

Because whole-pancreas and pancreatic islet transplantation are both limited by organ availability from deceased donors, stem cell–derived islet cells and xenogeneic sources of islets may eventually allow for a limitless supply of insulin-producing cells for transplantation.

ADVERSE EFFECTS OF THERAPY FOR DM

As with any therapy, the benefits of efforts directed toward glycemic control must be balanced against the risks of treatment ([Table 404-5](#)). Side effects of intensive treatment include an increased frequency of serious hypoglycemia, weight gain, increased economic costs, and greater demands on the patient. In the DCCT, quality of life was very similar in the intensive and standard therapy groups. The most serious complication of therapy for DM is hypoglycemia, and its treatment with oral glucose or glucagon injection is discussed in [Chap. 406](#). Severe, recurrent, or unexplained hypoglycemia warrants examination of treatment regimen and glycemic goal for the individual patient. Weight gain occurs with most (insulin, insulin secretagogues, thiazolidinediones) but not all (metformin, α -glucosidase inhibitors, GLP-1 receptor agonists, DPP-IV inhibitors) therapies. The weight gain is partially due to the anabolic effects of insulin and the reduction in glucosuria.

ACUTE DISORDERS RELATED TO SEVERE HYPERGLYCEMIA

Individuals with type 1 or type 2 DM and severe hyperglycemia (>13.9 mmol/L [250 mg/dL]) should be assessed for clinical stability, including mentation and hydration. Depending on the patient and the rapidity and duration of the severe hyperglycemia, an individual may require more intense and rapid therapy to lower the blood glucose. However, many patients with poorly controlled diabetes and hyperglycemia have few symptoms. The physician should assess if the patient is stable or if DKA or a hyperglycemic hyperosmolar state (HHS) should be considered. Ketones, an indicator of DKA, should be measured in individuals with type 1 DM when the plasma glucose