

Chapter

12

FREQUENTLY ASKED
QUESTIONS**1. With early, improved glucose control, does the pancreas then secrete more insulin?**

There is good evidence that early and intensive treatment to lower and normalize glucose may result in improvements in β -cell function, as evidenced by an increase in meal-related insulin secretion. This has been demonstrated in several studies, the first conducted almost two decades ago by Garvey and colleagues¹. In that study, it was observed that treatment with diet, with a sulfonylurea, or with insulin produced improvements in insulin response and glycemic control in obese patients with type 2 diabetes. Similar results have been found in studies (eg, Henry et al²) using more intensive insulin therapy. In addition, it has been demonstrated that aggressive treatment with a sulfonylurea early in the course of the disease may induce changes suggestive of a remission. These findings suggest that some β -cell function may be preserved or restored with early intervention.

2. Do you recommend protein-based snacks for people with type 2 diabetes?

People with diabetes do not have needs for protein that are any different from that of the general population. They do not need additional protein for meals or for snacks. Contrary to popular recommendations in which a source of protein is always added to snacks to slow the absorption of the carbohydrate, there is no scientific evidence to justify this practice. Research shows that adding protein to carbohydrates does not slow the absorption or peak of the glucose response. However, because protein foods have very little effect on overall glycemia, they can be useful for a snack that will not have much impact on blood glucose. That

being said, it is also important to help patients recognize that many sources of protein are also high in fat. Animal products, such as meats, cheese, and eggs, are high in saturated fat and should be limited in persons with diabetes. Lean sources of protein, such as fish, poultry, fat-free dairy products, and nuts, a good source of protein that contain polyunsaturated oils, should be the preferred protein choices.

3. How does fat intake during a meal affect blood glucose?

The main determinant of the peak glucose response to a meal is the carbohydrate content of the meal. Fat delays the peak slightly, but not the total glucose response. In a study that compared the glycemic response to three breakfasts, one with 60 g carbohydrate, another with 25 g of protein added, and a third with 5 to 10 g of added fat in persons with type 2 diabetes, glucose concentrations were similar after the three meals. Neither varying the ratio of fat to protein nor increasing the amount of fat affected the postprandial glucose values. In spite of the research, patients often report that when they eat large amounts of certain foods such as pizza or a large steak meal, their blood glucoses are elevated even if they keep carbohydrates constant. Patients are urged to document their own response to certain foods, to see whether the response is consistent (ruling out other influences, such as beverages that were also consumed at the time), and to make adjustments accordingly.

4. Should eating sweets as snacks be discouraged because of their high glycemic index?

There is still substantial research to be done regarding glycemic indexing of carbohydrates. Therefore, choices of foods should not be based strictly on their potential glycemic impact. The American Diabetes Association recommends that patients learn portion sizes and count carbohydrate grams in the foods they eat most commonly (including sweets and candy). Advanced carbohydrate-counting instructions may help patients fine-tune their diets on the basis of their individual glycemic index responses. Despite commonly held beliefs, not all sweets have a high glycemic index

or a high glycemic effect. In fact, many foods traditionally labeled “sweets,” such as table sugar, jams, and fruit, have lower glycemic indices than do starches, such as potatoes, white rice, and white bread. Patients who question how a particular carbohydrate affects their blood sugar can perform pre-meal and 2-hour-post-meal glucose checks to measure the glycemic effect of a particular food.

5. When looking at people who have lost weight and maintained the weight loss, what can clinicians learn about what makes them successful?

The National Weight Control Registry (NWCR) has data on approximately 3,000 adults who have achieved a mean weight loss of 66 lb and maintained this loss for approximately 5 years. Four common behaviors contributed to their loss of weight:

- ▲ They eat low-fat (<30% of calories from fat), high-carbohydrate meals.
- ▲ They eat breakfast.
- ▲ They exercise for at least 30 minutes every day of the week.
- ▲ They check their weight on a scale once a week.

