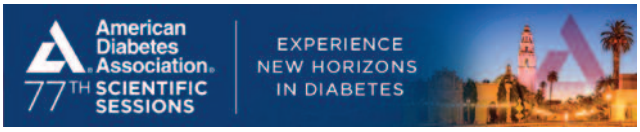
Highlights from the 77th Scientific Sessions of the American Diabetes Association



Dr Caroline Day reports from the San Diego meeting, 9th–13th June 2017

Wisdom from the west

The San Diego Convention Center hosted the 77th Annual Scientific Sessions of the American Diabetes Association (ADA). This easy-to-navigate venue with its main entrance on the edge of the vibrant Gaslamp quarter (ideal for lunch) had glazed perimeter corridors with views across the busy bay to Coronado Island and access to wide terraces offering a welcome relief from overcooled meeting rooms. More than 14,000 delegates (55% from outside the USA) attended this five-day meeting where delegates had access to over 2,500 research presentations: 378 abstracts presented in 49 oral sessions; a display of over 2,000 posters (including 373 late breakers) with 50 selected for moderated discussion; plus over 350 published-only abstracts.[1,2] The top eight abstracts (Abs 373–380-OR), as scored by the Scientific Sessions Planning Committee, provided the meeting's finale in the President's Oral Session.

The award lectures provide individualised insight, and Professor Domenico Accili's Banting lecture – 'The New Biology of Diabetes', considering the importance of basic research and its translation to healthcare practice – maintained the tradition (Table 1). The ADA symposia provided excellent educational opportunities for those new to the specialism as well as seasoned subject specialists. For those who were unable to attend the meeting, online access to the sessions can be purchased from the ADA.[3]

On a lighter note, Bryan Alverado was the first person to finish in this year's 5K@ADA, knocking 1.17 minutes off last year's winning time to complete the course in 15.38 minutes: proof there's more to meeting preparation than scripting an abstract and packing a suitcase.

Table 1 Awards at ADA 2017

National Scientific and Health Care Achievement Awards	Recipient
Banting Medal for Scientific Achievement Award	Domenico Accili
Outstanding Scientific Achievement Award	Gregory R Steinberg
Albert Renold Award	Daryl K Granner
Outstanding Achievement in Clinical Diabetes Research Award	William V Tamborlane
Outstanding Physician Clinician in Diabetes Award	Ruth S Weinstock
Outstanding Educator in Diabetes Award	Davida F Kruger
Harold Rifkin Award for Distinguished International Service in the Care of Diabetes	Roger S Mazze
Kelly West Award for Outstanding Achievement in Epidemiology	Dana Dabelea
Professional Interest Group Award Lectures	
Edwin Bierman Award (Complications)	Mark E Cooper
Norbert Freinkel Award (Pregnancy)	Gernot Desoye
Roger Pecorara Award (Foot care)	Dane K Wukich
Richard R Rubin Award (Behavioural Medicine & Psychology)	Michael A Harris

Deep dive

Taking a 'deep dive' – an activity to be undertaken with data – was this meeting's catch phrase. For example, ACCORD has generated a method for identifying subjects at increased risk/benefit of particular strategies (Abs 458-P), the LEADER trial has shown a reduction (14%) in the risk of recurrence of a cardiovascular (CV) event and a reduced risk for renal events in liraglutide-treated patients and the EMPA-REG trial also presented the results of further data mining in oral (Abs 7-OR) and poster (Abs 452,1172–1177-P) sessions.

Several large CV outcome trials reported at ADA, including the ODYSSEY DM-Insulin and ODYSSEY DM-Dyslipidemia studies in patients at high CV risk inadequately controlled on maximally tolerated statin therapy. These studies showed that the PCSK9 inhibitor alirocumab (compared with usual care) improved lipid parameters in hypercholesterolaemic insulin-treated patients with type 1 or type 2 diabetes, and in patients with type 2 diabetes with mixed dyslipidaemia. Additionally, this monoclonal antibody therapy did not exhibit an adverse safety profile.

