Cardiovascular journals

DIABETES CARE

Recommendations for aspirin use in people with diabetes

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

1 Aspirin is effective at reducing cardiovascular (CV) morbidity and mortality in high-risk individuals with previous myocardial infarction (MI) or stroke. However, its benefit for primary prevention of CV events in people with diabetes is unclear.

2 A group of experts from the American Diabetes Association, American Heart Association and the American College of Cardiology Foundation convened to discuss the latest evidence and formulate guidelines for the use of aspirin for primary prevention of CV disease in people with diabetes.

3 Current data includes three trials conducted specifically in people with diabetes and six trials including people with diabetes as part of other group analyses. No single trial provided definitive results.

4 After looking at meta-anlyses, aspirin appeared to produce a small reduction in MI and stroke in people with diabetes.

5 In those with diabetes, the risk of bleeding from aspirin was 55% higher than those without (relative risk, 1.55; 95% confidence interval, 1.13–2.14).

6 For people with diabetes the evidence for increasing the dose of aspirin is insufficient, although there have been some observations of aspirin resistance.

7 The authors concluded that the effect of aspirin on CV events depends on the underlying CV risk of the individual and the recommendations made by this group highlight the importance of individualised care.

Pignone M, Alberts MJ, Colwell JA et al (2010) Aspirin for primary prevention of cardiovascular events in people with diabetes: a position statement of the American Diabetes Association, a scientific statement of the American Heart Association, and an expert consensus document of the American College of Cardiology Foundation. *Diabetes Care* **33**: 1395–402

Aspirin for primary prevention of cardiovascular disease in people with diabetes: Yay or nay?

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

We are all aware that people with diabetes die prematurely from cardiovascular disease (CVD). There is a significant treatment gap as optimised treatment with lipid-lowering, antihypertensive agents and attention to glycaemic control only reduces CVD risk by an estimated 50% (Pedersen and Gaede, 2003).

The American Diabetes Association, American Heart Association and American College of Cardiology Foundation convened a group of experts to report on aspirin in primary prevention of CVD in people with diabetes following the publication of two trials that specifically examined this: JPAD (Japanese Primary Prevention of Atherosclerosis with Aspirin in Diabetes; Ogawa et al, 2008) and POPADAD (Prevention of Progression of Arterial Disease and Diabetes; Belch et al, 2008). All relevant previous trials were also considered in the new meta-analysis (Pignone et al, 2010; summarised alongside).

Overall, a 9% reduction in CVD events was demonstrated, but this did not reach statistical significance. The group's recommendations were formulated according to the CVD risk specific to the person:

- Higher risk: Consider low-dose aspirin (e.g. 75 mg) for those with a greater than 10% 10-year CVD risk who are not at increased risk of gastrointestinal bleed (e.g. those receiving warfarin). These will be men >50 years of age or women >60 years of age with additional risk factors such as smoking, hypertension, dyslipidaemia, familial hyperlipidaemia, CVD, microalbuminuria or established diabetic nephropathy.
- Intermediate risk: These individuals will have a 10-year CVD risk of 5–10%. No clear recommendation. Individual clinician and patient to discuss and decide.
- Low risk: These will be men <50 years of age or women <60 years of age with no additional risk factors and a CVD risk of <5% over 10 years.

The risk of harm with aspirin is very real in individuals with lower CVD risk and therefore risk stratification using a risk engine, such as UKPDS (UK Prospective Diabetes Study) Risk Engine (Stevens et al, 2001) and these guidelines, is warranted. Our patients must be afforded the opportunity to benefit from low dose aspirin, but neither must they be harmed.

> ***"The risk of harm with aspirin is very real in individuals with lower cardiovascular disease risk and therefore risk stratification using a risk engine, such as the UKPDS (UK Prospective Diabetes Study) Risk Engine and these guidelines, is warranted."***

Belch J, MacCuish A, Campbell I et al (2008) The prevention of progression of arterial disease and diabetes (POPADAD) trial: factorial randomised placebo controlled trial of aspirin and antioxidants in patients with diabetes and asymptomatic peripheral arterial disease. *BMJ* **337**: a1840

Ogawa H, Nakayama M, Morimoto T et al (2008) Low-dose aspirin for primary prevention of atherosclerotic events in patients with type 2 diabetes: a randomized controlled trial. *JAMA* **300**: 2134–41

Pedersen O, Gaede P (2003) Intensified multifactorial intervention and cardiovascular outcome in type 2 diabetes: the Steno-2 study. *Metabolism* **52**(Suppl 1): 19–23

Stevens RJ, Kothari V, Adler AI et al (2001) The UKPDS risk engine: a model for the risk of coronary heart disease in type II diabetes (UKPDS 56). *Clin Sci (Lond)* **101**: 671–9

"Diabetes was associated with greater plaque progression, highlighting the independent negative effect of diabetes on the arterial wall."

