Hyperglycemia and Cancer

An algorithm to guide oncology nurses

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BACKGROUND: A dual diagnosis of cancer and hyperglycemia has demonstrated untoward effects on patients' cancer treatment, prognosis, and survival.

OBJECTIVES: The purpose of this evidence-based project is to improve knowledge and awareness of the consequences of hyperglycemia in patients with cancer, increasing nurses’ capability to effectively intervene. In addition, a clinical algorithm based on current evidence was developed and is presented.

METHODS: An educational program was developed and pilot tested. The program addressed the etiology of hyperglycemia and its effects on patients with cancer. Knowledge of hyperglycemia in patients with cancer was assessed with a pre- and post-test.

FINDINGS: All participants found the educational program effective and deemed the clinical algorithm useful. Results improved significantly after participation in the educational intervention.

KEYWORDS
professional development; nurse education; diabetes; cancer; hyperglycemia

ABSTRACT

Hyperglycemia occurs in both individuals with diabetes and in those with cancer. The incidence of hyperglycemia in cancer patients is as high as 18% (Barone et al., 2008). Hyperglycemia is associated with increased mortality and negative outcomes in patients with cancer. The role of nurses in the management of hyperglycemia in cancer patients is critical. This literature review provides nurses with the knowledge necessary to improve patient outcomes. 

Learn how hyperglycemia affects patients with cancer and its potential complications.

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Review of the Literature

Diabetes mellitus is a group of metabolic disorders that share one common trait, hyperglycemia. Many factors contribute to an individual’s hyperglycemic state, including decreased insulin production, decreased glucose uptake, and an increase in glucose secretion (Powers, 2015a). Type I diabetes is an autoimmune disorder that causes destruction of pancreatic beta cells. The destruction of insulin-producing beta cells causes individuals to be dependent on exogenous insulin (Powers, 2015a). Type II diabetes accounts for more than 95% of all diagnosed cases (Giovannucci et al., 2010). It is characterized by insulin resistance, impaired insulin secretion, and increased glucose production (Powers, 2015a). A long, asymptomatic phase often occurs before a diagnosis is made (ADA, 2015). Prediabetes is a condition associated with impaired fasting glucose and impaired glucose tolerance (McCance & Huether, 2010). Hammer et al. (2015) found that 26% of patients with cancer undergoing cancer treatment for solid tumors had prediabetes.

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