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Diabetes Care®

In This Issue of *Diabetes Care*

By Max Bingham, PhD

Recommendations to Maintain Levels of Red Meat Consumption "Not Justified"

A recommendation that adults should continue with their current level of consumption of red and processed meat has been labeled as unjustified and potentially harmful by numerous experts from across specialties. Research previously published in the *Annals of Internal Medicine* (October 2019) suggested that evidence is weak for a relationship between red/processed meat consumption and adverse health outcomes. Based on the conclusion, the panel behind the research then issued its own "dietary guidelines recommendation" that individuals should not change their red meat consumption habits. The reaction was, predictably, negative among experts who maintain that individuals should cut down consumption to improve health and other outcomes. Against this background, Qian et al. (**p. 265**) also suggest that the new recommendations are not justified, but unlike others, they suggest it is because of the use of flawed methodology. In particular, they call the use of GRADE (Grading of Recommendations, Assessment, Development, and Evaluation) criteria "inappropriate" for downgrading the evidence on harmful effects of red and processed meats because most of it is based on observational studies. They suggest that using such criteria will always give low scores to any observational findings, however extensive and consistent. Additionally, they point to studies that use more appropriate grading approaches and rate the evidence on the positive associations between red meat consumption and both type 2 diabetes and mortality to be moderate to high certainty. They raise questions in relation to misinterpretation of data and missing dietary studies and describe the inclusion of an analysis of food preferences as flawed, stating that such preferences should not be used in formulating dietary guidelines. They also question why the research specifically excluded any analysis of the environmental effects of red meat production, describing it as a missed opportunity. Commenting further, author Frank Hu told us: "To improve both human health and environmental sustainability, it is important to adopt dietary patterns that are high in healthy plant-based foods and relatively low in red and processed meats."

Qian et al. Red and processed meats and health risks: how strong is the evidence? Diabetes Care 2020;43:265–271

Treatment Improvements With Intermittently Scanned Continuous Glucose Monitoring in Type 1 Diabetes

The introduction of reimbursement for intermittently scanned continuous glucose monitoring (isCGM) has resulted in a string of benefits for users with type 1 diabetes. According to Charleer et al. (**p. 389**), they found that after 12 months of usage there was higher treatment satisfaction, less severe hypoglycemia, and less work absenteeism while quality of life and HbA_{1c} remained stable. The findings come from a prospective observational study designed to investigate the impact of isCGM on quality of life and aspects of glycemic control specifically in type 1 diabetes. The analysis involved just under 2,000 individuals with type 1 diabetes attending one of three specialized diabetes centers in Belgium. The authors also collected demographic, metabolic, and quality of life data at baseline and after 6 and 12 months of follow-up. They found that general and diabetes-specific quality of life scores were high at baseline and remained stable at 12 months. Notably, however, they did find that treatment satisfaction improved over the follow-up period and that there was almost unanimous agreement that isCGM was more convenient than finger-stick tests. In terms of hypoglycemia and ketoacidosis, events requiring hospitalization were rare prior to the study but became rarer during the study. There were also reductions in severe hypoglycemia events and comas and work absenteeism. Commenting more widely, author Pieter Gillard told us: "These observations show that real-life use of isCGM in the context of wide reimbursement and structured education can result in direct and indirect cost savings through avoiding acute diabetes complications and work absenteeism. Our study might thus influence health care authorities deciding on reimbursement policies for isCGM. In order to guide physicians on choosing the best technology for their patients, it is now time for a sufficiently powered head-to-head comparison between isCGM and real time-CGM in a general population of people living with type 1 diabetes."

