Cardiovascular journals

HDL-cholesterol and CV outcomes: The debate continues…

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The cardiovascular benefits of lipid-lowering therapy are well recognised as being related to lowering low-density lipoprotein cholesterol (LDL-C). However, some data – including those from epidemiological studies – have suggested that raising high-density lipoprotein cholesterol (HDL-C) is also associated with a reduction in cardiovascular outcomes, independent of changes in LDL-C.

> **"Some data – including those from epidemiological studies – have suggested that raising high-density lipoprotein cholesterol is also associated with a reduction in cardiovascular outcomes, independent of changes in low-density lipoprotein cholesterol."**

The study by Ray et al (2012; summarised alongside) evaluated the risk of cardiovascular events before and after starting lipid modification therapy in 1148 people selected from the EPIC-Norfolk (UK) and Rotterdam (The Netherlands) prospective cohort studies. Individuals were taking lipid modification therapy at only the second of two health assessments, at which cardiovascular outcomes and HDL-C and non-HDL-C were measured. Analyses were also undertaken subsequent to correction and adjustment for non-HDL-C and conventional non-lipid risk factors for cardiovascular disease (prevalent diabetes, cigarette smoking history, BMI, systolic blood pressure, previous myocardial infarction, prevalent angina, previous stroke and use of antihypertensive medication).

The important conclusion from this study is that it yielded no evidence to support increasing HDL-C – independent to lowering non HDL-C (especially LDL-C) – in terms of a significant effect on cardiovascular health outcomes.

In conclusion, the study findings continue to fuel the debate around reducing residual post-statin therapy by increasing HDL-C.

AMERICAN JOURNAL OF CARDIOLOGY

UAE screening has prognostic value in people with T2D

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

1 Current guidelines recommend screening all people with T2D for urinary albumin excretion (UAE), including individuals without nephropathy.

2 The authors examined the relationship between the change in UAE over 1 year and 10-year cardiovascular (CV) mortality in people with T2D and hypertension (diastolic BP >90 mm Hg).

3 The study cohort were selected from the ABCD (Appropriate Blood Pressure Control) trial. All were aged 40–70 years and had baseline normo-, micro- or overt albuminuria. The 1-year change in UAE was determined in a total of 393 individuals.

4 There was significant association between 10-year CV mortality rate and increase in 1-year UAE, a history of CV disease, diabetes duration and increasing age. A 2-log reduction in 1-year UAE yielded a 4.7% reduction in 10-year CV mortality rate, versus a 24.4% increase when 1-year UAE rose by 2 logs; this was independent of baseline albuminuria measurements.

5 The authors concluded that UAE screening in people with T2D has good prognostic value and should continue, and that UAE may serve as a target for vascular disease prevention in this population.

Estacio RO, Dale RA, Schrier R et al (2012) Relation of reduction in urinary albumin excretion to ten-year cardiovascular mortality in patients with type 2 diabetes and systemic hypertension. *Am J Cardiol* **109**: 1743–8

HEART

Lipid modification treatment: Effects on HDL-C and CVD risk

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

1 The authors set out to investigate whether the change in high-density lipoprotein cholesterol (HDL-C) during lipid modification treatment (LMT) was associated with a reduction in cardiovascular outcome endpoints in a combined sample of individuals selected from the EPIC-Norfolk and Rotterdam prospective studies.

2 Individuals were selected from both studies if they were taking LMT at the second but not at the first of two health assessments and had not been admitted to hospital with either myocardial infarction or a stroke prior to the second assessment (n=446 and n=702 for the EPIC-Norfolk and Rotterdam studies, respectively).

3 The change in HDL-C and non-HDL-C were measured at each of the two health assessments following initiation of LMT, using non-fasting serum total and HDL-C levels. Medication details were obtained from self-reported questionnaires, and cardiovascular disease (CVD) risk factor information was recorded.

4 Cox proportional analysis using follow-up CVD risk data from mortality records and hospital databases revealed that a 0.34 mmol/L rise in HDL-C with LMT yielded a 26% reduction in CVD risk. This was not statistically significant and was further attenuated following adjustment for non-HDL-C, and non-lipid CVD risk factors.

5 The authors concluded that the study results provide no evidence that LMT-mediated change in HDL-C has beneficial effects on CVD risk.

Ray B, Pawar PP, Desai RV et al (2011) Changes in HDL cholesterol and cardiovascular outcomes after lipid modification therapy. *Heart* **98**: 780–5

AMERICAN JOURNAL OF CARDIOLOGY

Revascularisation procedures in people with diabetes and multivessel disease

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

1 The authors investigated coronary and cerebral outcomes following one of two coronary revasuclarisation procedures in people with diabetes and multivessel disease (MVD), as determined by the SYNTAX (Synergy Between Percutaneous Coronary Intervention with Taxus and Cardiac Surgery) Score (SS) algorithm.

