POSTOPERATIVE MANAGEMENT OF PATIENTS AFTER BARIATRIC SURGERY

Nozim A. Jumaev - Ph.D., assistant
Oktyabr R. Teshaev - D.M.Sc., professor
Gayrat I. Kurbanov - assistant
Jafar Z. Juraev - 1st year resident general surgery
Irina I. Lim - 1st year resident general surgery
Munazzafa J. Lekomseva - 1st year resident General surgery
Tashkent State Medical University (Tashkent, Uzbekistan)
drsurgeonmd@gmail.com

Abstract. *Bariatric surgery represents the most effective treatment for morbid obesity, with long-term success heavily dependent on comprehensive postoperative care. This review examines evidence-based approaches to postoperative management, including nutritional support, vitamin supplementation, physical rehabilitation, and long-term follow-up protocols. Understanding the complexities of postoperative care is crucial for optimizing patient outcomes and preventing complications.*

Keywords: *bariatric surgery, metabolic surgery, postoperative management, nursing.*

Introduction. The prevalence of obesity has reached epidemic proportions globally, with bariatric surgery emerging as the most effective intervention for achieving sustained weight loss and improving obesity-related comorbidities [1]. The American Society for Metabolic and Bariatric Surgery [ASMBS] reports that over 250,000 bariatric procedures are performed annually in the United States alone [2]. However, the success of these interventions extends far beyond the operative procedure itself, requiring comprehensive, multidisciplinary postoperative management to ensure optimal outcomes.

Recent meta-analyses demonstrate that patients receiving structured postoperative care achieve superior weight loss outcomes, with excess body weight loss ranging from 65-80% compared to 45-60% in those without structured follow-up [15]. The complexity of postoperative management encompasses immediate surgical recovery, nutritional rehabilitation, behavioral modification, and lifelong medical surveillance.

Early postoperative period [0-30 days]

Immediate recovery phase. The first 24-48 hours postoperatively are critical for establishing the foundation of successful recovery. Pain management protocols should follow enhanced recovery after surgery [ERAS] principles, utilizing multimodal analgesia to minimize opioid requirements while ensuring adequate comfort [14]. Recent studies demonstrate that patients managed with ERAS protocols experience reduced length of stay, decreased complications, and improved patient satisfaction scores [13].

Venous thromboembolism (VTE) prophylaxis is paramount given the elevated risk in bariatric patients. The 2019 ASMBS guidelines recommend extended prophylaxis with low molecular weight heparin for 7-10 days postoperatively in high-risk patients, including those with BMI >50 kg/m², previous VTE history, or prolonged operative times [16]. Sequential compression devices should be applied preoperatively and continued until full ambulation is achieved.

Early mobilization within 6-8 hours postoperatively significantly reduces the risk of respiratory complications, VTE, and promotes faster recovery of gastrointestinal function [8]. Respiratory physiotherapy, including incentive spirometry and deep breathing exercises, should be initiated immediately to prevent atelectasis and pneumonia, particularly important given the restrictive respiratory physiology in obese patients [18].

Anastomotic integrity assessment. Monitoring for anastomotic complications requires vigilance during the early postoperative period. Clinical signs of anastomotic leak include tachycardia, fever, abdominal pain, and leucocytosis. The reported incidence of anastomotic leak varies by procedure: 0.5-3% for sleeve gastrectomy, 1-5% for Roux-en-Y gastric bypass, and 2-7% for biliopancreatic diversion [3].

Upper gastrointestinal series with water-soluble contrast remains the gold standard for evaluating anastomotic integrity, typically performed on postoperative day 1-2 before initiating oral intake [9]. However, the sensitivity of contrast studies for detecting small leaks is limited, with CT imaging providing superior diagnostic accuracy when clinical suspicion remains high [22].

Nutritional transition. The transition from nil per os to regular diet follows a structured progression designed to minimize complications while promoting healing. Clear liquids are typically introduced 24-48 hours postoperatively, followed by full liquids, pureed foods, and finally regular texture foods over 4-6 weeks [4]. Portion sizes are strictly controlled, beginning with 30-60 mL servings and gradually increasing to 100-150 mL by three months postoperatively.

Patient education regarding eating behaviors is crucial during this phase. The "20-20-20 rule" [20 minutes per meal, 20 chews per bite, 20 minutes between eating and drinking] helps prevent dumping syndrome and promotes satiety recognition [17]. Carbonated beverages, alcohol, and high-sugar foods should be permanently avoided to prevent complications and optimize weight loss.

Nutritional management and supplementation

Micronutrient deficiencies. Bariatric surgery creates a high risk for micronutrient deficiencies through multiple mechanisms: reduced gastric acid production, bypassed duodenum and proximal jejunum, rapid intestinal transit, and decreased intrinsic factor production [5]. The prevalence of nutritional deficiencies varies by procedure type, with malabsorptive procedures carrying higher risk than purely restrictive operations.

