Controlling Malglycemia in Patients Undergoing Treatment for Cancer

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Patients with or without preexisting diabetes undergoing treatment for cancer may be at risk for malglycemic events. Malglycemia, particularly hyperglycemia and diabetes in patients with cancer, may lead to adverse outcomes. Prevention, prompt recognition, and early intervention to regulate malglycemia can optimize the effects of cancer treatment, minimize the harmful consequences, and improve quality of life for patients with cancer. The development of evidence-based standards of care and protocols are needed to guide clinical practice when caring for patients with cancer.

At a Glance

- Malglycemia has been associated with increased risk for adverse patient outcomes.
- Multiple known and unknown factors contribute to the onset of malglycemia.
- Formal guidelines or protocols are needed to best manage malglycemia in patients receiving cancer treatment.

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Context should be carefully considered when planning disease management and treatment (Bayliss et al., 2014). Typically, members of the healthcare team are focused on isolated disease management strategies, often failing to consider other pathophysiologic processes that can diminish the effectiveness of those very treatments. Educating members of the healthcare team regarding the deleterious effects of malglycemia (hyperglycemia, hypoglycemia, and/or glycemic variability) (Hammer et al., 2009) is imperative for the comprehensive care of patients with cancer. Understanding the pathophysiology and subsequent ramifications of malglycemia can result in preemptive assessment, early identification, intervention, and opportunities to educate the patient. The development of evidence-based standards of care and protocols for the treatment of malglycemia are needed to guide clinical practice when caring for patients with cancer. These best practices can be integrated into patients' individualized treatment plans, thereby mitigating the untoward effects of malglycemia.

Background

Patients with established diabetes (American Diabetes Association, 2015) are at increased risk for developing certain types of cancers, such as liver, pancreatic, endometrial, colorectal, breast, and bladder cancers (Giovannucci et al., 2010) (see Figure 1). In addition, patients with or without preexisting diabetes undergoing treatment for cancer may be at risk for malglycemic events because of numerous factors, including steroids (Mazali, Lalli, Alves-Filho, & Mazzali, 2008) and certain chemotherapeutic agents (e.g., docetaxel [Taxotere®], everolimus [Afinitor®], temsirolimus [Torisel®], androgen deprivation therapy) (Hershey et al., 2014). In addition, higher body mass index (Roumen, Blaak, & Corpeleijn, 2009), nutritional imbalances (Butler, Btaiche, & Alaniz, 2005), nutritional support, stress (Butler et al., 2005), physical inactivity (Katz, 2007), and older age (Campisi & d'Adda di Fagagna, 2007) are potential contributors. Studies in patients who underwent treatment for hematologic malignancies (Storey & Von Ah, 2012) and, in particular, those who received allogeneic or autologous hematopoietic cell transplantations (Derr, Hsiao, & Saudek, 2008; Fuji et al., 2007; Hammer et al., 2009; Olausson, Hammer,