



# BÖLÜM 13.1

## BARIATRİK CERRAHİDE ANESTEZİ

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### GİRİŞ

Dünya Sağlık Örgütü (DSÖ) obeziteyi, vücutta aşırı yağ birikmesi sonucu sağlığın bozulması olarak belirtti ve ilk kez 1998 de Ulusal Sağlık Enstitüleri (NIH) obeziteyi hastalık olarak tanımladı (1). Obezite, kişinin tüketebildiğinden fazla kalori almasıyla vücutta normalden fazla yağ depolanması sonucu oluşan proinflatuar multisistemik bir hastalıktır (2). Obezite kişiyi ve toplum sağlığını etkileyen ciddi bir hastalık olup yaşam süresinin uzaması, sedanter hayatın artmasıyla sıklıkla karşımıza çıkmaktadır. Bununla birlikte yaşam boyu mücadele, ek tedavi maliyetleri ve kontrol gerektirmektedir.

Obezite gelişiminde çoklu faktörler etkin olup; bunlardan başlıcaları genetik yatkınlıklar,

endokrin, nörolojik, psikolojik rahatsızlıklardır. Obezite tanısı koymak için çoğunlukla Vücut Kitle İndeksi (VKİ) hesaplanmaktadır. VKİ, vücut ağırlığının (kg), boyun (m) karesine bölünmesiyle hesaplanır (kg/m<sup>2</sup>). VKİ 25 altında ise normal kilolu, 25-30 arasında kilolu, 30'un üzerinde obezite, 40'ın üzerinde ise morbid obez olarak sınıflandırılır (1).

Obezite eskiden daha çok gelişmiş ülkelerde görülen ama artık günümüzde tüm ekonomik düzeyden ülkelerde karşılaşılan bir halk sağlığı sorunudur (3). Dünya Sağlık Örgütü (DSÖ) dünyada 1, 5 milyar obez hasta bulunduğunu ve en fazla hastanın Amerika Birleşik Devletlerinde görüldüğü bildirilmiştir (4, 5). Türkiye' de de her geçen gün obez kişi sayısı batılı ülkelere benzer şekilde artmaktadır (6).

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nılmaktadır Ameliyat sonrası süreçte anti-embolik çorap ya da basınç aletleri kullanmakla birlikte heparin tedavisi almak derin ven trombozundan korunmada etkili olacaktır (33, 34, 68).

## SONUÇ

Obezite tedavisi multidisipliner bir yaklaşım gerektirir. Cerrahi sonrası beslenme eğitimi, diyet ve egzersiz tedavinin bir parçasıdır. Günümüzde, riskleri olmasına rağmen tedavide anlamlı kilo kaybı cerrahi yöntemlerle sağlanabilmektedir (32, 34, 78). Başarılı bir sonuç için iyi bir cerrahinin yanında; preoperatif değerlendirme, uygun anestezi ajanı doğru ventilasyon modelleri ve postoperatif doğru analjezinin belirlenmesi son derece önemlidir.