The DEVOTE study compared the safety of the basal insulins degludec and IGlar U100 in patients with type 2 diabetes at high CV risk and noted a 40% reduction in the risk of severe hypoglycaemia and a 53% reduction in severe nocturnal hypoglycaemia with degludec versus IGlar U100, but there was no difference between the agents with regard to CV risk.[4]

In the REMOVAL study, patients aged ≥40 years with established (≥5 years) type 1 diabetes with at least three CV disease risk factors were treated with metformin (1000 mg bd) for 3 years.[5] Metformin treatment was associated with a reduction in body weight (1.2 kg), insulin dose (2 units/day), HbA_{1c} (0.13%), LDL cholesterol (5 mg/dL; 0.13 mmol/L) and decreased progression of atherogenesis (notably average maximal far wall carotid artery intima-media thickness, but this was a tertiary outcome). Interestingly, metformin treatment marginally increased the estimated glomerular filtration rate (eGFR).

The reporting of the CANVAS study was perhaps the highlight of ADA 2017.[6] First the bad news – the incidence of amputation almost doubled (excess of 15 per 1,000 patient years) in patients taking canagliflozin (71% of amputations were toe or metatarsal). Now the good news – treatment with canagliflozin reduced CV risk (composite of CV death, non-fatal myocardial infarction or non-fatal stroke) and was superior ($p<0.02$) to standard care. Compared with placebo, canagliflozin treatment significantly ($p<0.001$) reduced HbA_{1c} (0.58%), body weight (1.6 kg), systolic blood pressure (3.93 mmHg) and diastolic blood pressure (1.39 mmHg) and conferred better outcomes (hazard ratio <1) on all CV parameters studied, most notably stroke, myocardial infarction and hospitalisation for heart failure. Progression of albuminuria was reduced and there was also a reduction in the composite of a 40% decline in eGFR, renal replacement therapy or renal death. An interesting facet of this trial (median duration 3.6 years) was that only 65% of subjects had pre-existing CV disease, making the trial population more representative of patients seen in 'real world' practice.

... in the real world

The CVD-REAL study examined primary care databases in six countries to propensity match over 154,000 patients starting a sodium-glucose cotransporter-2 (SGLT2) inhibitor compared with the same number starting another class of oral glucose-lowering agent. In patients with and without CV disease, the SGLT2 inhibitors consistently reduced all-cause deaths and hospitalisation for heart failure, and the results were similar irrespective of the SGLT2 inhibitor used (mainly canagliflozin in the USA and dapagliflozin in Europe), suggesting that these effects are likely to apply across the class (377-OR).[7]

ACCORD	Action to Control Cardiovascular Risk in Diabetes
CANVAS	CANagliflozin and cardioVascular Assessment Study
DEVOTE	A Trial Comparing Cardiovascular Safety of Insulin Degludec Versus Insulin Glargine in Subjects With Type 2 Diabetes at High Risk of Cardiovascular Events
EMPA-REG OUTCOME	BI 10773 (Empagliflozin) Cardiovascular Outcome Event Trial in Type 2 Diabetes Mellitus Patients
LEADER	Liraglutide Effect and Action in Diabetes: Evaluation of Cardiovascular Outcome Results
ODYSSEY DM-Dyslipidemia	Efficacy and Safety of Alirocumab Versus Usual Care on Top of Maximally Tolerated Statin Therapy in Patients With Type 2 Diabetes and Mixed Dyslipidemia
ODYSSEY DM-Insulin	Efficacy and Safety of Alirocumab Versus Placebo on Top of Maximally Tolerated Lipid Lowering Therapy in Patients With Hypercholesterolemia Who Have Type 1 or Type 2 Diabetes and Are Treated With Insulin
REMOVAL	REducing with MetfOrmin Vascular Adverse Lesions in Type 1 Diabetes

Diary date

ADA 2018 will be held on 22–26 June at the Orange County Convention Center, Orlando, Florida. Walking isn't a comfortable option in this hot (32°C/90°F), humid (78%) climate, so book your lodgings near the conference centre.

References

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