Delayed Prescriptions for Reducing Antibiotic Use


Study Overview

Objective. To determine the efficacy and safety of delayed antibiotic prescribing strategies in acute uncomplicated respiratory infections.

Design. Randomized, multicenter, open-label clinical trial.

Setting and participants. The setting was 23 primary care centers in Spain. The study recruited patients who were 18 years of age or older with an acute uncomplicated respiratory infection (acute pharyngitis, rhinosinusitis, acute bronchitis, exacerbations of chronic bronchitis or mild to moderate chronic obstructive pulmonary disease). Patients with these infections were included by the physicians as long as they were unsure of whether to use antibiotics or not. The study protocol has been published elsewhere [1].

Intervention. Patients were randomized to 1 of 4 potential prescription strategies: (1) a delayed patient-led prescription strategy where patients were given an antibiotic prescription at first consultation but instructed to fill the prescription only if they felt substantially worse or saw no improvement in symptoms in the first few days after initial consultation; (2) a delayed prescription collection strategy requiring patients to collect their prescription from the primary care center reception desk 3 days after the first consultation; (3) an immediate prescription strategy; or (4) no antibiotic strategy. The patient-led and delayed collection strategies were considered delayed prescription strategies.

Main outcome measures. Duration of symptoms and severity of symptoms. Patients filled out a daily questionnaire for a maximum of 30 days, which listed common symptoms such as fever, discomfort or general pain, cough, difficulty sleeping, and changes in everyday life, and specific symptoms according to condition. Patients assessed severity of their symptoms using 6-point Likert scale, with scores of 1-2 considered mild, 3-4 moderate, and 5-6 severe. Secondary outcomes included antibiotic use, patient satisfaction, patients’ beliefs in the effectiveness of antibiotics, and absenteeism (absence from work or doing their daily activities).

Main results. A total of 405 patients were recruited, 398 of whom were included in the analysis. 136 patients (34.2%) were men. The mean (SD) age was 45 (17) years and 265 patients (72%) had at least a secondary education level. The most common infection was pharyngitis
(n = 184; 46.2%), followed by acute bronchitis (n = 128; 32.2%). The mean severity of symptoms ranged from 1.8 to 3.5 points on the Likert scale, and mean (SD) duration of symptoms described on first visit was 6 (6) days. The mean (SD) general health status on first visit was 54 (20) based on a scale with 0 indicating worst health status and 100 indicating best health status. 314 patients (80.1%) were nonsmokers, and 372 patients (93.5%) did not have a respiratory comorbidity. The presence of symptoms on first visit was similar among the 4 groups.

The duration of the common symptoms of fever, discomfort or general pain, and cough was shorter in the immediate prescription group versus the no prescription group (P < 0.05 for all). In the immediate prescription group, the duration of patient symptoms after first visit was significantly different from that of the prescription collection and patient-led prescription groups only for discomfort or general pain. The mean (SD) duration of severe symptoms was 3.6 (3.3) days for the immediate prescription group, 4.0 (4.2) days for the prescription collection group, 5.1 (6.3) days for the patient-led prescription group, and 4.7 (3.6) days for the no prescription group. The median (interquartile range [IQR]) of severe symptoms was 3 (1–4) days for the prescription collection group and 3 (2–6) days for the patient-led prescription group. The median (IQR) of the maximum severity for any symptom was 5 (3–5) for the immediate prescription group and the prescription collection group; 5 (4–5) for the patient-led prescription group; and 5 (4–6) for the no prescription group. Patients randomized to the no prescription strategy or to either of the delayed strategies used fewer antibiotics and less frequently believed in antibiotic effectiveness. Among patients in the immediate prescription group, 91.1% used antibiotics; in the delayed patient-led, delayed collection, and no prescription groups, the rates of antibiotic use were 32.6%, 23.0%, and 12.1%, respectively. There were very few adverse events across groups, although the no prescription group had 3 adverse events compared with 0-1 in the other groups. Satisfaction was similar across groups.

Conclusion. Delayed strategies were associated with slightly greater but clinically similar symptom burden and duration and also with substantially reduced antibiotic use when compared with an immediate strategy.

Commentary
Acute respiratory infections are a common reasons for physician visits. These infections tend to be self-limiting and overuse of antibiotics for these infections is widespread. Approximately 60% of patients with a sore throat and ~70% of patients with acute uncomplicated bronchitis receive antibiotic prescriptions despite the literature suggesting no or limited benefit [2,3]. Antibiotic resistance is a growing problem and the main cause of this problem is misuse of antibiotics.

