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Updates in the Treatment of People with Type 1 Diabetes Mellitus

During last September, the 60th Congress of the European Association for the Study of Diabetes (EASD) was held in Madrid (Spain). This edition placed significant emphasis on type 1 diabetes mellitus (T1DM), discussing topics related to the management of early stages of T1DM, technological advances in treatment, and aspects related to cardiovascular risk.

Stage 1 of T1DM is defined as the presence of two or more positive pancreatic autoantibodies without alterations in glucose metabolism. Stage 2 is characterized by impaired glucose metabolism but without clinical symptoms of hyperglycemia. Stage 3 marks the clinical onset of diabetes. At the conference, various studies were reviewed, particularly those involving pediatric populations. It was observed that identifying these early stages and providing pre-emptive diabetes education to families yielded benefits, such as a reduction in ketoacidosis episodes at onset, fewer hospitalization days, and milder symptoms. A recently published document on monitoring early stages was discussed. This document proposes the periodic testing (especially HbA1c determination) of both pediatric and adult populations. Several studies with different drugs and approaches to early-stage treatment were also presented. Currently, only the immunotherapeutic drug teplizumab has been approved by the FDA in the United States to delay the progression to Stage 3. It was suggested that future strategies will likely involve combining various drugs.

Real-world studies on integrated systems were highlighted in the field of technology. Data from nearly 500 T1DM patients in Belgium, including adults and children using the Control IQ system with the Tandem pump, showed significant improvements in time in range (blood glucose 70–180 mg/dL), reduced time below target (< 70 mg/dL), and greater user satisfaction. There was also a marked decrease in work absenteeism for adults and school absences for children and their parents. Preliminary real-world data from Europe on the Omnipod patch pump system, not yet available in Spain, were also presented. Data from over 20,000 users in the UK and Germany showed improvements in time within the target range and reduced time below target.

Additionally, unpublished results from the Lenny study evaluated the Medtronic 780G integrated system in very young children (2–6 years) and showed promising outcomes.

In gestational diabetes, Dr. Helen Murphy from the UK, author of the AiDAPT study demonstrating the benefits of the CamAPS integrated system, emphasized its suitability during pregnancy due to its algorithm cha-

acteristics and ability to set different glucose targets for specific time blocks.

The joint consensus of the EASD and ISPAD on managing physical activity in users of integrated systems was also introduced. This yet-to-be-published document will cover 4 main areas: planned physical activity, spontaneous or unplanned activity, the postprandial period, and specific scenarios such as water sports or disconnections (ideally < 2 hours). Authors recommended setting a higher glucose target 1–2 hours before planned exercise and supplementing carbohydrates for unplanned activities. For postprandial exercise, pre-meal insulin doses should be reduced by 25–30% if performed within 2 hours of eating.

Regarding continuous glucose monitoring, the new 15-day sensor by Roche, combining AI algorithms for advanced predictions, was also discussed. It can predict hypoglycemia risk 30 minutes in advance and anticipate nocturnal hypoglycemia and glucose trends over the next 2 hours. Accuracy data (MARD 9.2%) were recently published.

Regarding connected insulin pens, 2 real-world studies were presented. Data from more than 500 Austrian users showed improved time in range, particularly in those starting with < 40% within the target range. A different study of more than 3,000 participants (90% with T1DM) analyzed missed bolus doses, finding nearly 50% skipped at least one dose in two weeks. Younger individuals and weekends (Fridays and Saturdays) were associated with more frequent omissions, especially for snacks vs main meals.

In various sessions, the topic of cardiovascular risk and mortality in individuals with T1DM was discussed. Despite a marked reduction in mortality and cardiovascular complications in recent decades, a high prevalence of these issues persists. The role of obesity was highlighted, noting an increasing number of people with T1DM who also present with obesity. The prevalence of obesity ranges from 20% up to 50%, depending on the population studied. The coexistence of obesity and other features of metabolic syndrome (dyslipidemia, hypertension) complicates metabolic control. Unpublished data from the Scottish registry were presented, demonstrating an association between higher body mass index (BMI) and a greater >>

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**A RECENT STUDY PRESENTED AT THE LATEST EASD CONGRESS
REVEALED THAT NEARLY HALF OF PEOPLE WITH T1DM SKIP, AT LEAST,
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» prevalence of microvascular complications, such as retinopathy and nephropathy, as well as macrovascular complications, such as cerebrovascular disease. Additionally, a study was discussed that, for the first time, links time in a narrow range (glucose levels between 70 mg/dL and 140 mg/dL) with a reduction in both microvascular and macrovascular complications.

In various panels and oral presentations, the role of adjuvant therapies with non-insulin antidiabetic agents, such as glucagon-like peptide-1 (GLP-1) receptor agonists and sodium-glucose cotransporter type 2 (SGLT2) inhibitors, was discussed. These drugs, widely used for T2DM, are not yet approved for use in T1DM. Several studies have demonstrated clinical benefits re-»

lated to improved glycemic control and weight reduction, though further research is needed to assess their potential cardiovascular benefits. Some studies with small sample sizes highlighted beneficial effects on glycemic control using GLP-1 analogs like semaglutide and tirzepatide. SGLT2 inhibitors, on the other hand, have shown benefits in slowing nephropathy progression in individuals with T1DM. A debate addressed the side effects of these drugs, such as diabetic ketoacidosis and urinary or genital infections. Advocates argued that proper diabetes education and ketone monitoring—potentially through future devices capable of simultaneously measuring glucose and ketones—could minimize these risks. Finally, the Steno 1 study was presented. This 5-year study, to be conducted in Denmark, will follow individuals with T1DM and high cardiovascular risk. Beyond glycemic control, it will intensify the management of associated risk factors using adjunctive drugs such as GLP-1 analogs, SGLT2 inhibitors, and finerenone, which has already demonstrated benefits in nephropathy in people with T2DM.

Lastly, data from studies on weekly insulin efsitora were presented. For T1DM, while glycemic control results are similar to those achieved with daily basal insulins, the increased incidence of hypoglycemia suggests that it may not be the preferred choice for this population. **D**

CONCLUSIONS

T1DM management will evolve significantly in the coming years. Addressing early stages and adopting integrated technologies will improve glycemic control. Future treatments will likely include adjuvant therapies to reduce mortality and cardiovascular risks.



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