Pharmacotherapy in Treatment of Obesity

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KEYWORDS

• Pharmacotherapy • Colon cancer • Hepatitis C • Nonalcoholic fatty liver disease
• Brain-gut axis

KEY POINTS

- The gut-brain axis is a major pathway in energy metabolism and is targeted by antiobesity medications to facilitate short- and long-term weight loss.
- The use of antiobesity medication is an important adjunctive intervention in the treatment of morbid obesity.
- Medical weight management that includes pharmacologic interventions improves weight loss outcomes and clinical outcomes in the management of chronic gastrointestinal conditions including hepatitis C, nonalcoholic fatty liver disease, and colon cancer.

INTRODUCTION

Common disease states in gastroenterology are more effectively treated in an obese patient when weight loss is incorporated into the treatment plan. Strategies that seek to achieve weight loss improve outcomes in the treatment of hepatitis C, nonalcoholic fatty liver disease, and colorectal cancer.[1–3] In the management of hepatitis C, obesity is a pretreatment predictor of response and is associated with a lower response to antiviral therapy.[4] Weight reduction also reduces the risk and improves outcomes for colon cancer development.[5] Medical weight management using only dietary modification and behavioral changes as primary methods for the treatment of obesity has been limited by a high recidivism rate and weight regain.[6] Pharmacologic therapy is an important adjunctive intervention that improves short- and long-term outcomes in the management of obese patients.[7,8] Unfortunately, many of the earlier medications approved for clinical use have been associated with adverse events and complications leading to their withdrawal from the US market.[9] However, the recent development of highly effective pharmacotherapy with fewer side effects has generated a renewed interest in medical weight management.[10] This article reviews currently available drug therapy with a focus on pharmacotherapy-approved long-term weight management in obese

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individuals without diabetes since 2012, encouraging the use of these tools in the practice of gastroenterology. As the understanding of the pathways that regulate food intake and energy expenditure increase, new drug therapies will emerge and expand the number of available tools. Certain noradrenergic sympathomimetic drugs (benzphatamine, phendimetrazine) that have been approved for short-term use are excluded from this discussion because the general use of sympathomimetic drugs for long-term weight loss is discouraged. Phentermine and tenuate are the notable exceptions.[11]

DRUG TARGETS

Obesity occurs when there is an imbalance between energy intake and energy expenditure.[7,12] There are peripheral and central signals as well as hormonal and neural pathways that regulate food intake and body fat mass. Although a detailed discussion is beyond the scope of this article, clinicians should have a basic understanding of these mechanisms because the signals regulate when an individual eats, how much they eat, and when they achieve satiety. Furthermore, following intentional weight loss, these signals result in adaptations that stimulate hunger, increase food intake, reduce the metabolic rate, and predispose to weight regain. These influences directly impact the management of gastrointestinal (GI) diseases and general medical weight management.[13] **Figs. 1** and **2** summarize the interactions between the central and

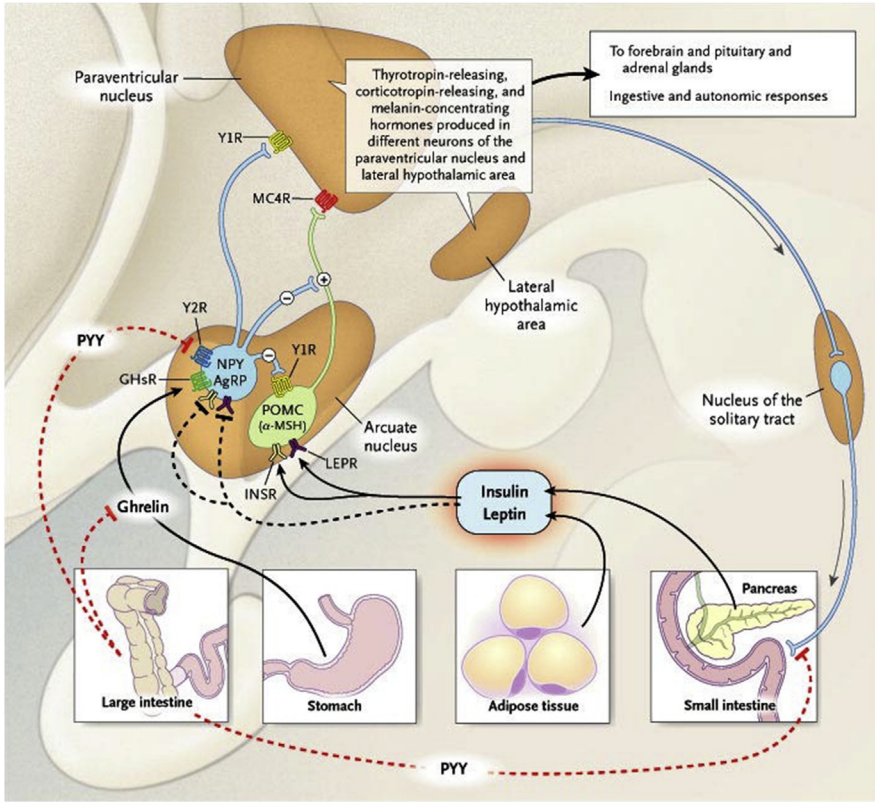

Fig. 1. Interactions among hormonal and neural pathways that regulate food intake and body fat mass. (*From* Korner J, Liebel RL. To eat or not to eat: how the gut talks to the brain. N Engl J Med 2003;349:927; with permission.)

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