

Meetings

American Diabetes Association Annual Conference 2003

**This year's American Diabetes Association Conference was held
in New Orleans on 13–17 June 2003.**

10-year follow-up to DCCT shows reduced atherosclerosis and other complications

New research has shown that tight control of type 1 diabetes pays off in reduced atherosclerosis and other complications years later – even if control has subsequently worsened – due to mechanisms beyond blood glucose levels alone.

'Intensive control, bringing blood glucose levels as close to normal as possible for an average 6.5 years, yielded reduced atherosclerosis even after 8 years of less effective control, compared with those who never achieved tight control,' said John Lachin, Professor of Biostatistics at George Washington University.

The Diabetes Control and Complications Trial (DCCT), initiated 20 years ago, involved 1441 people in a comparison of intensive vs



Registration for this year's American Diabetes Association Conference.

conventional control. Initial results, reported in 1993, demonstrated a 39–76% reduction in development of microvascular complications. Most participants were then enrolled in the Epidemiology of Diabetes Interventions and Complications (EDIC) observation study, involving annual assessment for the past 8 years.

In the EDIC study, HbA_{1c} levels of the former intensive control patients had risen from 7.2% to 8.0%. In contrast, levels in the former conventional control group fell from 9.0% to 8.1% after patients were taught intensive control at the end of DCCT. Thus, there had been very little difference in HbA_{1c} levels over

the past 8 years, in contrast to the initial study years.

Nonetheless, an ADA poster reported that those previously on intensive control now have significantly less calcification in their coronary arteries – a marker of atherosclerosis – than those on conventional control, as evidenced by CT scans. Furthermore, those formerly on intensive therapy have continued to display markedly reduced progression of microvascular disease.

Given that the persistent effect of past glucose control cannot easily be explained by any acute effect of blood glucose, it was concluded that 'metabolic memory' may be the best model for understanding the results.

Heart stent blockage reduced by rosiglitazone

Use of PPAR-gamma agonists such as rosiglitazone should be strongly considered in people with type 2 diabetes, not only for glucose lowering and insulin sensitizing but also for its anti-inflammatory effects.

A double-blind, placebo-controlled, prospective study examined 101 diabetes patients – in whom angiography had revealed coronary artery blockages – who received one or more stents. They were then randomised to either placebo or 4mg rosiglitazone for 6 months, after which time angiography was repeated.

Up to a half of patients receiving stents normally restenose, with the artery blocked again within 6

months – as was the case for 47% of this control group – but only 12% of those who received rosiglitazone

restenosed,' reported Sunghee Choi, Fellow in the Division of Endocrinology at Yonsei University College of Medicine, Korea.

'A key marker of inflammation (hsCRP) was also reduced,' added Dr Choi, 'supporting the theory that inflammation plays an important underlying role in CV disease.'

This is the first demonstration that rosiglitazone, a drug with anti-inflammatory action, can prevent in-stent restenosis in humans.



Insulin injections: not as bad as people fear!

Timely initiation and effective self-management of insulin therapy can be impaired by negative perceptions and attitudes among people with type 2 diabetes and their professional healthcare providers. The term 'psychological insulin resistance' has been used to describe this phenomenon.

A poster by William Polonsky et al from San Diego, USA, described a study in which 165 patients with non-insulin-treated type 2 diabetes completed a survey about their willingness to begin insulin therapy if necessary.

Of these, 43.8% reported that they were not willing or only slightly willing to do so. They feared that

once started, insulin could never be stopped, that it would restrict their lives, that it would represent a failure on their part to control their disease and that it would be more painful.

However, a second poster by Soren Skovlund et al from Copenhagen, Denmark, showed that in a study of people already on insulin, only 6% feared the injections and only 28% thought it demanded a lot of time and energy.

Knowledge of this disparity between anticipated and actual patient experience might help people accept insulin injections when they are needed.

Gut hormones shown to affect obesity and diabetes

Hormones in the gastrointestinal tract that affect appetite and calorie use are leading to new drugs that will help control weight and diabetes, according to several presentations at this year's ADA conference.

'More than two dozen gut hormones have emerged that affect processes in the brain and elsewhere in the body that control appetite and energy metabolism,' said Peter Havel, Associate Professor of Nutrition at the University of California.

