LEARNING OBJECTIVES
Upon completion of this activity, participants should be better able to:
• List the benefits of proper assessment and diagnosis of obesity
• Apply strategies to initiate weight loss counseling in patients who are overweight or obese
• Review the efficacy, safety, tolerability, and long-term clinical outcomes of current drug therapies for obesity treatment

OBESITY: A PERSISTENT EPIDEMIC
The World Health Organization defines a person with a body mass index (BMI) of 30 kg/m² or more as being obese and a person with a BMI between 25 kg/m² and 29.9 kg/m² as overweight.¹ On this basis, more than one-third (34.9%, or 78.6 million) of adults in the United States are obese.² Of great concern is that despite the availability of several clinical practice guidelines on optimal disease management, recent analysis has found no significant reductions in obesity prevalence in youth or adults between 2003-2004 and 2011-2012.³ This persistent prevalence, coupled with the overall health burden associated with obesity, clearly indicates the need for improved medical approaches to obesity treatment to achieve successful long-term outcomes.

Recent analysis shows no significant reductions in obesity prevalence between 2003-2004 and 2011-2012.
INTERSECTION OF OBESITY AND CHRONIC DISEASE

Despite the long-known fact that obesity raises the risk of morbidity associated with some of the most prevalent diseases in the United States, it was not until June 2013 that both the American Medical Association and American Association of Clinical Endocrinologists officially classified obesity as a disease.\(^1\) Obesity should no longer be viewed as a character fault or the result of lack of willpower but as the disease that it is. Patients with obesity should be more actively treated for weight loss in order to minimize the burden of the disease, especially because evidence shows that even a 5% reduction in body weight has a clinically significant reduction in cardiometabolic risk.\(^1\)

Obesity is directly associated with a host of chronic conditions, including hypertension, dyslipidemia, type 2 diabetes mellitus (T2DM), coronary heart disease, stroke, gallbladder disease, osteoarthritis, sleep apnea and respiratory problems, and some forms of cancers. Obesity is also associated with increased risk of all-cause and cardiovascular mortality. However, the health risks associated with obesity go beyond the physical problems, crossing into psychosocial issues such as depression, discrimination, low self-esteem, teasing, and bullying. Obesity is also associated with quality of life and functional issues, including absenteeism from school or work; disqualification from active military, fire, and police services; reduced academic performance and productivity; and even unemployment.\(^4\) It is important to consider all aspects of this dynamic disease when assessing and treating patients.

PROPER ASSESSMENT: BMI AND WAIST CIRCUMFERENCE

Assessing a patient for obesity should include a calculation of BMI and measurement of waist circumference, keeping in mind that BMI has limitations in certain populations. There are people who are obese and otherwise healthy and there are people of normal weight who are prone to metabolic disease.\(^1\) It is important to use clinical judgment in all cases.

To measure waist circumference, locate the upper hip bone and the top of the right iliac crest and place a measuring tape snugly, but not compressing the skin, in a horizontal plane around the abdomen at the level of the iliac crest and take the measurement. The procedure is simple but must be done correctly in order to ensure accuracy and repeatability.\(^5\)

INITIATING OBESITY COUNSELING AND WEIGHT LOSS DISCUSSIONS

Motivational Interviewing

Motivational interviewing is a direct, person-centered approach to clinical interviewing designed to explore ambivalence and activate motivation for change.\(^6\) When correctly implemented, this technique encourages people to adopt a favorable lifestyle that is consistent with their own values and concerns (Table 1).\(^7\)

A key component of motivational interviewing is to acknowledge that patients have every right not to make a change. Motivational interviewing uses guided communication that invites people to find their own solutions to situations that they identify as problematic or that are preventing change.\(^8\)

During a motivational interview, the clinician elicits the patient’s view in order to help assess the situation from the patient’s perspective, including his or her goals and values. This is a
A collaborative approach in which the expertise of the practitioner plays a part, but the patient decides whether to act on the clinician's advice.\textsuperscript{7}