The NWCR’s research also emphasizes the importance of continuing behaviors learned while starting a weight loss program and advises individuals to see themselves as establishing lifelong patterns, rather than as going “on” or “off” a diet.

6. Can angiotensin-converting enzyme inhibitors (ACEIs), rather than angiotensin-receptor blockers (ARBs) for treating type 2 diabetes, be used in patients with nephropathy, particularly for economic reasons?

Although the best clinical trial evidence for slowing progression of nephropathy is with ARBs, no comparison between ARBs and ACEIs has been carried out in type 2 diabetes. Both classes of drugs are equally good at reducing blood pressure and proteinuria. There is very good evidence that ACEIs decrease heart disease and

reduce the risk of heart failure (perhaps better than ARBs). Since most people with advanced nephropathy have multiple problems, apart from renal insufficiency (including cardiovascular disease), it is quite appropriate to use ACEIs in this situation.

7. Can insulin pump therapy be employed in very young children?

Yes. Because of unpredictable eating habits and other factors, treating the pre-school child with type 1 diabetes is especially challenging. For many caretakers, treating the infant and toddler with diabetes becomes a full-time job. The added flexibility provided by pump therapy around meal-time boluses and the ease of giving correction doses makes this therapy particularly attractive to some caretakers. The published data indicate that pump use in very young children can either lower A1C levels or lower the risk of severe hypoglycemia, or both.

8. What is considered a medical emergency in the management of diabetic eye disease?

The presence of microaneurysms, venous tortuosity, blot hemorrhages, and hard exudates is considered background retinopathy and can be observed for progress. The development of acute impairment of vision with the appearance of macular edema and soft exudates in the region or neovascularization on the disk are a great threat to loss of vision, since >90% of visual acuity is dependent on the integrity of the macula. The situation can be rescued, however, by judicious application of laser therapy and constitutes a need for urgent referral to an ophthalmologist.

9. What are the indications for beginning insulin in a diet-managed gestational diabetic woman?

The most important blood glucose levels to monitor are those measured 1 hour after each meal. The peak postprandial glucose level is positively related to the risk of delivering an infant with macrosomia. Macrosomia is associated with neonatal metabolic aberrations. Therefore, avoidance of macrosomia is the primary reason for treatment of gestational diabetic women. The peak post-

prandial glucose level of 1 hour >120 mg/dL is associated with an increasing risk of macrosomia. Thus, insulin should be started if the level at 1 hour after eating is >120 mg/dL despite adherence to an optimal diet. If the fasting blood glucose is >90 mg/dL, insulin should be given to lower the fasting blood glucose. Pregnant women need at least a 40 mg/dL excursion to eat a nutritious meal. Therefore, the preprandial glucose levels must be <90 mg/dL to ensure that postprandial glucose levels are <120 mg/dL.

10. Often clinicians are not able to focus enough on follow-up to help patients with diabetes reach and maintain their desired outcomes. How should this be addressed in practice?

Unfortunately, the extent to which clinicians are able to perform follow-up evaluation and management depends on the kind of reimbursement available. Clinicians find that they may not receive reimbursement for continuing care or continuing patient education. In these cases, there are several strategies to help patients get the support they need. One approach is to refer them to support groups or other resources within their communities. Another particularly successful approach is to help patients “hook up” with (ie, partner with) another patient in the same program. For some patients, this is more appealing than a support group, since they may find support groups more stressful than helpful.

REFERENCES

1. Garvey WT, Olefsky JM, Griffin J, Hamman RF, Kotterman OG. The effect of insulin treatment on insulin secretion and insulin action in type II diabetes mellitus. *Diabetes*. 1985; 34:222-234.
2. Henry RR, Gumbiner B, Ditzler T, Wallace P, Lyon R, Glauber HS. Intensive conventional insulin therapy for type II diabetes metabolic effects during a 6-mo outpatient trial. *Diabetes Care*. 1993; 6:21-31.