'This research brings us closer to understanding the many factors that control weight, an important issue in the development of type 2 diabetes, cardiovascular disease, and other diseases,' emphasized

Richard Hahn, Chief Scientific and Medical Officer for the American Diabetes Association.

Glucagon-like peptide (GLP-1), for example, is a hormone produced in response to food by specialized cells that line the gut. It has the potential to encourage insulin production without causing hypoglycaemia and without leading to the beta-cell burnout that is characteristic of type 2 diabetes.

Many pharmaceutical companies have synthetic GLP-1s in animal and human studies. One of these is Exanatide which has been shown to stimulate insulin secretion, suppress glucagon secretion, slow gastric emptying, reduce appetite and weight, and improve beta-cell function.

Medical errors: inappropriate metformin prescribing

Metformin is a commonly used and valuable diabetes drug. Well defined contraindications should help avoid its most serious side effect – potentially fatal lactic acidosis.

However, Peter Dumo et al from Detroit, USA, described a study showing that 44% of diabetes patients with an active

contraindication were given metformin during hospitalisation – including 20% with kidney insufficiency – and 28% were discharged with such a contraindication.

Considering how common kidney problems are, doctors need to carefully review patient records when metformin is prescribed.

Changing shape of childhood: obesity in the 21st century

Recent decades have seen the unparalleled marketing of junk food and soft drinks, allowing for more calories for each meal and the devaluing of physical exercise in our schools, said Francine Kaufman, President of the ADA, in her presidential address.

A serving of french fries that represented 171 calories in 1970 now accounts for 285 calories, while the typical snack increased from 160 to 249 calories over the same period. In addition, American

children watched an average of 1 hour's television per day in 1970 compared with 3 hours now. Consequently, adolescent obesity rates have increased from 5% to 20% over the last 30 years, although rates for African American teens are closer to 35%.

According to Dr Kaufman, 'we must be the generation that redefines progress as that which enables us to have a normal BMI, blood sugar, blood pressure and lipid profile.'

Decline in glycaemic control in type 2 diabetes not inevitable

The progressive deterioration in glycaemic control over time shown by the UKPDS is not inevitable if measures are taken to compensate for diminishing insulin secretion, said Robert Hood, reporting a study of type 2 diabetes patients in Texas, USA.

Over a 3-month period in 2001, 463 patients met the inclusion criteria for type 2 diabetes and active follow-up for at least 6 months.

The average HbA_{1c} remained <7.0% regardless of duration of

diabetes. The HbA_{1c} with duration of <5 years was lower than in the other intervals ($P < 0.001$), but no significant differences were seen after this point.

Treatment with increasing duration was characterised by more combination therapy, decreasing use of metformin and increasing use of thiazolidinediones and insulin. The decline in the use of metformin with longer duration might be related to an increase in the prevalence of azotaemia and congestive heart failure.

Insulin strategies to address meal-related glucose excursions

Insulin strategies that address meal-related glucose excursions are an important part of disease management in type 2 diabetes, said Mary Korytkowski, Professor of Medicine at the University of Pittsburgh, USA.

Strategies that address both basal and bolus insulin requirements include the use of long- (glargine, ultralente) or intermediate-acting (NPH, lente) insulin in combination with regular insulin or rapid-acting insulin analogues, such as lispro or aspart. Several premixed insulin

preparations that include both an intermediate and short- or rapid-acting insulin analogue are currently available.

Premix preparations containing a rapid-acting insulin analogue may have advantages over those containing regular insulin. Studies of biphasic insulin aspart have shown lower postprandial glucose excursions than experienced with an equivalent dose of a biphasic human insulin preparation. In addition, a reduction in the frequency of major hypoglycaemic events has also been seen.

Ginseng: complementary therapy for diabetes?

Two studies presented at the ADA suggested that American ginseng and Korean red ginseng may help control type 2 diabetes.

In one study conducted by researchers in Toronto, Canada, and Guildford, UK, Alexandra Jenkins et al described how ginseng and Konjac Mannan Fiber were added to conventional treatment and yielded significant decreases in HbA_{1c} over 12 weeks – a decrease comparable to that seen

with other hypoglycaemic agents.

In a second study, John Sievenpiper et al, from Toronto, Canada, demonstrated that ginseng rootlets decreased glycaemia when taken before an oral glucose tolerance test in healthy subjects.

It is therefore important for healthcare professionals to establish whether patients are taking any complementary therapies. Too much of a good thing could lower blood glucose too much.