Motivational interviewing “rolls” with resistance that is created when individuals are advised or told what to do. The message is communicated to the patient that it is up to him or her to decide what to do. Paradoxically, by acknowledging that the patient has every right to not make a change, the patient may then find him-/herself making the first move toward changing behavior.\textsuperscript{7}

\textbf{Approach to Obesity Counseling}

Techniques to use during motivational interviewing include the Modified 5 A’s (Ask, Assess, Advise, Agree, Arrange). These ensure an effective, efficient, and evidence-based behavioral intervention strategy that has the potential to improve the success of weight management, especially in primary care.\textsuperscript{9}

A proper motivational interview should incorporate OARS (Open-ended, Affirming, Reflecting, Summarizing), a skills-based model of interactive techniques adapted from a client-centered approach, using motivational interviewing principles.\textsuperscript{10} These skill-based techniques include verbal and nonverbal responses and behaviors. Both verbal and nonverbal techniques need to be adapted to be culturally sensitive and appropriate.\textsuperscript{10}

\begin{itemize}
  \item \textbf{O} = Open-ended questions
  \begin{itemize}
    \item Explore, clarify, and gain an understanding of your patient’s world
    \item Learn about the patient’s past experiences, feelings, thoughts, beliefs, and behaviors regarding diet and weight loss
  \end{itemize}
\end{itemize}

\begin{table}[h]
\centering
\begin{tabular}{|p{3cm}|p{12cm}|}
\hline
\textbf{Express empathy} & \textbullet Develop an understanding of the patient’s feelings at a deeper level, without judging \\
\hline
\textbf{Develop discrepancy} & \textbullet Create a difference between current behavior (where the patient is) and change behavior (where he/she wants to be) \\
\hline
\textbf{Roll with resistance (avoid argumentation)} & \textbullet Acknowledge patient’s point of view and respond without a challenge \\
& \textbullet Direct confrontation may elicit an argument and/or defensiveness \\
& \textbullet Do not fight resistance; instead, “roll with it” \\
\hline
\textbf{Support self-efficacy} & \textbullet Encourage patient’s perception of his/her own capabilities \\
& \textbullet Give hope, be optimistic about patient’s desire to change \\
\hline
\end{tabular}
\caption{4 Principles of Motivational Interviewing\textsuperscript{7}}
\end{table}
A = Affirming
• Build rapport, demonstrate empathy, affirm exploration into the patient’s world
• Build patient’s self-efficacy—an ability to believe he or she can be responsible for his or her own decisions and his or her life

R = Reflecting
• Demonstrate to the patient that you are listening and trying to understand his or her situation
• Offer the patient an opportunity to “hear” his or her own words

S = Summarizing
• Keep you and your patient on the same page and confirm the plan of action

TREATING OBESITY: A MULTIFACETED APPROACH
Lifestyle Management: Treatment Base for Obesity
Lifestyle management is the cornerstone of any obesity treatment plan. A comprehensive lifestyle intervention inclusive of a lower-calorie diet and increased physical activity should be initiated for all patients who are overweight or obese for at least 6 months. It is important to communicate to the patient that even a modest amount of weight loss has health benefits.

Behavioral strategies should include weight monitoring, goal setting, tracking food and calorie intake and, if possible, creating an environment that discourages overeating and/or reduces triggers. Referral to a registered dietitian, behavioral psychologist, or other trained professional in a healthcare setting may also be considered.

Pharmacologic Overview
The 2013 American Heart Association/American College of Cardiology/The Obesity Society (AHA/ACC/TOS) Guideline for the Management of Overweight and Obesity in Adults recommends that individuals who fail to respond to lifestyle interventions after 6 months of treatment, have a BMI of ≥30 kg/m², or have a BMI of >27 kg/m² with weight-induced comorbidity may have weight-loss medication added to their treatment plan.

There have been significant advances in pharmacologic management of obesity over the past few years, with 4 new agents receiving Food and Drug Administration (FDA) approval since 2012. Each agent has a unique mechanism of action and varying adverse-effect profile, and some require titration; therefore, it is important to consider the role of each agent in the treatment armamentarium in order to individualize patient care. The goal of pharmacotherapy is not only to reduce weight, but more importantly, to improve the comorbid conditions associated with obesity, such as hyperglycemia, hyperlipidemia, and atherosclerotic heart disease.

