



Time to Dump Late Dumping Syndrome Terminology

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We read with interest the recent article by Ahmad et al. on the prevalence of late dumping syndrome (DS) [1]. They used the Sigstad scoring system to diagnose subjects with DS. Subjects that met the 3.26 cutoff score were determined to have early DS versus late DS dependent on timing of symptoms, occurring within 1 h or 1–3 h post-prandially. The Sigstad scoring system does not effectively discern for the presence of hypoglycemia. For example, if a patient developed dizziness (1.5pts), nausea (1 pt), and abdominal cramping (1 pt) over 1 h post-prandially, the cutoff score is exceeded and the patient would be classified as late DS, regardless of the fact that none of the symptoms are reflective of hypoglycemia. Since the hallmark of late DS is hypoglycemia, this indicates the need for updated nomenclature.

Post-bariatric hypoglycemia (PBH) is an increasingly recognized complication of bariatric surgery, occurring particularly after surgical procedures creating anatomy in which ingested foods bypass the pylorus (e.g., Roux-en-Y gastric bypass (RYGB)) or alter gastric emptying (e.g., sleeve gastrectomy). Although the precise pathophysiology is unknown, rapid transit of glucose to the intestine in this setting leads to increased gastrointestinal peptide secretion including GLP-1, excess insulin release, and subsequent hypoglycemia. In addition, patients with PBH also have an attenuated glucagon response, reduced insulin clearance, and impaired β cell secretory suppression during hypoglycemia [2].

Diagnostic criteria for PBH include (1) neuroglycopenic symptoms with post-prandial plasma glucose < 54 mg/dL (SI, 3.0 mmol/L), (2) occurrence \geq 6 months after bariatric surgery, and (3) no fasting hypoglycemia [2]. Yet, a barrier to advancing scientific knowledge and understanding the true prevalence of

this disease is the obsolete terminology of late dumping syndrome (DS) [3]. Both late DS and PBH are often used interchangeably to refer to post-prandial hyperinsulinemic hypoglycemia; sometimes late DS is used to refer to mild presentations of PBH [3–5].

The term DS was coined in 1913 by Dr. Hertz, linked to hypoglycemia in the 1940s, and gained traction in the 1970s with the advent of the Sigstad and other DS symptom scoring systems to assist with diagnosis [4, 6]. Early DS is secondary to a hyperosmolar liquid load provoking gastrointestinal distress, relative hypotension, and sympathetic activation, usually within 15 min of eating. Sometimes, early DS is associated with profound fatigue, but glucose levels are normal. By contrast, late DS is characterized by hypoglycemia and can be associated with neuroglycopenic and autonomic symptoms 1–3 h after eating [7, 8]. Patients often are confused by the term late DS, believing it refers to post-prandial discomfort, cramping, and diarrhea. Both late DS and PBH are characterized by hypoglycemia, potentially both driven by incretin-driven hyperinsulinemia in addition to other factors [2, 6, 8, 9]. Additionally, dietary modification, acarbose, octreotide, and diazoxide can be used as treatments for both PBH and late DS [4, 5, 8, 9].

The true prevalence of PBH is likely underrecognized, partly due to the lack of consensus in defining this condition [4]. Reported hypoglycemia associated with RYGB procedures ranges drastically from 0.1–34.0% [4, 5, 8, 9]. With > 200,000 annual bariatric surgeries, precise terminology is vital to clarify the prevalence of this potentially life-threatening condition, adequately counsel patients pre-operatively, and encourage continued investigation into new therapies [9].

In conclusion, the term late DS causes substantial confusion. Given that hypoglycemia is the predominant and safety-threatening phenotype in individuals with rapid delivery of food to the intestine, we propose eliminating the terminology late DS and replacing it with PBH. We also advocate for simplifying early DS to DS. Having clear, concise language will allow improved epidemiologic reporting, better communication within the scientific community, and increased

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patient comprehension as a growing number of patients elect bariatric surgical procedures.

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

Ethical Approval This article does not contain any studies with human participants or animals performed by any authors.

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