## KAYNAKLAR

1. World Health Organization (1998) Obesity Preventing and Managing the Global Epidemic: Report of a WHO Consultation on Obesity, WHO/NUT/NCD/1998, The World Health Organization, Geneva.
2. WHO. (2015). Obesity and overweight. World health organization. <http://www.who.int/mediacentre/factsheets/fs311/en/index.html>. (Accessed 2015 january)
3. Blüher, M, Obesity: global epidemiology and pathogenesis, Nature reviews, Endocrinology, 2019, 15 (5), 288–298.
4. Obesity: preventing and managing the global epidemic: report of a WHO consultation. World Health Organ Tech Rep Ser. 2000; 894:1-253.
5. Branca F, Nikogosian H, Lobstein T. The Challenge of obesity in the WHO European Region and the Strategies for Response. Denmark, WHO, 2007.
6. Ural, D, Kılıçkap, M, Göksülük, H, et al, Türkiye'de obezite sıklığı ve bel çevresi verileri: Kardiyovasküler risk faktörlerine yönelik epidemiyolojik çalışmaların sistematik derleme, meta-analiz ve meta-regresyonu. Turk Kardiyoloji Dernegi Arsivi, 2018, 46 (7), 577–590.
7. Henderson JJ, Popat MT, Latto IP, et al. Difficult Airway Society guidelines for management of the unanticipated difficult intubation. Anaesthesia 2004;59 (7):675-94.
8. Andersen LH, Roving L, Olsen KS. GlideScope videolaryngoscope vs. Macintosh direct laryngoscope for intubation of morbidly obese patients: a randomized trial. Acta Anaesthesiol Scand 2011;55 (9):1090-7.
9. Gonzalez H, Minville V, Delanoue K, et al. The importance of increased neck circumference to intubation difficulties in obese patients. Anesth Analg. 2008;106: 1132-6.
10. Levitan RM, Mechem CC, Ochroch EA, et al. Head-elevated laryngoscopy position:improving laryngeal exposure during laryngoscopy by increasing head elevation. Ann Emerg Med. 2003; 41:322-30
11. Katz I, Stradling J, Slutsky AS, et al. Do patients with obstructive sleep apnea have thick necks? Am Rev Respir Dis 1990;141 (5 Pt 1):1228-31.
12. De Lucas Ramos P, Rodriguez Gonzalez-Moro JM, Rubio Socorro Y. Obesity and lung function. Arch Bronconeumol 2004;40 (5):27-31.
13. Jones RL, Nzekwu MM. The effects of body mass index on lung volumes. Chest 2006; 130 (3):827-33.
14. Martins AR, Nachbar RT, Gorjao R, et al. Mechanisms underlying skeletal muscle insulin resistance induced by fatty acids: importance of the mitochondrial function. Lipids Health Dis. 2012; 11:30.
15. Flynn C, Bakris GL. Interaction between adiponectin and aldosterone. Cardioresenal Med. 2011;1: 96-101.
16. Eckel RH, Grundy SM, Zimmet PZ. The metabolic syndrome. Lancet 2005;365 (9468):1415-28
17. Ito K, Date T, Kawai M et al. Morphological change of left atrium in obese individuals. Int J Cardiol 2011; 152 (1):117-9.
18. Wang TJ, Parise H, Levy D et al. Obesity and the risk of new-onset atrial fibrillation. JAMA 2004;292 (20):2471-7.
19. Adams JP, Murphy PG. Obesity in anaesthesia and intensive care. Br J Anaesth. 2000; 85:91-108.
20. Song YM, Sung J, Davey Smith G, et al. Body mass index and ischemic and hemorrhagic stroke; a prospective study in Koreanmen. Stroke 2004;35 (4):831-6.
21. Arslan M, Turgut HC. Obezitedeki fizyolojik ve farmakolojik değişiklikler. Türkiye Klinikleri J Anest Reanim-Special Topics. 2015; 8:1-10.
22. Nashar K, Egan BE. Relationship between chronic kidney disease and metabolic syndrome:current perspectives. Diabetes Metab Syndr Obes. 2014; 7:421-43.
23. Rosik CH. Psychiatric symptoms among prospective bariatric surgery patients: rates of prevalence and their relation to social desirability, pursuit of surgery, and follow-up attendance. Obes Surg 2005;15 (5):677-83.
24. Hampel H, Abraham NS, El-Serag HB. Metaanalysis: obesity and the risk for gastroesophageal reflux disease and its complications. Ann Intern Med 2005;143 (3):199-211.
25. Stampfer MJ, Maclure KM, Colditz GA, et al. Risk of symptomatic gallstones in women with severe obesity. Am J Clin Nutr 1992; (3):652-8.
26. Stephenson GD, Rose DP. Breast cancer and obesity: an update. Nutr Cancer 2003;45 (1):1-16
27. Schmandt RE, Iglesias D A, Co NN, et al. Understanding obesity and endometrial cancer risk: opportunities for prevention. Am J Obstet Gynecol 2011;205 (6):518-25.
28. Forbes GB, Welle SL. Lean body mass in obesity. Int J Obes 1983;7 (2):99-107.