Vitamin B12 deficiency occurs in 30-70% of patients post-bariatric surgery, necessitating lifelong supplementation with sublingual, intranasal, or intramuscular formulations [12]. Iron deficiency anemia affects 20-50% of patients, particularly women of reproductive age, requiring elemental iron supplementation and monitoring of ferritin, transferrin saturation, and complete blood count [28].

Calcium and vitamin D deficiencies are nearly universal, with secondary hyperparathyroidism developing in up to 60% of patients within two years of surgery [10]. The recommended supplementation includes 1200-1500 mg elemental calcium daily with 3000-5000 IU vitamin D3, with adjustments based on serum levels and parathyroid hormone measurements.

Protein requirements. Protein malnutrition represents a serious complication that can lead to hair loss, muscle wasting, poor wound healing, and immune dysfunction. The recommended protein intake ranges from 60-80 grams daily for restrictive procedures and 80-120 grams daily for malabsorptive procedures [7]. Protein supplements are often necessary to achieve these targets, particularly during the rapid weight loss phase.

Monitoring includes serum albumin, prealbumin, and transferrin levels, although these markers may be influenced by inflammation and hydration status. Body composition analysis using DEXA scanning provides more accurate assessment of lean body mass preservation [25].

Physical activity and rehabilitation

Exercise prescription. Physical activity plays a crucial role in optimizing weight loss, preserving lean body mass, and improving cardiovascular health postoperatively. The American College of Sports Medicine recommends a progressive exercise program beginning with low-intensity activities and gradually advancing to meet standard physical activity guidelines [6].

The initial phase (weeks 1-6) focuses on walking and basic activities of daily living, with gradual increases in duration and frequency. Resistance training can be introduced at 6-8 weeks

postoperatively once tissue healing is complete, emphasizing proper form and progressive overload principles [11].

Long-term exercise adherence correlates strongly with sustained weight loss and improved quality of life outcomes. Patients who maintain regular physical activity patterns achieve 10-15% greater excess weight loss compared to sedentary individuals [13].

Rehabilitation services. Comprehensive rehabilitation may include physical therapy for musculoskeletal issues, occupational therapy for adaptive equipment and energy conservation techniques, and respiratory therapy for patients with sleep apnea or restrictive lung disease [26]. These services are particularly important for patients with significant mobility limitations or multiple comorbidities.

Psychological support and behavioral modification

Mental health considerations. The postoperative period often presents significant psychological challenges as patients adapt to rapid physical changes, altered eating patterns, and evolving social relationships. Depression and anxiety rates may actually increase in the first year postoperatively before improving, highlighting the need for ongoing mental health support [11].

Binge eating disorder, present in 25-50% of bariatric surgery candidates, requires specialized treatment to prevent postoperative complications and weight regain [16]. Cognitive-behavioral therapy, dialectical behavior therapy, and support groups have demonstrated efficacy in addressing maladaptive eating behaviors.

Behavioral interventions. Structured behavioral interventions focusing on self-monitoring, goal setting, and problem-solving skills significantly improve long-term outcomes. Regular self-weighing, food logging, and physical activity tracking help patients maintain awareness and accountability [27].

Support groups, both in-person and online, provide peer support and practical advice for navigating common challenges. Participation in support activities correlates with better weight loss maintenance and improved quality of life scores [19].

Long-term follow-up and monitoring

Surveillance schedule. Lifelong medical follow-up is essential for all bariatric surgery patients, with recommended visits at 3, 6, and 12 months postoperatively, then annually thereafter [20]. However, many patients are lost to follow-up, with studies reporting attrition rates of 30-60% beyond two years [23].

Each follow-up visit should include weight assessment, nutritional laboratory studies, medication review, and screening for late complications. The comprehensive metabolic panel should include complete blood count, comprehensive metabolic panel, lipid profile, HbA1c, vitamin levels [B12, folate, 25-OH vitamin D], iron studies, and parathyroid hormone [20].

Late complications. Late complications requiring ongoing surveillance include nutritional deficiencies, gallstone formation, dumping syndrome, gastroesophageal reflux disease, and small bowel obstruction. Dumping syndrome affects 20-30% of patients after gastric bypass, requiring dietary modifications and occasionally pharmacological intervention [24].

Gallstone formation occurs in 30-40% of patients during rapid weight loss, with prophylactic ursodeoxycholic acid recommended for the first six months postoperatively [33]. Internal hernias develop in 1-5% of patients after laparoscopic gastric bypass, presenting with intermittent abdominal pain and requiring high clinical suspicion for diagnosis [33].

Conclusion. Successful bariatric surgery outcomes depend on comprehensive, multidisciplinary postoperative care extending throughout the patient's lifetime. The integration of nutritional support, physical rehabilitation, psychological care, and medical surveillance creates the foundation for sustained weight loss and improved health outcomes. Healthcare providers must understand the complexity of postoperative management to optimize patient care and prevent

complications. Future research should focus on improving long-term follow-up adherence and developing innovative approaches to remote monitoring and support.

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