Often physicians feel pressured into prescribing antibiotics due to patient expectation and patient satisfaction metrics. In the face of the critical need to reduce overuse, delayed antibiotic prescribing strategies offers a compromise between immediate and no prescription [4]. Delayed prescribing strategies have been evaluated previously [5–8], with findings suggesting they do reduce antibiotic use. This study strengthens the evidence base supporting the delayed strategy.

This study has a few limitations. The sample size was small, and symptom data was obtained via patient self-report. In addition, the randomization procedure was not described. However, the investigators were able to achieve good patient retention, with very few patients lost to follow-up. The investigators used an intention to treat analysis; thus, the estimate of treatment effect size can be considered conservative.

In terms of baseline characteristics of the study participants, there was a lower overall education level, fewer smokers, and less respiratory comorbidity (defined as only cardiovascular comorbidity [P = 0.12] and diabetes [P = 0.19]) in the patient-led group. Otherwise, groups were very well-matched. Most patients in the study had pharyngitis and bronchitis, limiting the inferences for patients with rhinosinusitis or exacerbation of mild-to-moderate COPD.

Applications for Clinical Practice
Delayed antibiotic prescribing for acute uncomplicated respiratory infections appears to be an acceptable strategy for reducing the overuse of antibiotics. As patients may lack knowledge of this prescribing strategy [9], clinicians may need to spend time explaining the concept. Using the term “back-up antibiotics” instead of “delayed prescription” [10] may help to increase patients’ understanding and acceptance.

—Ajay Dharod, MD

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Slow and Steady May Not Win the Race for Weight Loss Maintenance


Study Overview

Objective. To compare weight regain after rapid versus slower loss of an equivalent amount of weight.

Study design. Randomized clinical trial.

Setting and participants. This study took place in a single medical center in the Netherlands. Investigators recruited 61 adults (no age range provided) with body mass index (BMI) between 28–35 kg/m² and at a stable weight (no change of > 3 kg for the past 2 months) to participate in a weight loss study. Individuals with type 2 diabetes, dyslipidemia, uncontrolled hypertension, or liver, heart or kidney disease were excluded, as were those who were currently pregnant or reported consuming more than moderate amounts of alcohol.

Once consented, participants were randomized into one of 2 study arms. The rapid weight loss arm was prescribed a very-low-calorie diet (VLCD) with just 500 kcal/day (43% protein/43% carb/14% fat) for 5 weeks, after which they transitioned to a 4-week “weight stable” period, and then a 9-month follow-up period (overall follow-up time of ~11 months; 10 months after weight loss). In contrast, the slower weight loss arm was prescribed a low-calorie diet (LCD) with 1250 kcal/day (29% protein/48% carb/23% fat) for 12 weeks, after which they also transitioned to a 4-week weight stable period and 9 months of follow-up (overall follow-up time of ~13 months; 10 months after weight loss). VLCD (rapid weight loss) participants received 3 meal replacement shakes per day (totaling 500 kcal) during the weight loss period and were also told they could consume unlimited amounts of low-calorie vegetables. The LCD (slower weight loss) participants received 1 meal replacement shake per day during their 12 weeks of weight loss and were responsible for providing the remainder of their own meals and snacks according to guidelines from a study dietitian. Following active weight loss, both groups then shifted to higher-calorie, food-based diets during a “weight stable” 4-week period and were responsible during this time for providing all of their own food. The researchers do not specify the details of the diet composition for this weight stable period. Exposure to the registered dietitian was the same in both groups, with
5 consultations during weight loss (weekly for VLCD, presumably more spaced out for LCD) and 4 during weight stable period. No further diet advice or meal replacement support was given during the 9-month follow-up period, but participants came in for monthly weigh-ins.

Main outcome measure. The primary outcome measure was change in weight (ie, amount of weight regained) during the 9-month follow-up period, compared between groups using an independent samples t test. Additional biometric measures included change in waist circumference and changes in body composition. For the latter, the researchers used a “Bod Pod” to conduct air-displacement plethysmography and determine what percentage of an individual’s weight was fat mass (FM) versus lean mass/water (FFM [fat-free mass]). They then compared the amount of FFM lost between groups, again using the independent samples t test.

The researchers also collected information on self-reported physical activity (questionnaire) and self-reported history of weight cycling (number of times a participant had previously lost and regained at least 5 kg) prior to this study. These were not outcomes per-se, but were collected so that they could be examined as correlates of the biometric outcomes above, using Pearson and Spearman’s correlation coefficients.