29. Morrish GA, Pai MP, Green B. The effects of obesity on drug pharmacokinetics in humans. *Expert Opin Drug Metab Toxicol* 2011;7 (6):697-706.
30. Atak F, Işık B. Obez hastalarda genel anestezi. *Türkiye Klinikleri J Anest Reanim-Special Topics*. 2015; 8:18-23.
31. Michelle Li, Jeffrey A, Norton R, et al. *Essential Practice of Surgery*. Newyork: Springer 2003; 185-197.
32. Khwaja HA, Bonanomi G. Bariatric Surgery: Techniques, Outcome and Complications. *Current Anaesthesia & Critical Care* 2010; 21:31-38.
33. Barth M, Jenson C. Postoperative nursing care of gastric bypass patients. *American Journal of Critical Care* 2006;15 (4):378-388.
34. Harrington L. Postoperative care of patients undergoing bariatric surgery. *Medsurg Nursing* 2006;15 (6):357-363.
35. Kojima M, Hosoda H, Date Y, et al. Ghrelin is agrowth-hormone-releasing acylated pep-tide. *Nature*1999; 402:656-60.
36. Yorgancı K, Tirnaksız MB. Morbid obezitenin cerrahi tedavisi. *Hacettepe Tıp Dergisi* 2007; 38:218-222.
37. Schauer PR, Burguera B, Ikramuddin S, et al. Effect of laparoscopic Roux-en-Y gastric bypass on type 2 diabetes mellitus. *Ann Surg* 2003; 238:467-8.
38. American Academy of Sleep Medicine. *International Classification of Sleep Disorders, 3rd ed*. Darien, IL, American Academy of Sleep Medicine, 2014.
39. Kaw R, Hernandez AV, Walker E, et al. Determinants of hypercapnia in obese patients with obstructive sleep apnea: a systematic review and metaanalysis of cohort studies. *Chest*. 2009; 136:787-96.
40. Mokhlesi B, Tulaimat A, Faibussowitsch I, et al. Obesity hypoventilation syndrome: prevalence and predictors in patients with obstructive sleep apnea. *Sleep Breath*. 2007; 11:117-24.
41. Jones RL, Nzekwu MM. The effects of body mass index on lung volumes. *Chest* 2006; 130 (3):827-33.
42. Shah U, Wong J, Wong D et al. Preoxygenation and intraoperative ventilation strategies in obese patients: a comprehensive review. *Curr Opin Anesthesiol* 2016, 29:109-118
43. Bazurro S, Ball L, Pelosi P. Perioperative management of obese patient. *Curr Opin Crit. care*. 2018 Dec;24 (6):560-567.
44. Sahin T, Balaban O, Sahin L, et al. A randomized controlled trial of preinsertion ultrasound guidance for spinal anaesthesia in pregnancy: outcomes among obese and lean parturients. ultrasound for spinal anaesthesia in pregnancy. *J Anesth*. 2014; 28:413-9.
45. Fierabracci P, Pinchera A, Martinelli S, et al. Prevalence of endocrine diseases in morbidly obese patients scheduled for bariatric surgery: beyond diabetes. *Obes Surg* 2011;21 (1):54-60.
46. DeMaria EJ, Portenier D, Wolfe L. Obesity surgery mortality risk score: proposal for a clinically useful score to predict mortality risk in patients undergoing gastric bypass. *Surg Obes Relat Dis* 2007;3 (2):134-40.
47. Poirier P, Alpert MA, Fleisher LA, et al. Cardiovascular evaluation and management of severely obese patients undergoing surgery: a science advisory from the American Heart Association. *Circulation* 2009;120 (1):86-95.
48. Zimmerman M, Francione-Witt C, Chelminski I, et al. Presurgical psychiatric evaluations of candidates for bariatric surgery, part 1: reliability and reasons for and frequency of exclusion. *J Clin Psychiatry* 2007; 68 (10): 1557-62.
49. Klein S, Burke LE, Bray GA et al. Clinical implications of obesity with specific focus on cardiovascular disease: a statement for professionals from the American Heart Association Council on Nutrition, Physical Activity, and Metabolism: endorsed by the American College of Cardiology Foundation. *Circulation* 2004; 110 (18): 2952-67.
50. Afolabi BA, Novaro GM, Szomstein S et al. Cardiovascular complications of obesity surgery in patients with increased preoperative cardiac risk. *Surg Obes Relat Dis* 2009; 5 (6): 653-6.
51. Feras M, Almarshad I, Mosaad Almegren 2, Turki Alshuaibi et al. Thromboprophylaxis after bariatric surgery. *Blood Res* 2020;55:44-48.
52. Domi R, Laho H. Anesthetic challenges in the obese patient. *J Anesth*. 2012; 26:758-65.
53. Jayaraman L, Sinha A, Punhani D. A comparative study to evaluate the effect of intranasal dexmedetomidine versus oral alprazolam as a premedication agent in morbidly obese patients undergoing bariatric surgery. *J Anaesthesiol Clin Pharmacol*. 2013; 29:179.
54. Karkouti K, Rose DK, Wigglesworth D et al. Predicting difficult intubation: a multivariable analysis. *Can J Anaesth* 2000;47 (8):730-9.
55. Gonzalez H, Minville V, Delanoue K, et al. The importance of increased neck circumference to intubation difficulties in obese patients. *Anesth Analg*. 2008;106 (4):1132-6.
56. Wadhwa A, Singh PM, Sinha AC. Airway management in patients with morbid obesity. *Int Anesthesiol Clin*. 2013; 51:26-40.
57. Langeron O, Birenbaum A, Le Saché F et al. Airway management in obese patient. *Minerva Anesthesiol* 2014;80 (3):382-92.
58. Lemmens HJ, Brodsky JB. The dose of succinylcholine in morbid obesity. *Anesth Analg* 2006;102 (2):438-42.
59. Horvei LD, Braekkan SK, Mathiesen EB, et al. Obesity measures and risk of venous thromboembolism and myocardial infarction. *Eur J Epidemiol*. 2014; 29:821-30.