Charleer et al. Quality of life and glucose control after 1 year of nationwide reimbursement of intermittently scanned continuous glucose monitoring in adults living with type 1 diabetes (FUTURE): a prospective observational real-world cohort study. Diabetes Care 2020;43:389–397

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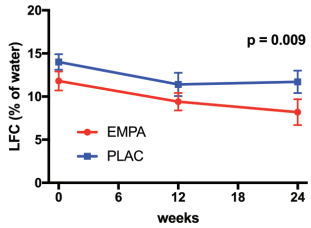
Empagliflozin Tied to Liver Fat Reductions in Recent-Onset, Well-Controlled Type 2 Diabetes

Empagliflozin can reduce liver fat in recent-onset and well-controlled type 2 diabetes, according to Kahl et al. (**p. 298**). As a result, they suggest that empagliflozin might contribute to the early treatment of nonalcoholic fatty liver disease (NAFLD), which is a common complication of type 2 diabetes. Currently, there is no accepted pharmacological treatment for NAFLD, although pronounced weight loss is an effective therapy. The conclusions come from a study of 84 individuals with type 2 diabetes who were randomly assigned to either 24 weeks of empagliflozin (25 mg daily) or placebo. The primary outcome was change in liver fat content between baseline and 24 weeks, determined by magnetic resonance methods. Additional outcomes included tissue-specific insulin sensitivity and surrogate markers for liver function. The authors found that empagliflozin resulted in an absolute change in liver fat content of −1.8% and a relative change of −22% between baseline and 24 weeks. Specifically, there was a 34% reduction in liver fat content with empagliflozin (95% CI −43% to −23%, $P < 0.05$) compared with a 15% reduction with placebo (95% CI −24% to −4%, $P > 0.05$). After adjusting for change in body weight, the change in liver fat content between the groups was attenuated. Body weight itself changed by −2.7 kg after 24 weeks of empagliflozin compared with −0.1% with placebo. Additional secondary analyses revealed that there was no effect of empagliflozin on tissue-specific insulin sensitivity, but there were decreases in uric acid and increases in adiponectin. Commenting further, author Michael Roden told us: "Of note, empagliflozin reduced liver fat content in these persons who all had type 2 diabetes, but none had progressive liver diseases, indicating that this treatment regimen can be useful also in the prevention of nonalcoholic liver disease. Along these lines, the observed increase in adiponectin further suggests improvement of adipose tissue function with empagliflozin treatment."



Effects of empagliflozin (EMPA) vs. placebo (PLAC) on liver fat content (LFC) after 24 weeks of treatment.

Kahl et al. Empagliflozin effectively lowers liver fat content in well-controlled type 2 diabetes: a randomized, double-blind, phase 4, placebo-controlled trial. Diabetes Care 2020;43:298–305

Economic and Clinical Burden of NASH in Type 2 Diabetes Forecast to Rise in Next 20 Years

The economic and clinical burden of nonalcoholic steatohepatitis (NASH) in type 2 diabetes is substantial, according to Younossi et al. (**p. 283**), and is forecast to grow further in the next 20 years in the U.S. Using a Markov modeling approach, they estimate that 26% of the U.S. population with type 2 diabetes had NASH in 2017. That equated to 6.4 million individuals. In terms of the clinical burden, they estimate that over the next 20 years, NASH with type 2 diabetes is likely to account for just under 65,000 liver transplants, 1.37 million cardiovascular-related deaths, and 812,000 liver-related deaths. Based on incidence and prevalence cohorts, they report that the total cost relating to NASH with type 2 diabetes is likely to be just under $670 billion, of which three-quarters can be attributed to diabetes care costs and the remaining quarter to care relating to NASH. Commenting further, author Zobair Younossi told us: "There is increasing evidence that NASH is rapidly becoming the most common cause of chronic liver disease, cirrhosis, liver cancer, and indication for liver transplantation in the U.S. NASH is not very common in patients with type 2 diabetes, but those that have both NASH and type 2 diabetes are at increased risk for adverse outcomes. Our study provides additional support that NASH in patients with type 2 diabetes is not only associated with adverse clinical outcomes but also with significant economic burden. In my view, NASH is not very dissimilar to another complication of type 2 diabetes: chronic kidney disease (CKD). Although screening for CKD in patients with diabetes is routinely implemented in clinical care, very few patients with type 2 diabetes get an assessment for NASH. As our knowledge about NASH, type 2 diabetes, and the associated adverse outcomes grows, it is absolutely important to identify these patients in clinical practice and link them to appropriate care."

Younossi et al. Economic and clinical burden of nonalcoholic steatohepatitis in patients with type 2 diabetes in the U.S. Diabetes Care 2020;43:283–289

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