Results. The LCD (n = 29) and VLCD (n = 28) groups were similar at baseline with no significant differences reported. Of the 61 individuals initially enrolled, 57 (93%) completed the study. Summary statistics are reported only for these 57 individuals. No imputation or other methods for handling missing data were used. There were slightly more women than men in the study (53% women); the average (SD) age was 51.8 (1.9) years in the LCD group and 50.7 (1.5) years in the VLCD group. Mean starting BMI was 31 kg/m² (31.3 [0.5] in LCD, 31.0 [0.4] in VLCD) and both groups had just under 40% body fat at baseline (39.9 [1.8] in LCD, 39.7 [1.5] in VLCD).

After 12 weeks of weight loss for LCD, or 5 weeks of weight loss for VLCD, both groups lost a similar amount of total weight (8.2 [0.5] kg in LCD vs. 9.0 [0.4] kg in VLCD), then had no significant changes in weight during the subsequent 4-week “weight stable” period. However, during the weight stable period VLCD patients had an average 0.8 (0.6) cm increase in waist circumference (a rebounding after a decrease of 7.7 cm during weight loss), while LCD patients on average had a continued decrease of 1.0 (0.5 cm) in waist circumference ($P = 0.003$).

There was no significant difference between groups for the primary outcome of weight regain during 9-months of follow-up (4.2 [0.6] kg regained for LCD, 4.5 [0.7] for VLCD; $P = 0.73$). The only significant correlates of weight regain were amount of FFM lost (more lean mass lost predicted more weight regain), and amount of physical activity reported during follow-up (more activity predicted less regain). Participant sex, age, starting BMI, history of weight cycling, and amount of weight lost did not correlate with rate of re-gain.

One area where there was a significant between-group difference, both after initial weight loss and persisting after the weight stable period, was in the amount of FFM lost (a rough approximation of lost lean mass, eg, muscle mass). VLCD participants had more FFM loss (1.6 [0.2] kg) than LCD participants (0.6 [0.2] kg) ($P < 0.01$) after active weight loss, and continued to have significantly more FFM loss (0.8 [0.2] kg vs. 0.2 [0.2] kg) after the 4-week weight stable period.

There were no between-group differences at the end of weight loss or at the end of follow-up for hip or waist circumference or for blood pressure.

Conclusion. The authors conclude that rate of weight loss does not affect one’s risk of weight regain after a diet, after a similar amount of weight has been lost.

Commentary

The failure of most diets to produce durable weight loss is a frustration for patients, clinicians, and researchers. In general, regardless of the composition of a diet, the majority of patients will regain some or all of their lost weight within several years after completing the diet. The reasons for weight regain are complex, and include reversion to old eating or physical activity behaviors but also a strong physiologic drive by the body to reverse weight loss that it perceives as a threat to health [1].

One area in diet research that has recently generated some controversy is whether or not rate of initial weight loss might impact a patient’s ability to maintain that weight loss, with the conventional wisdom (and national guidelines, in some cases), suggesting that slower weight loss is preferable to rapid weight loss for this reason [2]. A handful of studies have challenged this notion, however, and suggested that rapid weight loss does not necessarily
lead to greater weight regain [3,4]. Previous such studies, however, have not generally been designed to compare regain after equal amounts of weight loss, which may make their results more difficult to interpret.

The present study contributes another piece of evidence to the argument that rapid initial weight loss may not increase a patient’s risk of regain. This small randomized trial is timely and has several features that make it a unique contribution. First, the design of the study allowed for both groups, despite losing weight at very different rates, to reach the same amount of total weight loss before being followed forward in time. This made weight regain much easier to compare between groups during follow-up. Second, the study included measurement of changing body composition—ie, what kind of weight was being lost (fat vs. fat-free mass)—rather than just the total amount of weight. This allowed the researchers to present data for an outcome that is mechanistically related to metabolic rate (and therefore weight regain), and one that might have implications for longer-term health after rapid versus more moderate-pace weight loss.

