Impressions from EASD 2017

Dr Caroline Day reports from the European Association for the Study of Diabetes 53rd Annual Meeting in Lisbon, Portugal, 11th–15th, September 2017

Introduction

The Lisbon International Fair, Parque das Nacoes, located near the bank of the tidal Targus with views of the impressive Vasco da Gama bridge to one side and easy access to shopping malls and underground and mainline railway stations to the other, was the 2017 venue for the 53rd annual EASD meeting. The 47th Annual EASD meeting was held here in 2011, but this year there were fewer delegates (n=15,436) than in 2011 (n= 17,462), although numbers were consistent with last year's EASD attendance (n=15,318). As in 2016, the UK retained second position – again behind Germany – amongst the 130 countries represented at this year's meeting.

Abstracts

This year abstracts 1–264 were presented in 48 oral sessions and abstracts 265–1266 were presented across six poster events. Abstracts could be viewed singly via the conference website (with the facility for individual on-site printout), but *Diabetologia* also produced a virtual supplement (ISSN 0012-186X will lead to the printed publication) – thus the potential for serendipity lingers.[1,2] Perusal of the outline programme may accelerate navigation of the virtual meeting, especially when seeking the non-commercial and scientific sessions symposia, or view the final programme which is available as a pdf (summary programme, pages 30–33).[3,4]

From metformin to …

Again this year the prize lectures (Table 1) were diverse, providing enlightening background and state-of-the-art information as well as some interesting personal asides – check out the virtual meeting and EASD interviews on YouTube.[1]

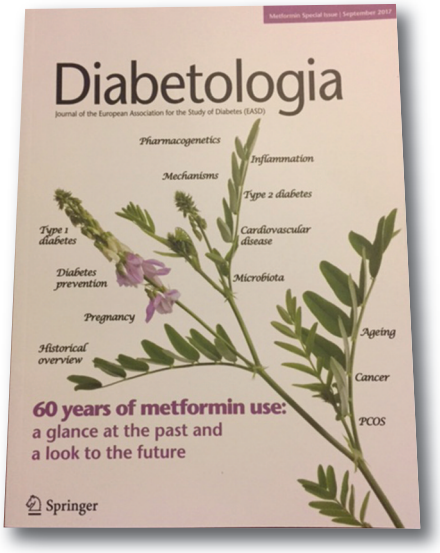
2017 marked the 60th anniversary year of the first clinical use of the biguanide metformin to treat diabetes. A special issue of *Diabetologia* was devoted to metformin and distributed in real-world printed/physical form (Figure 1).[5] There was an EASD Diamond symposium session and an industry (Merck KgA) sponsored symposium with accompanying book – however, if you want a comprehensive but detailed grounding in metformin, seek out the text compiled to celebrate 50 years of metformin.[6,7] For a rapid metformin resume from herbal remedy to pharmaceutical glucose-lowering drug (Glucophage®) – its emergence from the shadow of the sulphonylureas to becoming the world's most prescribed drug for diabetes – it is worth watching the EASD metformin interview.[8]

Metformin in established type 1 diabetes, investigated in the REMOVAL study, was the subject of a Sunday afternoon pre-meeting EASD symposium. Data presented at ADA showed benefits of metformin treatment in these patients, including improved eGFR (p<0.0001), and the EASD session discussed new post hoc analyses which confirmed the original observation and suggest that improved eGFR is due to a direct effect of metformin on the kidney.[9,10]

Table 1 Prize lectures at EASD 2017

Prize	Lecturer	Title (*day of presentation*) and link to EASD interview
Claude Bernard Lecture	Bernard Thorens (Lausanne, Switzerland)	A glucose-centric view on diabetes pathogenesis: from islet biology to integrated physiology and precision medicine (*Tuesday*) https://www.youtube.com/watch?v=iYKWa4cKZX8
Camillo Golgi Lecture	Brian M Frier (Edinburgh, UK)	Recurrent hypoglycaemia in diabetes: the long-term complications (*Tuesday*) https://www.youtube.com/watch?v=wAUJ5bHvN4c
Albert Renold Lecture	Jorge Ferrer (London, UK)	DNA switches; beta cells and diabetes (*Tuesday*)
EASD-Novo Nordisk Foundation Diabetes Prize for Excellence	Philip E Sherer (Dallas, USA)	The many secret lives of adipocytes: implications for diabetes (*Wednesday*) https://www.youtube.com/watch?v=XG8cih6J-7A
Minkowski Lecture	Ewan Pearson (Dundee, UK)	Targeting therapy in diabetes: insights from genetics (*Thursday*) https://www.youtube.com/watch?v=S0ycfWpb6U4

Figure 1. Diabetologia: metformin special issue, 2017



Cardiovascular outcome trials in type 2 diabetes

No differences in cardiovascular outcomes were observed when comparing pioglitazone versus a sulphonylurea (gliclazide 50%, glimepiride 48%, glibenclamide 2%) as add-on to metformin for a median 4.8 years in TOSCA.IT.[11] In EXSCEL, treatment of type 2 diabetes patients (of whom 73% had prior cardiovascular disease) with exenatide once weekly for a median of 3.2 years was non-inferior to usual care (HR 0.91 (0.83,1.00), p<0.001) for the primary outcome of 3-point MACE (composite of cardiovascular death or non-fatal myocardial infarction or non-fatal stroke), although there was a 14% (p<0.016) risk reduction in all-cause mortality.[12,13] DEVOTE noted the similarity of the basal insulins degludec and glargine on cardiac safety (3-point MACE) in type 2 diabetes and lower rates of hypoglycaemia with degludec compared to glargine.[14,15] The results of the CANVAS programme were reiterated (treatment with canagliflozin significantly reduced cardiovascular risk (3-point MACE) compared to usual risk).[16] However, there was an unexpected increase in amputations in canagliflozin-treated patients (p<0.001), and this prompted a re-examination of amputations in EMPA-REG. There were 6.3 amputations/1000 patient years in both the canagliflozin-treated and empagliflozin-treated groups, as well as the EMPA-REG placebo group. However, there were only 3.4 amputations/1000 patient years in the CANVAS placebo group.[17]

