In This Issue of *Diabetes Care*

Edited by Helaine E. Resnick, PhD, MPH

Updated Clinical Practice Recommendations for Hypoglycemia

Hypoglycemia is related to increased risk for unfavorable outcomes in both adults and children. In 2012, the American Diabetes Association and The Endocrine Society convened a workgroup on hypoglycemia (**p. 1384**) to update guidelines and address several important issues related to hypoglycemia in diabetes. These included definitions and reporting, short- and long-term outcomes, treatment targets, prevention strategies, clinical recommendations, and existing knowledge gaps. The workgroup suggests that a glucose ≤70 mg/dL (≤3.9 mmol/L) should serve as an alert level for risk of hypoglycemia, and it defines several hypoglycemia subclassifications. These include severe hypoglycemia, documented symptomatic hypoglycemia, asymptomatic hypoglycemia, and probable symptomatic hypoglycemia. The new report discusses a number of hypoglycemia-related outcomes in detail including death, hypoglycemia-associated autonomic failure, central nervous system consequences (particularly in children and older adults), components of the geriatric syndrome (e.g., falls), inpatient outcomes, decreased quality of life, and limitations in activities of daily living. The report recommends that glycemic treatment targets should be individualized based on patient-specific characteristics such as age, life expectancy, comorbid conditions, patient preferences, and quality-of-life concerns. The workgroup endorses strategies for prevention and clinical care of hypoglycemia including patient education, monitoring and modification of diet and exercise, medication adjustment, and tracking of both symptoms and glucose by patients and physicians. Finally, the report details existing knowledge gaps in the area of hypoglycemia. These gaps include lack of reliable and consistent hypoglycemia surveillance methods, definition of high-risk groups, development of new educational methods, advancing therapies to reduce glucose without hypoglycemia, creating patient-friendly technologies to monitor glycemia with greater accuracy, understanding the mechanisms of hypoglycemia and its outcomes, and better characterization of adverse outcomes. The new guidelines reflect progress in the understanding of hypoglycemia and also detail the challenges that lie ahead. — *Elsa S. Strotmeyer, PhD, MPH*

Seaquist et al. Hypoglycemia and diabetes: a report of a workgroup of the American Diabetes Association and The Endocrine Society. Diabetes Care 2013;36:1384–1395

New Data Support Revisiting Eligibility Criteria for Bariatric Surgery

It has been more than 20 years since the National Institutes of Health (NIH) established eligibility criteria for bariatric surgery. Under the current guidelines, people with BMI exceeding 40 kg/m^2 or those with BMI 35–40 kg/m^2 who also have a major risk factor such as diabetes should be considered candidates for these procedures. In this month's issue of *Diabetes Care* (**p. 1335**), new data from the Swedish Obese Subjects (SOS) study, explore the impact of bariatric surgery on individuals who fall outside the NIH eligibility criteria. Enrollment for SOS began in 1987, a number of years before the NIH bariatric surgery criteria were formalized. Further, SOS inclusion criteria differed from criteria that would ultimately be established by the NIH in 1992. In SOS, eligibility was defined as BMI ≥34 kg/m^2 for men and BMI ≥38 kg/m^2 for women. Between 1987 and 2001, 4,047 participants meeting these criteria were enrolled. Of these, 2,010 underwent bariatric surgery and 2,037 obese control subjects received usual care. Median follow-up time was 10 years. A key feature of SOS is that, in addition to inclusion of obese individuals who met the 1992 NIH eligibility criteria for bariatric surgery, the study also includes large numbers of obese individuals who did not meet these criteria. Thus, SOS offers the opportunity to explore the impact of bariatric surgery among both "NIH-eligible" and "non-eligible" obese adults. These include people with BMI 35–40 kg/m^2 who did not have additional

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comorbidities, as well as people with BMI <35 kg/m^2. Results showed marked improvement in CVD risk factors among both eligible and noneligible individuals, including similar reductions in the incidence of diabetes in both groups. Assuming that reduction of diabetes incidence and CVD risk factor improvement are goals of bariatric surgery, the authors suggest rethinking the utility of the NIH bariatric surgery criteria. — *Helaine E. Resnick, PhD, MPH*