Several aspects of the study design, however, may limit the impact of the findings. For example, in both arms, while a certain type of diet was “prescribed,” there is no comment about assessment of participant fidelity to the prescribed diet, and there is potential for very different levels of adherence between groups, especially in active weight loss, when basically all meals were provided to the VLCD arm, but LCD subjects were responsible for about 90% of their own meals. This could have led to larger discrepancies between prescribed and actual diet in the LCD arm relative to VLCD. Granted, the rate of weight loss was the exposure of interest, and that clearly varied between groups as expected, implying at least moderate fidelity to prescribed caloric content of each diet, but LCD subjects were responsible for about 90% of their own meals. This could have led to larger discrepancies between prescribed and actual diet in the LCD arm relative to VLCD. Granted, the rate of weight loss was the exposure of interest, and that clearly varied between groups as expected, implying at least moderate fidelity to prescribed caloric content of each diet, but how much protein vs. fat vs. carb was actually consumed by each group is not clear. Additionally, while 9 months of post weight-loss follow-up is certainly a good start in terms of follow-up duration, it may not have been sufficient to observe differences that would later emerge between the groups for weight regain. Other long-term weight loss maintenance studies have followed patients for several years or longer after initial weight loss [5].

Using data from all participants, the researchers reported that the amount of FFM an individual lost was a predictor of weight regain during follow-up. This finding is in keeping with the idea that more lean mass loss leads to lower metabolic rate and predisposes to weight regain (hence the conventional wisdom to avoid rapid weight loss with low-protein diets). In keeping with this theme, VLCD patients, whose protein intakes and activity levels were lower, did lose more FFM (ie, lean mass) than LCD patients. It was therefore surprising that in between-group analyses there was no statistical difference in weight regain. On some level, this raises concerns about the robustness of the overall finding. Perhaps with a larger sample, more precise measures of FFM lost (eg, with DEXA scanning instead of the “bod pod” or longer follow-up), this difference in lost lean mass between groups actually would have predicted greater weight regain for VLCD patients. The researchers attribute some of the FFM loss after the caloric restriction phase to decreased water and glycogen stores, rather than muscle mass, and speculate that this is why no impact on weight regain was seen between groups.

From a generalizability standpoint, there are important safety concerns with the use of VLCDs, aside from subsequent risk of weight regain, that are not addressed with this study. Many patients simply cannot tolerate a 500 kcal per day diet, including those with more severe obesity (who have higher daily energy requirements) or those with complicated chronic medical conditions who might be at higher risk of complications from such low energy intake. Accordingly, these kinds of patients were not included in this study, so it is not clear whether results might generalize to them.

Applications for Clinical Practice

Despite the conventional wisdom that slower weight loss may be more sustainable over time, several recent trials have suggested otherwise. Nonetheless, rapid weight loss produced with the use of VLCDs is not appropriate for every patient and must be carefully overseen by a weight management professional. Furthermore, rapid weight loss may place patients at increased risk of preferentially losing lean mass, which does correlate with risk of weight regain and could set them up for other health problems in the long-term. More studies are needed in this area before a definitive judgment can be made regarding the long term risks and benefits of rapid versus moderate-pace weight loss.

—Kristina Lewis, MD, MPH

References


Fruits But Not Vegetables Associated with Lower Risk of Developing Hypertension


Study Overview

Objective. To examine the association of individual fruit and vegetable intake with the risk of developing hypertension.

Design. Meta-analysis.

Setting and participants. Subjects were derived from the Nurses’ Health Study (n = 121,700 women, aged 30–55 years in 1976), the Nurses’ Health Study II (n = 116,430 women, aged 25–42 years in 1989), and the Health Professionals Follow-up Study (n = 51,529 men, aged 40–75 years in 1986). Participants returned a questionnaire every 2 years reporting a diagnosis of hypertension by a health care provider. Participants also answered qualitative–quantitative food frequency questionnaires (FFQs) every 4 years, reporting an intake of > 130 foods and beverages. Participants who reported a diagnosis of hypertension at the baseline questionnaire were excluded from the analysis.

Main outcome measures. Self-reported incident hypertension.

Results. Compared to participants whose consumption of fruits and vegetables was ≤ 4 servings/week, those whose intake was ≥ 4 servings/day had multivariable pooled hazard ratios for incident hypertension of 0.92 (95% confidence interval [CI], 0.87–0.97) for total whole fruit intake and 0.95 (CI, 0.86–1.04) for total vegetable intake. When individual fruit and vegetable consumption was analyzed, consumption levels of ≥ 4 servings/week (as opposed to < 1 serving/month) of broccoli, carrots, tofu or soybeans, raisins, and apples were associated with lower hypertension risk. String beans, brussel sprouts, and cantaloupe were associated with increased risk of hypertension.

Conclusion. The study findings suggested that greater long-term intake and increased consumption of whole fruits may reduce the risk of developing hypertension.