Cardiovascular disease and diabetes prevention

The ACE study was conducted to establish if acarbose added to usual cardiovascular care could reduce the incidence of cardiovascular events and type 2 diabetes in patients with coronary heart disease and impaired glucose tolerance. The study was conducted in China where almost 50% of adults have pre-diabetes. Patients (n=6,522) were randomised 1:1 and followed for a median of 5 years. Treatment with acarbose (50 mg three times daily) did not reduce the risk of major adverse cardiovascular events but did reduce the incidence of type 2 diabetes (13% vs. 16%, rate ratio p=0.005).[18,19]

Cardiovascular risk and PCSK9 inhibitors

The injectable PCSK9 inhibitors have shown LDL lowering efficacy that is additional to that achieved by statins. The alirocumab ODYSSEY-DM studies (INSULIN and DYSLIPIDEMIA), originally reported at ADA, showed improvement (versus usual care) in type 2 diabetes patients with mixed dyslipidaemia and in hypercholesterolaemic insulin-treated patients with type 1 and type 2 diabetes. Presentations at EASD contained further data regarding alirocumab use in patients with type 1 diabetes.[20,21] The FOURIER study also showed that evolocumab reduced cardiovascular risk in patients with diabetes and in patients without diabetes. Evolocumab did not worsen glycaemic control and did not increase the risk of diabetes.[22,23]

Cardiovascular risk and intensive management

In the J-DOIT3 study, type 2 diabetes patients (n=2,542) with hypertension or dyslipidaemia were assigned 1:1 to usual care or intensive treatment of glucose, lipid and blood pressure and followed up for 8.5 years. Intensive multifactorial control – targeting normal or near-normal values – reduced the risk of microvascular and macrovascular complications.[24]

… newer agents

The SGLT2 inhibitors are the most recent class of agent to join the glucose-lowering armamentarium. Sessions devoted to the use of this class of agents in the treatment of type 1 diabetes focused on the DEPICT and inTANDEM studies. DEPICT showed that addition of dapagliflozin (5 mg or 10 mg) for 24 weeks reduced HbA_{1c} (both p<0.0001). The incidence of hypoglycaemia was similar in dapagliflozin-treated and placebo groups and diabetic ketoacidosis occurred in 1%, 2% and 1% of patients in the dapagliflozin 5 mg, 10 mg and placebo groups, respectively.[25,26] Sotagliflozin is in phase 3 development, and this agent has notable SGLT1 and well as SGLT2 inhibitory activity. In the inTANDEM study, addition of sotagliflozin (400 mg) for 24 weeks reduced HbA_{1c} (p<0.0001); the incidence of severe hypoglycaemia was similar in the treated (3%) and placebo (2.4%) groups and diabetic ketoacidosis occurred in 3% of patients receiving sotagliflozin and 0.4% of patients in the placebo group.[27,28]

Anything else?

The role of advocacy in advancing care for people with diabetes was evident with the introduction of the International Diabetes

ACE	**A**carbose **C**ardiovascular **E**valuation
CANVAS	**CAN**agliflozin and cardio**V**ascular **A**ssessment **S**tudy
DEVOTE	A trial comparing cardiovascular safety of insulin **De**gludec versus insulin Glargine in subjects with type 2 diabetes at high risk of cardiovascular events
DEPICT	**D**apagliflozin **E**valuation in **P**atients With **I**nadequately **C**ontrolled **T**ype **1** diabetes
EMPA-REG OUTCOME	**Empa**gliflozin cardiovascular **Outcome** event trial in type 2 diabetes mellitus patients
EXSCEL	**EX**enatide **S**tudy of **C**ardiovascular **E**vent **L**owering
FOURIER	**F**urther cardiovascular **OU**tcomes **R**esearch with PCSK9 **I**nhibition in subjects with **E**levated **R**isk
J-DOIT3	**Japan–D**iabetes **O**ptimisation **I**ntegrated **T**reatment study for **3** major risk factors of cardiovascular diseases
ODYSSEY DM-Dyslipidemia	Efficacy and safety of Alirocumab versus usual care on top of maximally tolerated statin therapy in patients with type 2 **D**iabetes **M**ellitus 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 **D**iabetes **M**ellitus and are treated with **Insulin**
REMOVAL	**RE**ducing with **M**etf**O**rmin **V**ascular **A**dverse **L**esions in type 1 diabetes
inTANDEM	Sotagliflozin plus insulin in type 1 diabetes
TOSCA.IT	**T**hiazolidinediones **O**r **S**ulfonylureas **C**ardiovascular **A**ccidents **I**ntervention **T**rial

Federation (IDF) Europe IMPACT (Initiative to Mobilise Parliamentariums to Act to Prevent, Care and Treat diabetes) programme which endeavours to build a pan-European forum to drive positive change in diabetes care. Might we expect a reincarnation of the St Vincent Declaration? The Parliamentarians for Diabetes Global Network (PGDN) – remember the Melbourne Declaration (2013) and Vancouver Proclamation (2015) – has been instrumental in helping people hold their governments to account regarding issues relating to health and diabetes care. Their next forum will be in the European Capital of Culture, Valetta, Malta in 2018.

The Messe Berlin (aka Berlin ExpoCenter City), Messedamm 22, will host EASD 2018. As in 2012, when EASD last visited Berlin, the EASD will be held later than usual on 2nd–5th October.

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