive glucose-lowering and multifactorial interventions are likely to be beneficial in groups with a higher baseline incidence of cardiovascular mortality.

Seidu S, Achana FA, Gray LJ et al (2015) Effects of glucose-lowering and multifactorial interventions on cardiovascular and mortality outcomes: a meta-analysis of randomized control trials. *Diabet Med* **18** Aug [Epub ahead of print]

## Diabetes Care

### Role of BMI and metabolic dysfunction in the development of T2D

Readability ✓✓✓  
 Applicability to practice ✓✓✓  
 WOW! Factor ✓✓✓

- 1 Nearly 7000 people participated in the prospective SMART (Secondary Manifestation of ARterial disease) cohort study to determine the role of BMI and metabolic dysfunction in the development of T2D in people at high risk of, or with cardiovascular disease.
- 2 The cohort was grouped according to BMI and level of metabolic dysfunction and the risk of T2D was estimated using Cox proportional hazard analysis with data collected with bi-annual questionnaires.
- 3 Following a median observation period of 6 years, 519 people developed T2D.
- 4 In the absence of metabolic dysfunction, adiposity increased the risk of T2D compared with normal-weight participants (overweight doubled the risk and obesity quadrupled the risk).
- 5 When there was metabolic dysfunction, an increased risk of T2D was observed in people with normal weight, overweight and obesity (hazard ratios 4.7, 8.5 and 16.3 respectively) compared to normal-weight people without metabolic dysfunction.
- 6 This study shows that adiposity even in the absence of metabolic dysfunction is a risk factor for T2D in people who are at high cardiovascular risk or with cardiovascular disease, so it is important to screen for T2D in this at-risk group.

Franssens BT, van der Graaf Y, Kappelle LJ et al (2015) Body weight, metabolic dysfunction, and risk of type 2 diabetes in patients at high risk for cardiovascular events or with manifest cardiovascular disease: a cohort study. *Diabetes Care* **38**: 1945–51

“In this randomised controlled trial, adding a pharmacist to the primary care team improved clinical outcomes and was also cost-effective in reducing cardiovascular risk.”