Commentary

Hypertension is a major risk factor for cardiovascular disease and a growing public health concern. Effective public health interventions that will lead to population-wide reductions in blood pressure are needed. The adoption of a healthy diet and low sodium intake is recommended by the American Heart Association in order to prevent hypertension in adults [1]. However, specific information about the benefits of long-term intake and individual foods is limited.

This study aimed to examine the association of individual fruit and vegetable intake with the risk of developing hypertension in 3 large prospective cohort studies in the United States. It was found that greater long-term intake and increased consumption of whole fruits may reduce risk of developing hypertension. Participants with higher fruit and vegetable intakes were more physically active, older, had higher daily caloric intakes, and were less likely to be smokers.
This study was novel in that it examined individual fruit and vegetable consumption. All 3 studies provided a large sample, which increased precision and power in the statistical analysis. Researchers were focused on establishing an association between the risk of hypertension and fruit and vegetable consumption; therefore, hazard ratios were presented and Cox regression and multivariate analysis were used, which are appropriate statistical methods for this type of study.

Some limitations should be mentioned. Blood pressure was not directly measured. Food intake was measured using a dietary questionnaire and may not have accurately represented actual intake. Also, participants were mostly non-Hispanic white men and women and other population groups were not well represented.

Applications for Clinical Practice
Reducing the risk for hypertension by increasing fruit consumption needs to be examined in other population groups and studies. In the meantime, clinicians can continue to recommend an eating plan that is rich in fruits, vegetables, and low-fat dairy products and reduced in saturated fat, total fat, and cholesterol.

—Paloma Cesar de Sales, BS, RN, MS

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Longer-Term Evidence Supporting Bariatric Surgery in Adolescents


Study Overview

Objective. To examine the efficacy and safety of weight-loss surgery in adolescents.

Design. Prospective observational study.

Setting and participants. Adolescents (aged 13–19 years) with severe obesity undergoing bariatric surgery at 5 U.S. hospitals and medical centers from March 2007 through February 2012. Participants were enrolled in the Teen-Longitudinal Assessment of Bariatric Surgery (Teen-LABS) study, a longitudinal prospective study that investigated the risks and benefits of adolescent bariatric surgery.

Main outcome measures. Data was collected on weight, comorbidities, cardiometabolic risk factors, nutritional status, and weight-related quality of life at research visits scheduled at 6 months, 1 year, 2 years, and 3 years post bariatric surgery. Researchers measured height and weight and blood pressure directly and calculated BMI. They assessed for comorbidities and cardiometabolic risk factors through urine and serum laboratory tests of lipids, glomerular filtration rate, albumin, glycated hemoglobin, fasting glucose level, and insulin. They assessed nutritional status with laboratory values for serum albumin, folate, vitamin B₁₂, 25-hydroxyvitamin D, parathyroid hormone, ferritin, transferrin, vitamin A, and vitamin B₉ erythrocyte transketolase. Researchers conducted interviews with the participants to collect information about subsequent medical or surgical procedures or, if participants missed a research visit, they obtained information through chart reviews. Finally, weight-related quality of life was assessed with the Impact of Weight on Quality of Life-Kids instrument, a validated self-report measure with 27 items divided into 4 subscales: physical comfort, body esteem, social life, and family relations.

Main results. Analysis was conducted on results for 228 of 242 participants who received Roux-en-Y gastric bypass (n = 161) and sleeve gastrectomy (n = 67). Results for 14 participants who received adjustable gastric banding were not included due to the small size of that group. Mean weight loss was 41 kg while mean height increased.
by only 0.51 cm. The mean percentage of weight loss was 27% overall and was similar in both groups, 28% in participants who underwent gastric bypass and 26% in those who underwent sleeve gastrectomy. At the 3-year visit, there were statistically significant improvements in comorbidities: 74% of the 96 participants with elevated blood pressure, 66% of the 171 participants with dyslipidemia, and 86% of the 36 participants with abnormal kidney function at baseline had values within the normal range. None of 3 participants with type 1 diabetes at baseline had resolution. However, 29 participants had type 2 diabetes (median glycolated hemoglobin 6.3% at baseline) and 19 of 20 of them for whom data were available at 3 years were in remission, with a median glycolated hemoglobin of 5.3%. There was an increase in the number of participants with micronutrient deficiencies at the 3-year mark: the percentage of participants with low ferritin levels increased from 5% at baseline to 57%, those with low vitamin B₁₂ increased from < 1% to 8%, and those with low vitamin A increased from 6% to 16%. During the 3-year follow-up period, 30 participants underwent 44 intrabdominal procedures related to the bariatric procedure and 29 participants underwent 48 endoscopic procedures, including stricture dilation (n = 11). Total scores on the Impact of Weight on Quality of Life-Kids instrument improved from a mean of 63 at baseline to 83 at 3 years.

