Diabetic Gastroparesis: A Risk Factor for Perioperative Aspiration

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Diabetic Gastroparesis: A Risk Factor for Perioperative Aspiration

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Underlying Pathophysiology

Diabetic gastroparesis is characterized by prolonged feelings of fullness and increased gastric volumes following the ingestion of solid food (Farmer & Aziz, 2012). The resulting “full stomach” in conjunction with loss of protective airway reflexes during anesthesia predisposes these patients to perioperative aspiration even when strict NPO guidelines are followed. As such, knowledge of diabetic gastroparesis and its complications should be part of the preoperative decision-making process. Perioperative treatment options include administration of histamine-2 receptor antagonists, proton pump inhibitors, gastric prokinetics and/or non-particulate antacids (Nagelhout & Plaus, 2014).

Significance of Pathophysiology

Diabetes represents a significant underlying cause of morbidity and mortality inside and outside of the operating room. It is also the most common endocrine disorder seen in the operating setting (Nagelhout & Plaus, 2014). Furthermore, diabetic gastroparesis is significant in the perioperative setting where increased residual gastric volumes increase the risk of pulmonary aspiration. Understanding the pathophysiological mechanism behind diabetic gastroparesis also aids in the understanding of other serious, long-term complications of poor glucose control. Because neurovascular damage is not limited to the gastrointestinal tract, those suffering from diabetic gastroparesis may also exhibit arterial damage, cataracts, sensory and peripheral neuropathy and infection (2015). Thus, the pathophysiology of diabetic gastroparesis is significant because it suggests the presence of other life-threatening conditions.

Implications for Nursing Care

Diabetic gastroparesis is caused by delayed gastric emptying secondary to autonomic neuropathy. As the incidence of diabetes mellitus continues to rise, it becomes even more important for nurses to address the risk of aspiration posed by diabetic gastroparesis. Currently, aspiration of gastric contents accounts for nearly half of all major airway complications in the operating room, often due to incomplete assessment of risk factors (Robinson & Davidson, 2013).

Signs & Symptoms

In the early stages, diabetic gastroparesis may be asymptomatic. As the degree of autonomic neuropathy progresses, symptoms often include post-prandial fullness, abdominal distension, early satiety, nausea, vomiting, diarrhea and abnormal gas. A delay in gastric emptying can also result in poor glycemic control secondary to unpredictable increases in blood glucose levels. (Nagelhout, Tack, & Andrews, 2013). These patients may have difficulty timing insulin administration as food absorption is delayed. Additional symptoms associated with autonomic neuropathy include orthostatic hypotension, resting tachycardia, prolonged QT interval, bowel and bladder dysfunction and impotence. Myocardial infarction and signs of myocardial ischemia may also be present in patients with autonomic neuropathy (2013). Autonomic neuropathy tends to occur in conjunction with other forms of neuropathy including peripheral and retinal.

References


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