Figure 1 shows an analysis of the efficacy at 1 year of the 4 newest approved agents—phentermine/topiramate, naltrexone/bupropion, lorcaserin, and liraglutide—all versus placebo. The range of therapeutic efficacy of each agent follows the same general pattern, with weight loss occurring rapidly at first and then stabilizing over the first year. Therefore, it is critical to consider the safety profile and individualized patient comorbidities and needs when selecting pharmacologic therapy for patients with obesity.
Table 2. Overview of FDA-Approved Pharmacologic Agents for the Treatment of Obesity

<table>
<thead>
<tr>
<th>Agent</th>
<th>Formulation/Dosage(s)</th>
<th>Contraindication(s)</th>
<th>Year Approved</th>
</tr>
</thead>
</table>
| Phentermine HCl USP         | Capsules containing 37.5 mg phentermine HCl and Tablets containing 37.5 mg phentermine HCl | • Advanced arteriosclerosis, CVD, moderate to severe hypertension, hyperthyroidism, known hypersensitivity or idiosyncrasy to the sympathomimetic amines, glaucoma  
• Agitated states  
• History of drug abuse  
• During or within 14 days following the administration of MAOIs | 1959          |
| Orlistat                    | 120-mg capsules (prescription) 60-mg capsules (over the counter)                        | • Pregnancy  
• Chronic malabsorption syndrome  
• Cholestasis | 1999          |
| Lorcaserin HCl              | 10-mg film-coated tablets                                                            | • Pregnancy                                                      | 2012          |
| Phentermine and topiramate ER | ER capsules  
• 3.75 mg/23 mg  
• 7.5 mg/46 mg  
• 11.25 mg/69 mg  
• 15 mg/92 mg \(^a\) | • Pregnancy  
• Glaucoma  
• Hyperthyroidism  
• During or within 14 days of taking MAOIs | 2012          |
| Liraglutide [rDNA origin]   | Solution for subcutaneous injection, prefilled, multidose pen that delivers doses of 0.6 mg, 1.2 mg, 1.8 mg, 2.4 mg, or 3 mg (6 mg/mL, 3 mL)\(^a\) | • Personal or family history of medullary thyroid carcinoma or multiple endocrine neoplasia syndrome type 2  
• Pregnancy | 2014          |
| Naltrexone HCl and bupropion HCl ER | ER tablets: 8 mg naltrexone HCl/90 mg bupropion HCl with dose-escalation schedule\(^a\) | • Uncontrolled hypertension  
• Seizure disorders, anorexia nervosa or bulimia, or undergoing abrupt discontinuation of alcohol, benzodiazepines, barbiturates, and antiepileptic drugs  
• Use of other bupropion-containing products  
• Chronic opioid use  
• During or within 14 days of taking MAOIs | 2014          |

\(^a\)Requires titration. CVD = cardiovascular disease; ER = extended release; HCl = hydrochloride; MAOIs = monoamine oxidase inhibitors.
Orlistat

Orlistat is a reversible inhibitor of gastrointestinal (GI) lipases that is indicated for obesity management, including weight loss and weight maintenance, when used in conjunction with a reduced-calorie diet. It is also indicated to reduce the risk for weight regain after prior weight loss. Orlistat promotes weight loss by inhibiting GI lipases, thereby decreasing the absorption of fat from the GI tract.\(^\text{13}\)

Results from a randomized, placebo-controlled trial of orlistat for weight loss showed that patients receiving orlistat lost 4.1% more body weight versus those who received placebo during year 1 (10.2% vs 4.1%), respectively, and during year 2, patients who continued with orlistat regained, on average, half as much weight as patients switched to placebo (\(P < .001\)).\(^\text{22}\)

