

# ON THE **CUTTING EDGE** Diabetes Care and Education

## GASTROINTESTINAL ISSUES ENCOUNTERED IN DIABETES MELLITUS

- 4 How Well Do You Know Your Gut?  
Gastrointestinal Anatomy and  
Physiology: A Review
- 8 Gastroparesis Part I:  
Diagnosis and Treatment
- 12 Gastroparesis Part II:  
Nutritional Care
- 15 Celiac Disease and  
Diabetes Mellitus
- 18 Small Bowel Bacterial Overgrowth  
in Diabetes Mellitus
- 22 Constipation in Patients with  
Diabetes Mellitus
- 26 Narcotic Bowel Syndrome
- 31 2011-2012 DCE Officer Directory

**Message from the Theme Editor:** Carol Rees Parrish, MS, RD  
Nutrition Support Specialist  
University of Virginia Health System Digestive Health Center of Excellence  
Charlottesville, VA

The patient with diabetes mellitus (DM) must devote constant attention to glycemic control or risk untoward inflammatory, neuropathic and myopathic effects from hyperglycemia (1,2) or, the scarier converse, a hypoglycemic episode. Attention must also be given to the amount of carbohydrates consumed. He or she might require daily oral medications, insulin injections or an insulin pump to achieve near euglycemia. As if management of these issues were not enough for an individual, additional complications of DM may ensue. One of the more vexing complications involves the gastrointestinal tract — the theme of this *OTCE* issue.

Topics covered in this issue include:

- A basic review of anatomy and physiology of the gastrointestinal tract (GI)
- Gastroparesis
- Diet intervention for the patient with gastroparesis
- Celiac disease
- Small bowel bacterial overgrowth
- Constipation
- Narcotic bowel syndrome

Each article provides background information on the topic, signs and symptoms to aid in the identification and diagnosis, as well as the most current evidence to guide treatment interventions. Providing strategies to help patients with DM who present with GI complications to

maximize their overall quality of life is at the heart of this *OTCE* issue.

We were very fortunate to obtain an outstanding slate of authors. The article series begins with a tour of the GI tract by Cynthia Yoshida, MD, AGAF, entitled “How Well Do You Know Your Gut? Gastrointestinal Anatomy and Physiology.”

This article reviews key structures and their functions. Each major segment of the GI tract is reviewed individually, beginning with the pancreas, then moving to the luminal GI tract, progressing from mouth to colon. Doing so allows you to easily cross-reference specific anatomical areas as you read the accompanying articles on diabetes complications.

Henry P. Parkman, MD, enlightens us with his cutting-edge review on, "Gastroparesis Part I: Diagnosis and Treatment." Gastroparesis, a gastric motility disorder characterized by gastric stasis in the absence of mechanical obstruction, is classically described in type 1 DM, but can also be seen in patients with type 2 DM. Evaluation consists of an assessment of delayed gastric emptying in a patient with appropriate symptoms. Treatment for gastroparesis requires several components, including dietary management, maximizing glucose control, antiemetic medications and prokinetic agents. This article prepares clinicians for evaluation and management of patients with diabetic gastroparesis. Complementing Dr. Parkman's review of gastroparesis is an article I authored on a comprehensive approach to nutrition in those patients who suffer from this complication in, "Gastroparesis Part II: Nutritional Care." Nutritional assessment, and oral diet suggestions are discussed, as well as when to employ enteral or parenteral nutrition support as primary or adjunctive therapy.

Celiac disease, an immune-mediated process, occurs in 1% to 16% of individuals with DM. Individuals with both DM and celiac disease may be at risk for other autoimmune diseases, and should be evaluated by an endocrinologist and screened if appropriate. Laurie A. Higgins, MS, RD, LDN, CDE provides a clear overview of transitioning from a

diabetes meal planning lifestyle to one that incorporates celiac principles in a practical way.

John K. DiBaise, MD, introduces small intestinal bacterial overgrowth (SIBO) and its potential role in the patient with DM. SIBO is an excess number of bacteria (greater than  $10^5$  colony-forming units (cfu)/mL) in the proximal small intestine. SIBO may complicate the course of DM and result in a variety of gastrointestinal symptoms. The clinical features, nutritional complications and factors predisposing the patient with DM to SIBO are described, as are its diagnosis and treatment.

One very important aspect of care that is often not adequately discussed is constipation. In "Constipation in Patients with Diabetes Mellitus," Lawrence R. Schiller, MD, informs us that constipation affects many patients with long-standing DM and is a common GI complaint in this population. Patients with DM may have any of the causes of constipation found in the general population, but are more likely to have medication side effects, dietary changes, and neuropathy as etiologic factors. Clinical management first and foremost depends on understanding what the patient means by constipation. Although fiber is often thought to be the cure for all constipation, in some patients, it may be detrimental. Understanding the etiology behind each patient's constipation is

imperative to developing an appropriate treatment plan.

Nora Decher, MS, RD, CNSC, completes this issue by educating us on narcotic bowel syndrome, a newly recognized and underappreciated GI condition. Diabetic neuropathy occurs in over 30% to 50% of those with DM; 20% of whom experience pain associated with it. Despite a variety of pain medications available, only 40% to 60% of patients with neuropathic pain experience even *partial* relief, making its management a complex clinical issue. As such, those with refractory pain may require opioids. Narcotic bowel syndrome, a type of bowel dysfunction, is a serious problem that affects patients with chronic pain requiring narcotics, including neuropathic pain related to DM.

Much appreciation goes to Alyce Thomas, RD, Editor, and Diane Reader, RD, CDE, Associate Editor, for their time, varied expertise and commitment to making this issue of *OTCE* both educational and practical. I also want to thank Liz Quintana, EdD, RD, LD, CDE for her assistance in the planning stages of this issue.

## References

1. Jensen GL. Inflammation: an expanding universe. *Nutr Clin Pract.* 2008;23:1–2.
2. Krenitsky J. Glucose control in the intensive care unit: a nutrition support perspective. *Nutr Clin Pract.* 2011;26:31–43.