AMERICAN JOURNAL OF CARDIOLOGY

Calcium channel blockers associated with increased risk of heart failure

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

1 Previous studies have suggested that the treatment of hypertension with calcium channel blockers (CCBs) could increase the risk of heart failure (HF).

2 This systematic review evaluated incident HF in people with hypertension treated with CCBs.

3 Eight electronic databases were searched and studies included if: they were randomised clinical trials, comparisons of CCBs versus active control, randomised >200 participants, had follow-up periods >6 months and provided data regarding incident HF.

4 Studies were not included if they were trials of people who had undergone renal transplantation, placebo-controlled or an HF trial.

5 The review identified 156 766 people who had been randomised to receive CCB treatment or control, and 5049 HF events.

6 There was a significant increase in the diagnosis of HF in participants receiving CCB treatment (odds ratio [OR], 1.18; 95% confidence interval [CI], 1.07–1.31).

7 In a subgroup analysis, people with diabetes were at higher risk for developing HF (OR, 1.71; 95% CI, 1.07–1.31) than those without diabetes.

8 The authors concluded that people with hypertension treated with CCBs are at increased risk of incident HF, especially those with incident diabetes.

Shibata MC, León H, Chatterley T et al (2010) Do calcium channel blockers increase the diagnosis of heart failure in patients with hypertension? *Am J Cardiol* **106**: 228–35

AMERICAN HEART JOURNAL

Vitamin D levels associated with depression in CVD

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

1 The authors investigated whether low vitamin D levels were associated with depression in people ≥50 years of age with cardiovascular disease (CVD).

2 A total of 7358 people with no prior depression diagnosis and a measured vitamin D level were included in the study group.

3 Average participant age was 73.1±10.2 years and 58.8% were women.

4 Compared with the optimum (>50 ng/mL), very low (≥15 ng/mL), low (16–30 ng/mL) and normal (31–50 ng/mL) vitamin D levels were associated with depression (P=0.005, P=0.3 and P=0.06, respectively).

5 In this population with CVD, sub-optimal vitamin D levels were associated with incident depression.

May HT, Bair TL, Lappé DL et al (2010) Association of vitamin D levels with incident depression among a general cardiovascular population. *Am Heart J* **159**: 1037–43

AMERICAN JOURNAL OF CARDIOLOGY

U-shaped association between BMI and mortality

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

1 The long-term association between BMI and mortality was evaluated in 12 466 men with coronary heart disease.

2 Participants were classified into BMI categories: <20 kg/m^2 (lean); 20–24.99 kg/m^2 (reference); and 25 to ≥30 kg/m^2 (obese). Two-thirds of participants had a BMI ≥25 kg/m^2.

3 Over a median follow-up period of 12 years, adjusted mortality rates per 1000 patient-years formed a U-shaped association with BMI.

4 A total of 148 lean participants (hazard ratio [HR], 1.28; 95% confidence interval [CI], 1.08–1.85) and 1788 obese people (HR, 1.28; 95% CI, 1.15–1.42) were at highest risk of death.

5 The lowest mortality rate was associated with people who had a BMI 23–24.99 kg/m^2. The presence of risk factors was associated with higher mortality in every BMI category.

6 A BMI ≥25 kg/m^2 is common in people with coronary heart disease.

Benderly M, Boyko V, Goldbourt U (2010) Relation of body mass index to mortality among men with coronary heart disease. *Am J Cardiol* **106**: 297–304

AMERICAN JOURNAL OF CARDIOLOGY

Atherosclerosis worsened by T2D

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

1 The authors of this study compared the extent and progression of coronary atherosclerosis in people with the metabolic syndrome (MS) with people with diabetes.

2 Serial evaluation of atheroma burden was assessed by intravascular ultrasound in the 3459 participants.

3 Compared with participants with the MS and those with neither diagnosis, people with diabetes experienced a more extensive atherosclerosis burden with a greater percent of atheroma volume (37.6±8.9%, 38.1±9.1% and 40.3±9.0%, respectively; P<0.001).

4 Diabetes was found to be associated with greater plaque progression, highlighting the independent negative effect of diabetes on the arterial wall.

Bayturan O, Tuzcu EM, Uno K et al (2010) Comparison of rates of progression of coronary atherosclerosis in patients with diabetes mellitus versus those with the metabolic syndrome. *Am J Cardiol* **105**: 1735–9