Total cholesterol, low-density lipoprotein (LDL) cholesterol, LDL/high-density lipoprotein (HDL) ratio, and concentrations of glucose and insulin decreased more in the orlistat group than in the placebo group.\(^\text{1,23}\)

Adverse events including GI distress were more common in the orlistat group.\(^\text{22}\)

Additionally, results from trials have demonstrated the efficacy of orlistat to aid and maintain weight loss. Results from the XENDOS study found that after 4 years, patients taking orlistat lost 51% more body weight than those in the placebo group.\(^\text{1,23}\)

In addition to weight loss, orlistat has been proven effective in improving insulin sensitivity and lowering serum glucose levels.\(^\text{1,23}\)

Results from the XENDOS study also demonstrated the long-term safety of orlistat, showing it was well tolerated. The overall incidence of adverse events was similar in the 2 treatment groups, with the exception of a higher incidence of GI events. Most GI events were mild to moderate in intensity and occurred during the early phase of treatment (91% of the treatment group vs 65% of the placebo group in year 1, dropping to 36% vs 23%, respectively, in year 4).\(^\text{23}\)

**Newer Pharmacologic Agents: An Analysis**

**Orlistat**

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Lorcaserin

Lorcaserin HCl is a serotonin (5-HT) 2C receptor agonist indicated as an adjunct to a reduced-calorie diet and increased physical activity for chronic weight management in adults with an initial BMI of $\geq 27$ kg/m$^2$ with a weight-related comorbidity or a BMI $\geq 30$ kg/m$^2$. Lorcaserin works via selective activation of the central serotonin 2C receptor, reducing appetite by binding to 5-HT 2C receptors.14

Results from the BLOOM trial showed that at 1 year, the average placebo-subtracted weight loss was 3.6%. In the lorcaserin arm, 47% of patients lost >5% of their baseline body weight compared with 20.5% in the control group. Results also showed significant positive changes in glycated hemoglobin (A1C) level, total cholesterol, blood pressure (BP), triglycerides, and heart rate in the lorcaserin versus placebo group.20 BLOOM-DM evaluated efficacy and safety of lorcaserin for weight loss in patients with T2DM, and results demonstrated that 37.5% of patients in the lorcaserin group had a weight loss of >5%, more than double that of those in the placebo group.24

The most common adverse events associated with lorcaserin were headache, back pain, nasopharyngitis, and nausea. Serious adverse events occurred in 6.3%, 8.4%, and 6.7% of the lorcaserin twice daily, lorcaserin once daily, and placebo groups, respectively.24

Phentermine and Topiramate ER

Phentermine and topiramate ER combination is indicated as an adjunct to a reduced-calorie diet and increased physical activity for chronic weight management in adults with an initial BMI of $\geq 27$ kg/m$^2$ and a weight-related comorbidity or a BMI $\geq 30$ kg/m$^2$.15

Phentermine is an adrenergic agonist that promotes weight loss by activation of the sympathetic nervous system, with a subsequent decrease in food intake.15 Topiramate is an FDA-
approved medicine for epilepsy and migraine prophylaxis that has been shown to reduce body weight by decreasing caloric intake.\textsuperscript{25} Together these agents help to promote weight loss.

The CONQUER trial examined patients with obesity plus 2 or more comorbidities. Results showed an 8.8\% placebo-subtracted weight loss in the maximum-dose arm.\textsuperscript{1,26} Results of SEQUEL, an extension study of CONQUER, showed a 2-year mean placebo-subtracted weight loss of 8.7\%. Significantly more drug-treated patients at each dose achieved 5\% to 20\% weight loss compared with those taking placebo.\textsuperscript{18} The treatment group had improved cardiovascular and metabolic variables and a decreased rate of T2DM.\textsuperscript{18} Phentermine and topiramate ER combination was well tolerated over 2 years. The most commonly reported treatment-related adverse events were upper respiratory tract infection, constipation, paresthesia, sinusitis, and dry mouth. However, the incidence of individual adverse events was markedly lower in the second year.\textsuperscript{18}

