

# The Death of the “1800-Calorie ADA Diet”

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A patient of mine was recently admitted into the hospital with pneumonia. The patient also had type 2 diabetes, and over the years he had worked quite diligently to maintain excellent glycemic control. Unfortunately, he developed metastatic cancer and likely only has a few months to live.

His wife called me extremely concerned about his diabetes treatment while he was hospitalized. Besides having all of his insulin stopped (he was

receiving ~20 units of insulin lispro with meals and 30 units of insulin glargine at bedtime), the family was quite concerned about the diet ordered for him. He had received an 1800-calorie diet, presumably endorsed by the American Diabetes Association (ADA) because it was ordered as an “1800-calorie ADA diet.”

When I asked his wife what the problem with the food was, she explained that he had been consuming many more calories lately to try to maintain both his nutritional status and hydra-

tion as well as possible. At home, he was drinking not only high-calorie supplements, but also non-diet drinks for extra calories. All of this time at home, he had maintained his glucose levels between 100 and 200 mg/dl to avoid glycosuria, calorie wasting, and volume depletion. There had been no documented hypoglycemia for years.

When I asked the hospital intern about this patient’s diabetes management, it became clear that the “1800-calorie ADA diet” is the easiest and mos-

time-efficient way to write diet orders when admitting patients with diabetes into the hospital. While much has been made over the years of the problems of the ridiculous sliding-scale insulin regimens that are both routine and widely accepted in this country,<sup>1,2</sup> very little has been written about the problems with the standard order for an “1800-calorie ADA diet.” By its very nature, this order is as nonsensical as the way many health care professionals authorize delivery of insulin to their hospitalized patients with diabetes.

To best understand the problem, it is important to look at the recently published ADA position statement titled “Evidence-Based Nutrition Principles and Recommendations for the Treatment and Prevention of Diabetes and Related Complications.”<sup>3</sup> We are reprinting this position statement in this issue (p. 53).

There are several key points that require emphasis. First, the total amount of carbohydrate in meals and snacks is more important than the source or type of the carbohydrate consumed. Although different forms of carbohydrate do induce differing glycemic responses, the data reveal no clear trend in outcome benefit for any specific type of carbohydrate. The position statement notes that dietary sucrose does not increase glycemia more than isocaloric amounts of starch. Therefore, “intake of sucrose and sucrose-containing foods by people with diabetes does not need to be restricted because of concern about aggravating hyperglycemia. Sucrose should be substituted for other carbohydrate sources in the food/meal plan or, if added to the food/meal plan, adequately covered with insulin or other glucose-lowering medication.”<sup>3</sup>

Because there is a great deal of individual variation in response to different sources of carbohydrate, it is difficult to make recommendations that apply to everyone with diabetes. By considering the total amount of carbohydrate in a

meal and reviewing premeal and postmeal glucose measurements, it is possible to see how individuals respond to different types of food. Certainly, we see this on a daily basis in our clinic, particularly in those who frequently measure their blood glucose level.

Also relevant to my patient is the fact that he was acutely ill and had additional nutritional challenges other than his chronic illness. Why is it that everyone with diabetes seems to end up with the same dietary prescription when hospitalized? The ADA does not even endorse the “ADA diet”; it no longer recommends any single meal plan or any specified percentages of macronutrients for people with diabetes.<sup>4</sup>

Meal plans that specify “no concentrated sugars” or “no sweets” are no longer appropriate. These diets do not reflect current nutrition recommendations and unnecessarily restrict sucrose. Furthermore, they perpetuate the notion that restricting sucrose will result in improvement in diabetes control.

Ideally, hospitals should have a system for letting staff dietitians know which patients with diabetes require an assessment. Hospital dietitians can then assess these patients, determine appropriate nutrition prescriptions, and plan for diabetes self-management education, if appropriate.

The ADA position statement titled “Translation of the Diabetes Nutrition Recommendations for Health Care Institutions”<sup>4</sup> reviews a variety of special situations, including the challenges of nutrition during catabolic illness. Calorie needs for most patients are in the range of 25–35 kcal/kg body weight/day. For patients without hepatic or renal insufficiency, protein needs range from 1.0–1.5 g/kg body weight/day.

The counterregulatory stresses of these types of illness often will necessitate insulin therapy even for those patients whose diabetes was well-controlled on oral agent therapy before hos-

pital admission. Adding a significant amount of carbohydrate in this situation, particularly if it is in the form of enteral or parenteral feeding, may have a profound effect on patients’ blood glucose. However, withholding the feeding is an inappropriate response. Instead, patients’ blood glucose levels need to be monitored, and, if necessary, insulin needs to be administered. Recent data suggest that intravenous insulin and glucose may improve all major outcomes, including mortality, for all surgical patients.<sup>5</sup> However, the mechanism of this finding may be much more complicated than control of blood glucose.<sup>6</sup>

Is it realistic to think we can successfully put the “1800-calorie ADA diet” to rest forevermore? Based on our experiences with sliding-scale insulin, this could well be a significant challenge. Once promulgated, these strategies appear to have taken on a life of their own. Still, we should not be complacent with mediocre medicine simply because it is so rich in tradition. Time-honored therapies, while often the path of least resistance, can also be the road to poor outcomes. Our patients deserve better.

## REFERENCES

- <sup>1</sup>Queale WS, Seidler AJ, Brancati FL: Glycemic control and sliding scale insulin use in medical inpatients with diabetes mellitus. *Arch Intern Med* 157:545–552, 1997
- <sup>2</sup>Lorber DL: Sliding scale insulin. *Diabetes Care* 24:2011–2012, 2001
- <sup>3</sup>American Diabetes Association: Evidenced-based nutrition principles and recommendations for the treatment and prevention of diabetes and related complications (Position Statement). *Diabetes Care* 25 (Suppl. 1):S50–S60, 2002
- <sup>4</sup>American Diabetes Association: Translation of the diabetes nutrition recommendations for health care institutions (Position Statement). *Diabetes Care* 25 (Suppl. 1):S61–S63, 2002
- <sup>5</sup>Van den Berghe G, Wouters P, Weekers F, Verwaest C, Bruyninckx F, Schetz M, Vlasselaers D, Ferdinande P, Lauwers P, Bouillon R: Intensive insulin therapy in the surgical intensive care unit. *N Engl J Med* 345:1359–1367, 2001
- <sup>6</sup>Hirsch IB: In-patient hyperglycemia: are we ready to treat it yet? *J Clin Endocrinol Metab* In press.