Sjöholm et al. Evaluation of current eligibility criteria for bariatric surgery: diabetes prevention and risk factor changes in the Swedish Obese Subjects (SOS) study. Diabetes Care 2013;36:1335–1340

Meta-analysis Supports Protective Role for 25-Hydroxy Vitamin D in Diabetes

Vitamin D deficiency has long been associated with unfavorable effects on bone health. More recently, there has been a suggestion that low vitamin D status, as measured by circulating 25-hydroxy vitamin D [25(OH)D], is associated with unfavorable measures of glucose metabolism, including lower β-cell function, insulin resistance, and glucose intolerance. A new meta-analysis in this issue of *Diabetes Care* (**p. 1422**) pooled data from 21 studies examining the relationship of 25(OH)D and incident diabetes. Among the more than 76,000 individuals included in this report, 4,996 developed type 2 diabetes. A variety of analyses were conducted to assess the strength of the association between 25(OH)D and diabetes, as well as dose-response and threshold effects. Across all studies, the summary relative risk (RR) for the highest versus the lowest category of 25(OH)D was 0.62 (95% CI 0.54–0.70) and did not differ by sex, length of follow-up, diabetes diagnostic criteria, or 25(OH)D assay method. The association was attenuated somewhat with adjustment for BMI but remained significant. The data revealed a significant linear association between 25(OH)D and diabetes in the range between 20 and 160 nmol/L, and the RR for diabetes decreased by ~4% with each 10 nmol/L increase in 25(OH)D: RR 0.96 (95% CI 0.94–0.97). A notable reduction in diabetes risk appeared at a 25(OH)D threshold of ~50 nmol/L. It should be emphasized that because most of the studies in this report included participants with 25(OH)D levels <100 nmol/L, it was not possible to reliably assess the relationship of vitamin D to diabetes above this level. These findings contrast with results from previous trials, including the Women's Health Initiative, which raised 25(OH)D levels to 54.1 nmol/L, suggesting that the vitamin D dose administered in that study may not have been sufficient to observe a reduced risk of diabetes. The authors propose that well-designed randomized trials may shed further light on the causal relationship between vitamin D and diabetes risk. — *Helaine E. Resnick, PhD, MPH*

Song et al. Blood 25-hydroxy vitamin D levels and incident type 2 diabetes: a meta-analysis of prospective studies. Diabetes Care 2013;36:1422–1428

A1C and Body Weight Increase After Pregnancy in Type 1 Diabetic Women

Post-pregnancy changes in glycemic control and weight are not well investigated in women with type 1 diabetes. In this issue of *Diabetes Care* (**p. 1083**), a new study followed 254 women with type 1 diabetes for a median of 20 months postdelivery. The investigators examined postpregnancy glycemic control and weight change, as well as factors that potentially contributed to these changes, such as early pregnancy planning, glycemic control during pregnancy, and diabetes treatment. Participants were diagnosed with type 1 diabetes ≥1 year prior to pregnancy, initiated medical care in the first trimester, had singleton pregnancies, and completed follow-up until delivery with a minimum of one postpregnancy exam. The mean age of women in the sample was 28 years. They had preconception A1C of 6.9%, mean BMI of 23.9 kg/m^2, and pregnancy weight gain of 14.4 kg. Participants' weight and BMI were 2.5 kg ($P < 0.01$) and 0.9 kg/m^2 ($P < 0.01$) higher, respectively, at the end of follow-up. At >12 months postpregnancy, A1C levels were higher than prepregnancy levels among the 46% of women who participated in a diabetes management program prior to their pregnancies (7.1 vs. 6.5%) but was similar among women who did not participate in the program (7.3 vs. 7.4%). These results suggest that medical care providers may need to monitor glycemic control and weight after pregnancy to maintain prepregnancy levels. — *Elsa S. Strotmeyer, PhD, MPH*

Cyganek et al. Postpregnancy glycemic control and weight changes in type 1 diabetic women. Diabetes Care 2013;36:1083–1087

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