\textit{Liraglutide}

Liraglutide 3.0 mg is a glucagon-like peptide-1 (GLP-1) receptor agonist indicated as an adjunct to a reduced-calorie diet and increased physical activity for chronic weight management in adult patients with an initial BMI of $\geq 27$ kg/m$^2$ with a weight-related comorbidity or a BMI $\geq 30$ kg/m$^2$.\textsuperscript{16} Liraglutide is also indicated for T2DM in doses up to 1.8 mg once daily.\textsuperscript{27}

Liraglutide 3.0 mg has been shown to have potential benefit for weight management at a once-daily dose injected subcutaneously. A 56-week, double-blind trial evaluated 3731 patients who did not have T2DM and who had a BMI of at least 30 kg/m$^2$ or a BMI of at least 27 kg/m$^2$ if they had treated or untreated dyslipidemia or hypertension. Patients were randomly assigned in a 2:1 ratio to receive once-daily subcutaneous injections of liraglutide 3.0 mg (2487 patients) or placebo (1244 patients); both groups received counseling on lifestyle modification.\textsuperscript{21} At week 56, patients in the liraglutide 3.0 mg group had lost a mean of 8.4 kg, versus 2.8 kg in the placebo group.\textsuperscript{21}

Liraglutide 3.0 mg treatment was also associated with reductions in cardiometabolic risk factors, including waist circumference, BP, and inflammatory markers. Modest improvements in fasting lipid levels were also observed.\textsuperscript{21}

The most frequently reported adverse events with liraglutide 3.0 mg were mild or moderate nausea and diarrhea, occurring primarily within the first 4 to 8 weeks after initiation of liraglutide 3.0 mg treatment. Serious events occurred in 6.2\% of the patients in the liraglutide 3.0 mg group and in 5.0\% of the patients in the placebo group.\textsuperscript{21}

\textit{Naltrexone HCl and Bupropion HCl ER Tablets}

Naltrexone HCl and bupropion HCl ER combination is indicated as an adjunct to a reduced-calorie diet and increased physical activity for chronic weight management in adults with an initial BMI of $\geq 27$ kg/m$^2$ with a weight-related comorbidity or a BMI $\geq 30$ kg/m$^2$.\textsuperscript{17}

The primary mechanism of action of bupropion works via dopaminergic and noradrenergic stimuli without inhibition of monoamine oxidase or reuptake of 5-HT. Inhibiting reuptake of dopamine and/or norepinephrine decreases the reward pathway thought to be induced by certain foods. The second component is naltrexone, which is a pure opioid antagonist that blocks an opioid pathway.\textsuperscript{1,17}
Four double-blind, placebo-controlled, year-long, multicenter trials (CONTRAVE Obesity Research—COR-I, COR-II, COR-BMOD, and COR-Diabetes) were conducted to evaluate the effect of naltrexone/bupropion in conjunction with lifestyle modification in a placebo-controlled cohort of 4536 patients.1,28-30

Results from the COR-I trials showed that the mean change in body weight in patients in the naltrexone/bupropion 32/360-mg arm was 6.1% compared with 1.3% in the placebo group. The primary end point of 5% reduction in body weight from baseline occurred in 48% of treatment group patients versus 16% of placebo patients.19

The COR-II trial included patients with obesity (BMI 30-45 kg/m²) or overweight (27-45 kg/m² with dyslipidemia and/or hypertension). Results showed a significantly greater weight loss with naltrexone/bupropion versus placebo at week 28 (6.5% vs 1.9%) and week 56 (6.4% vs 1.2%), respectively. A greater percentage of bupropion/naltrexone-treated participants experienced 5% weight loss versus placebo at week 28 (55.6% vs 17.5%) and week 56 (50.5% vs 17.1%), respectively.31

Naltrexone/bupropion demonstrated improvements in various cardiometabolic risk markers, participant-reported weight-related quality of life, and control of eating. The most common adverse event was transient mild to moderate nausea. Serious adverse events were similar for naltrexone/bupropion (2.1%) and placebo (1.4%).28

Guideline Considerations
There are number of clinical guidelines on the appropriate diagnosis and management of obesity, including the ACC/AHA/TOS guidelines. However, none address pharmacotherapy in detail, as most agents were not yet approved or were too new at the time of writing. Although all of these guidelines have valuable information and many have been cited in this review, the newest has recently been released.