Conclusion. Overall there were significant improvements in weight, comorbidities, cardiometabolic health, and weight-related quality of life. However, there were also risks, including increased micronutrient deficiencies and the need for subsequent invasive abdominal procedures.

Commentary

Pediatric obesity is one of the most significant health problems facing children and adolescents. According to the most recent estimates, 34.5% of all adolescents aged 12 to 19 years are overweight or obese [1]. Pediatric obesity has serious short- and long-term psychosocial and physical implications. Obese adolescents suffer from social marginalization, poor self-concept, and lower health-related quality of life [2,3]. They are at greater risk for metabolic syndrome, diabetes, obstructive sleep apnea, and conditions associated with coronary artery disease such as hyperlipidemia and hypertension [4,5]. Additionally, obesity in adolescence is strongly associated with early mortality and years of life lost [6].

Despite extensive research and public health campaigns, rates of adolescent obesity have not decreased since 2003 [1]. Diet and behavioral approaches have had limited success and are rarely sustained over time. Bariatric surgery is an approach that has been used safely and effectively in severely obese adults and is increasingly being used for adolescents as well [7]. The results of this study are encouraging in that they suggest that bariatric surgery is effective in adolescents, leading to significant and sustained weight loss over 3 years and improved cardiometabolic health and weight-related quality of life.

The procedures are not without risks as demonstrated by the findings of micronutrient deficiencies and the need for follow-up intraabdominal and endoscopic procedures. The number of follow-up procedures and the fact that they continued into the third year is concerning. More details about this finding, such as characteristics of participants who required them, would be helpful. Further research to determine risk factors associated with complications that require subsequent invasive procedures is important for developing criteria for selection of candidates for bariatric surgery. Additionally, there was no information on impact of the follow-up procedures on participants or the conditions that precipitated them. In addition, there was no information on physical sequelae that can cause ongoing distress for patients, eg, chronic abdominal cramping and pain. The authors measured weight-related quality of life but measuring overall quality of life post-procedure would have captured the impact of post-procedure dietary restrictions and any medical problems. Such data could be helpful in decision-making about the use of bariatric procedures in this population versus noninvasive approaches to management.

As the authors note, treating severe obesity in adolescence rather than waiting until adulthood may have significant implications for improved health in adulthood, particularly in preventing or reversing cardiovascular damage related to obesity-related cardiometabolic risk factors. However, what is not known yet is whether the positive outcomes, beginning with weight loss, are sustained through adulthood. This 3-year longitudinal study was the first to examine factors over an extended time period, however, considering the average life expectancy of an adolescent, it provides only a relatively short-term outlook. A longitudinal study that follows a cohort of adolescents from the time of the bariatric procedure into middle age or beyond is needed. Such a study would also provide needed information about the long-term...
The consequences of repeated intraabdominal procedures and the persistence or resolution of micronutrient deficiencies and their effects on health.

The strengths of this study are its prospective longitudinal design and its high rate of cohort completion (99% of participants remained actively involved, completing 88% of follow-up visits). As the authors note, the lack of a control group of adolescents treated with diet and behavioral approaches prevents any definitive statement about the benefits and risks compared to nonsurgical approaches. However, previous research indicates that weight loss is not as great nor sustained when nonsurgical approaches are used.

Applications for Clinical Practice
The use of bariatric surgery in adolescents is a promising approach to a major health problem that has proven resistant to concerted medical and public health efforts and the use of nonsurgical treatments. Ongoing longitudinal research is needed but the positive outcomes seen here—sustained significant weight loss, improvement in cardiometabolic risk factors and comorbidities, and improved weight-related quality of life—indicate that bariatric surgery is an effective treatment for adolescent obesity when diet and behavioral approaches have failed. However, the occurrence of post-procedure complications also highlights the need for caution. Clinicians must carefully weigh the risk-benefit ratio for each individual, taking into consideration the long-term implications of severe obesity, any potential for significant weight loss with diet and behavioral changes, and the positive outcomes of bariatric surgery demonstrated here.

—Karen Roush, PhD, RN

References