50th Annual Meeting of the European Association for the Study of Diabetes

15–19 September 2014, Vienna, Austria

ADA and EASD issue joint statement on insulin pumps

The American Diabetes Association and European Association for the Study of Diabetes issued a joint statement criticising the unacceptably poor regulation and quality control of medical devices, in particular insulin pumps, in Europe and the US.

While insulin pumps can provide greater flexibility and convenience and are being used by increasing numbers of people with type 1 diabetes, undetected malfunctions of these devices can result in diabetic ketoacidosis, hypoglycaemia and even death. The two organisations recommend closer evaluation and monitoring, along with greater harmony between regulatory bodies, both pre-marketing and post-approval.

Hypoglycaemia costs NHS £363.6 million per year

The economic burden of hypoglycaemia to the NHS is estimated to be £363.6 million per year, according to Novo Nordisk's new Local Impact of Hypoglycaemia Tool (LIHT). The real rate could be even higher, as results of the HAT (Hypoglycaemia Assessment Tool) study suggest significant under-reporting of both severe and non-severe hypoglycaemia.

Using data from the UK Hypoglycaemia Study Group, along with figures on healthcare costs from a number of sources, the LIHT estimates healthcare burdens in a given region or population. Each hypoglycaemic episode requiring NHS resources could cost up to £2195, and even more if an extended hospital stay is required.

Dogma debates: Dietary sodium intake and the evidence for metformin discussed

There were a number of debates on topics that are perceived wisdom in diabetes treatment. In the first, Harold Lebovitz (State University of New York, Brooklyn, NY, USA) and Rury Holman (University of Oxford) discussed the evidence for metformin, the most widely used first-line treatment for type 2 diabetes.

Professor Lebovitz gave a detailed tour of observational studies and the UKPDS (UK Prospective Diabetes Study), which have demonstrated metformin's effects on glycaemic control and all-cause and cardiovascular (CV) mortality. Professor Holman, however, noted that the drug's mechanism of action is still unknown and that, while the unexpected results of the UKPDS increased its popularity, there have been no subsequent prospective, large-scale studies to support its CV and anticancer effects. The fact that the true benefits and risks of such a popular drug remain unclear after decades is surprising.

In a second debate, Graham MacGregor (Queen Mary University of London) and Merlin Thomas (Baker IDI Heart and Diabetes Institute, Melbourne, VIC, Australia) discussed the effectiveness of restricting dietary salt intake. Professor MacGregor stated that there was more evidence of salt's association with blood pressure (BP) than for any other dietary factor and that, in countries where salt has been restricted, the population's BP had fallen, along with the incidence of stroke and heart attack. He advocates a coherent strategy to reduce salt intake.

Arguing against the need for national measures against dietary sodium, Professor Thomas noted that recent trials achieving BP levels far lower than could be expected by salt reduction alone have failed to improve CV outcomes. Furthermore, salt intake has pleiotropic effects on glucose tolerance, dyslipidaemia and renal function, making the effects of salt restriction unpredictable. A specific "war on salt" would be less effective than attempts to change overall diet and exercise patterns.

Social inequality and diabetes risk

New research into the pathophysiological mechanisms underlying the well-known link between social inequality and diabetes risk was described by Mika Kivimaki (University College London). While health behaviours and weight explain many of the differences, inflammation has also been implicated. One hypothesis is that socioeconomic adversity in early life alters the immune system, leading to exaggerated inflammatory responses in later life, increasing the risk of type 2 diabetes. There is also evidence of epigenetic changes brought on by social adversity.

Dulaglutide and basal insulin peglispro

Eli Lilly and Company presented a total of 50 abstracts at the EASD Annual Meeting, 28 as part of their alliance with Boehringer Ingelheim. In particular, the company highlighted two of its late-stage products. Eight presentations were given on dulaglutide, a once-weekly glucagon-like peptide-1 receptor agonist. In the same week, the US Food and Drug Administration approved the agent in conjunction with diet and exercise for adults with type 2 diabetes. Three presentations were given on the long-acting basal insulin peglispro.

Meta-analyses of SGLT2 inhibitors published

Apostolos Tsapas (Aristotle University, Thessaloniki, Greece) described the role of sodium–glucose co-transporter 2 (SGLT2) inhibitors in the treatment armamentarium for type 2 diabetes, based on recently published meta-analyses.

These agents, including dapagliflozin, canagliflozin and empagliflozin, have a new, beta-cell-independent mechanism of action that allows them to be used at any stage of diabetes and in combination with any antidiabetes drug, including insulin. This makes them useful for people in whom metformin is contraindicated or ineffective.

Professor Tsapas's meta-analyses show that SGLT2 inhibitors reduce HbA_{1c} by around 0.7% (7.7 mmol/mol) without increasing the risk of hypoglycaemia, and can also cause reductions in body weight and blood pressure. However, long-term outcomes and safety require further evaluation.

He concludes that the agents' main safety concerns are related to an increased incidence of urinary and genital tract infections. They should thus be used cautiously in older people and those with renal impairment.

Insulin degludec in children and adolescents

Novo Nordisk announced the long-term efficacy and safety results of a 52-week trial of Tresiba®, a once-daily injection of insulin degludec, in children and adolescents with type 1 diabetes. The agent was compared with insulin detemir, both in combination with bolus insulin.

At 26 weeks, degludec met its endpoint of non-inferiority to detemir. In the 26-week trial extension, degludec achieved a lower insulin dose and significantly lower fasting plasma glucose levels.

The two agents had similar rates of overall and nocturnal hypoglycaemia; however, the rate of severe hypoglycaemia was numerically, but not significantly, higher in the degludec group. Conversely, degludec had lower rates of hyperglycaemia with ketosis. It resulted in a mean weight gain of 0.1 kg, whereas detemir did not.

Dr Nandu Thalange (Norwich University Hospital) said that Tresiba was safe and "has the potential to offer youngsters with diabetes a new treatment option, which may help them achieve better control of their diabetes."

Incretin-based therapies: Are they safe and do we need them?

In this year's European Association for the Study of Diabetes/American Diabetes Association Symposium, the role of incretin-based therapies was discussed. After a summary of the latest research from Clifford Bailey (Aston University, Birmingham), David Nathan (Harvard Medical School, Bostson, MA, USA) discussed whether we need them. His answer: they are like umbrellas in the rain – we would survive without them but we might get a little wet.

In terms of added value, glucagon-like peptide-1 (GLP-1) receptor agonists improve glycaemic control; however, they have not been evaluated in long-term studies. They also result in modest weight loss and blood pressure reduction. Concerns over associations with pancreatic and thyroid cancers, as Johann-Baptist Gallwitz (Eberhard Karls University, Tübingen, Germany) discussed, have not been supported by subsequent studies.

Dipeptidyl-peptidase-4 inhibitors are less effective than GLP-1 agonists in terms of glycaemic control and weight loss, but they confer a minimal risk of hypoglycaemia, can be taken orally and do not have the gastrointestinal side effects. They are also safer in older people with impaired renal function compared with the older treatments like sulphonylureas.