The Endocrine Society Clinical Practice Guideline on the Pharmacological Management of Obesity contains the most up-to-date recommendations for the use of pharmacologic weight loss agents. The guidelines recommend targeting obesity as a disease first and foremost, whereas previous guidelines have sought to first treat the comorbidities caused by excess weight. The new guideline embraces the shift to treat obesity as a disease and outlines a new treatment paradigm (Table 4).

SUMMARY
Obesity itself is considered a disease, and weight loss is a pathway to health improvement for patients with weight-associated risk factors and comorbidities. Accordingly, it is important to calculate BMI and measure waist circumference for all patients at least annually. Lifestyle interventions should be discussed with all patients who are overweight, have obesity, or have weight-related health issues, and a motivational interview should be initiated for appropriate patients.
For patients who are overweight with risk factors or who have obesity, weight loss medication should be considered as an effective adjunct to lifestyle interventions for patients who have been unsuccessful with diet and exercise alone. Pharmacotherapy should be selected based on individual patient- and disease-related factors, and patients should have follow-up on a regular basis in order to ensure adherence, safety, and effectiveness of the treatment program.

Table 4. 2015 Endocrine Society Clinical Practice Guideline: Key Recommendations for the Pharmacologic Management of Obesity31

<table>
<thead>
<tr>
<th>Recommendations for Patients With a BMI ≥27 kg/m² With Comorbidity or a BMI ≥30 kg/m²</th>
<th>Quality of Evidence&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pharmacologic considerations</strong></td>
<td></td>
</tr>
<tr>
<td>Include diet, exercise, and behavioral modification for patients with BMI ≥25 kg/m² and pharmacotherapy adjunctive to reduce food intake and increase physical activity for BMI ≥27 kg/m² with comorbidity or BMI ≥30 kg/m²</td>
<td>++++</td>
</tr>
<tr>
<td>Initiate therapy with dose escalation based on efficacy and tolerability to the recommended dose and not exceeding the upper approved dose boundaries</td>
<td>++</td>
</tr>
<tr>
<td><strong>Comorbid considerations</strong></td>
<td></td>
</tr>
<tr>
<td>Do not use sympathomimetic agents phentermine and diethylpropion in patients with uncontrolled hypertension or a history of heart disease</td>
<td>+++</td>
</tr>
<tr>
<td>Consider antidiabetic medications that have additional actions to promote weight loss (such as GLP-1 analogs or sodium-glucose cotransporter 2 inhibitors) in patients with T2DM who are overweight or obese</td>
<td>+++</td>
</tr>
<tr>
<td>Consider medications that are not sympathomimetics, such as lorcaserin and/or orlistat, in patients with CVD who seek pharmacologic treatment for weight loss</td>
<td>+</td>
</tr>
<tr>
<td><strong>Patient monitoring</strong></td>
<td></td>
</tr>
<tr>
<td>Assess the efficacy and safety of medication at least monthly for the first 3 months, and then at least every 3 months in all patients prescribed weight loss medications</td>
<td>++</td>
</tr>
<tr>
<td>If medication is effective (weight loss ≥5% of body weight at 3 months) and safe, continue medicine</td>
<td>++++</td>
</tr>
<tr>
<td>If medication is ineffective (weight loss &lt;5% at 3 months) or if there are safety or tolerability issues at any time, discontinue medication and consider alternatives</td>
<td>++++</td>
</tr>
</tbody>
</table>

<sup>a</sup>+ indicates the quality of the evidence: + = very low; ++ = low; +++ = moderate; ++++ = high.
**CASE:** A 40-Year-Old Woman With Obesity and a History of Hypertension