2 A cohort of 195 people with either T1D or T2D underwent either percutaneous coronary intervention (PCI; *n*=102) or coronary artery bypass grafting (CABG; *n*=93), determined by the location and extent of coronary artery disease.

3 Recruited individuals had been screened for but not included in the FREEDOM (Future Revascularisation Evaluation in Patients with Diabetes Mellitus: Optimal Management of Multivessel Disease) trial.

4 Clinical outcomes, including major coronary events and revascularisation, were determined over a median of 14 months using Kaplan–Meier curve analysis.

5 There was no significant between-group difference in the incidence of all-cause death, non-fatal myocardial infarction or stroke. However, target vessel revascularisation and major adverse coronary and cerebral events were significantly more prevalent in the people who underwent PCI ($P<0.0001$ and $P=0.034$, respectively).

6 The authors concluded that CABG should remain the preferred revascularisation strategy in people with diabetes and MVD.

Hee L, Mussap CJ, Yang L et al (2012) Outcomes of coronary revascularization (percutaneous or bypass) in patients with diabetes mellitus and multivessel coronary disease. *Am J Cardiol* **110**: 643–8

INTERNATIONAL JOURNAL OF CARDIOLOGY

TZD treatment and CV outcomes in T2D

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

1 The authors set out to examine the effect of thiazolidinedione (TZD) treatment on the 2-year incidence of major cardiovascular (CV) events in people with T2D who had established atherosclerotic arterial disease or who were at risk for atherothrombosis.

2 Individuals (*n*=28 332) were selected from the REACH (REduction of Atherothrombosis for Continued Health) Resgistry, of whom 4997 were taking TZD therapy at baseline.

3 Outcome data analysis used multivariate adjustment and propensity scores.

4 The authors found no association between TZD treatment and increased rates of mortality or non-fatal MI; CHF incidence was only significantly associated with TZD therapy in people >80 years of age ($P=0.03$).

5 The authors concluded that in this international study cohort, TZD therapy was not associated with major CV events in people with T2D, but older people were at an increased risk of developing CHF.

Roussel R, Hadjadj S, Pasquet B et al (2012) Thiazolidinedione use is not associated with worse cardiovascular outcomes: *Int J Cardiol* 4 May [Epub ahead of print]

AMERICAN HEART JOURNAL

Fenofibrate and CVD history in T2D

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

1 The authors of the FIELD (Fenofibrate Intervention and Event Lowering in Diabetes) study investigated cardiovascular disease (CVD) outcomes in people with T2D taking fenofibrate with or without a history of CVD (*n*=9795).

2 Individuals aged 50–75 years received daily fenofibrate (200 mg) or placebo. They were followed up for a median of 5 years during which CVD events were recorded. A total of 21.8% of people (*n*=2131) had a history of CVD at baseline.

3 People with a prior history of CVD had a higher uptake of statins and other CVD medications during the study and ceased taking fenofibrate more often than those with no CVD history.

4 Adjusted subgroup analysis revealed that the effect of fenofibrate therapy on CVD event incidence was not influenced by a baseline CVD history.

5 The authors concluded that independent of CVD history, people with T2D benefit from fenofibrate therapy.

Tonkin A, Hunt D, Voysey M et al (2012) The Fenofibrate Intervention and Event Lowering in Diabetes (FIELD) study. *Am Heart J* **163**: 508–14

AMERICAN HEART JOURNAL

Drug-eluting stents: long-term safety and efficacy in diabetes

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

1 The authors set out to compare the effects of treatment with sirolimus-eluting stent (SES) and paclitaxel-eluting stent (PES) on major adverse cardiac events (including target revascularisation) in people with and without diabetes.

2 Individuals (*n*=1012) were randomly assigned to either PES (*n*=509) or SES (*n*=503) treatment. Twenty per cent (*n*=292) of the cohort had diabetes.

3 During 5 years of angiographic follow-up, major cardiac events occured significantly more often in people with diabetes ($P=0.02$), particularly cardiac mortality ($P<0.0001$). Between-group restenosis rates were comparable.

4 It was concluded that following SES/PES treatment restenosis is not increased, but long-term mortality is higher, in people with diabetes.

Billinger M, Räber L, Hitz S et al (2012) Long-term clinical and angiographic outcomes of diabetic patients after revascularization with early generation drug-eluting stents. *Am Heart J* **163**: 876–86. e2

"Thiazolidinedione therapy was not associated with major CV events in people with T2D, but older people were at an increased risk of developing CHF."