**PRESENTATION**
Grace is a 40-year-old woman who has been under your care for a few months, originally seeking a refill for her hypertension medication after recently moving to the area. At her first visit she weighed 206 lb, with a BMI of 34 kg/m². You discussed the topic of obesity and recommended lifestyle interventions to help her with her weight loss. Today, 3 months later, Grace is in your office again for a follow-up visit on the lifestyle interventions. She currently weighs 201 lb following a 5-lb weight loss. She indicates that she has tried to follow the plan by buying a gym membership, walking on the treadmill a few days a week, doing water aerobics twice a week, and eating more home-cooked meals. She says that she goes out to eat 1 or 2 times a week due to scheduling and lack of time to cook. She feels frustrated by the lack of weight loss and states that she feels hungry all of the time.

Grace is a nonsmoker, and she drinks caffeine regularly and alcohol 2 days a week. Her occupation is a city bus driver, and she lives a very sedentary lifestyle in an apartment with her spouse and teenaged children.

**Medical History**
Grace has had hypertension controlled with medication for 10 years and has also suffered from depression for 5 years. Her family history includes paternal coronary artery disease and maternal T2DM. Grace’s medications are as follows:
- Hydrochlorothiazide 25 mg once daily, valsartan 320 mg once daily, amlodipine 5 mg once daily
- Paroxetine 20 mg once daily
- Acetaminophen or ibuprofen as needed for pain

**Physical Findings**
Height = 5 ft 5 in; weight = 201 lb, 5-lb weight loss [2.4%]); BMI = 33.4 kg/m²; waist circumference = 37.5 in; BP = 140/88 mm Hg; heart rate = 78 beats/min

**Laboratory Findings**
- A1C level = 6.4%
- Fasting plasma glucose = 168 mg/dL
- LDL cholesterol = 125 mg/dL
- HDL cholesterol = 41 mg/dL
- Triglycerides = 220 mg/dL
- Estimated glomerular filtration rate = 87 mL/min/1.73 m²
Risk Factors for Obesity-Related Complications
- Hypertension and prediabetes
- Suspected sleep apnea (sleeps ~5 hours/night for last 10 years; snores)

Weight History
- Parents were overweight/obese; 1 sister is overweight
- Has 3 children; gained 15-20 lb following pregnancy with each child
- Possible paroxetine-associated weight gain
- Has tried a variety of diets in the past, but has been unsuccessful with self-initiated diets

Clinical Decision Point
Which of the following treatment approaches would you recommend for Grace at this point?
A. Continuing lifestyle management only
B. Pharmacotherapy
C. Lifestyle management and pharmacotherapy
D. Lifestyle management and/or pharmacotherapy and bariatric surgery

COMMENT
It appears that Grace has adhered to the proposed lifestyle modifications but they have not resulted in a significant change in BMI, with only a 5-lb loss in 3 months. Therefore, Grace is a candidate for adjunctive pharmacologic management of her obesity, as her BMI is well beyond the threshold and she has weight-related risk factors. Care should be taken when selecting a specific antiobesity agent, especially as Grace is being treated for depression. In light of that, it is advisable to consider agents that do not interact with MAOIs or selective serotonin reuptake inhibitors. Correct answer: C

The appropriate first step for Grace was to conduct a motivational interview to help assess the reasons why her self-initiated diets have failed in the past. It is then important to discuss lifestyle interventions, including caloric management, increased physical activity, stress management, and counseling for her ongoing depression. Grace is taking paroxetine for her depression—a known weight-gaining medication. It is advisable to change her antidepressant to a more weight-neutral medication.

CASE CONCLUSION
Grace is a typical patient who is under your care for the treatment of a number of health issues that may tie in to her obesity. Therefore, it is important that you address her obesity as a disease and design a multimodal treatment plan, which may include consultation with a registered dietitian and/or using a self-monitoring fitness device.

Grace will require routine follow-up to ensure that she adheres to her lifestyle management plan and takes her medicine safely, that she does not experience side effects, and to measure her progress and check in on her mental health. Should she not reach a 5% weight loss in 3 months, it will be important to reconsider the choice of pharmacologic agent and to help her refine her lifestyle management.
REFERENCES