60. Lemmens HJ. Perioperative pharmacology in morbid obesity. *Curr Opin Anaesthesiol*. 2010; 23:485-91.
61. Cork RC, Vaughan RW, Bentley JB. General anesthesia for morbidly obese patients: an examination of postoperative outcomes. *Anesthesiology* 1981;54 (4):310-3.
62. Torri G, Casati A, Albertin A, et al. Randomized comparison of isoflurane and sevoflurane for laparoscopic gastric banding in morbidly obese patients. *J Clin Anesth* 2001;13 (8):565-70.
63. Nguyen NT, Lee SL, Goldman C, et al. Comparison of pulmonary function and postoperative pain after laparoscopic versus open gastric bypass: a randomized trial. *J Am Coll Surg* 2001;192:469-476.
64. Aldenkortt M, Lysakowski C, Elia N, et al. Ventilation strategies in obese patients undergoing surgery: a quantitative systematic review and meta-analysis. *Br J Anaesth*. 2012;109:493-502.
65. Gaszynski T, Szewczyk T, Gaszynski W. Randomized comparison of sugammadex and neostigmine for reversal of rocuronium-induced muscle relaxation in morbidly obese undergoing general anaesthesia. *Br J Anaesth*. 2012; 108:236-9.
66. Grindel ME, Grindel CG. Nursing care of the person having bariatrics surgery. *Medsurg Nursing* 2006;15 (3):129-145.
67. Smeltzer SC, Bare BG, Hinkle JL, et al. Gastrointestinal intubation and special nutritional modalities. *Textbook of Medical-Surgical Nursing*. Philadelphia: Lippicott Williams & Wilkins 2008; 1203-1227.
68. Voelker M. Assessing quality of life in gastric bypass clients. *Journal of PeriAnesthesia Nursing* 2004;19 (2):89-104.
69. Colter J. Obesity surgery. *Plastic Surgical Nursing* 2004;24 (3):95-98.
70. Von Ungern-A, Sternberg BS, Regli A, et al. Effect of obesity and thoracic epidural analgesia on perioperative spirometry. *Br J Anaesth* 2005;94 (1):121-7.
71. Alvarez A, Singh PM, Sinha AC. Postoperative analgesia in morbid obesity. *Obes Surg*. 2014;24 (4):652-9.
72. Zotou A, Siampalioti A, Tagari P, et al. Does epidural morphine loading in addition to thoracic epidural analgesia benefit the postoperative management of morbidly obese patients undergoing open bariatric surgery? A pilot study. *Obes Surg* 2014;24 (12):2099-108.
73. Anderson MA, Gan S. Lan, Fanelli Robert D et al. The bariatric surgery patient. *American Society for Gastrointestinal Endoscopy (ASGE)* 2008;68 (1):1-10.
74. Lewandowski K, Lewandowski M. Intensive care in the obese. *Best Pract Res Clin Anaesthesiol* 2011; 25 (1): 95-108.
75. Vasquez TL, Hoddinott K. A potential complication of bi-level positive airway pressure after gastric bypass surgery. *Obes Surg* 2004; 14:282-284.
76. Jensen C, Trian T, Lewis C et al. Postoperative CPAP and BiPAP use can be safely omitted after laparoscopic Roux-en-Y gastric bypass. *Surg Obes Relat Dis* 2008; 4:512-514.
77. Ramirez A, Lalor PF, Szomstein S, et al. Continuous positive airway pressure in immediate postoperative period after laparoscopic Roux-en-Y gastric bypass: Is it safe? *Surg Obes Relat Dis* 2009; 5:544-546.
78. Korenkov M, Sauerland S, Junginger T. Obezite cerrahisi. *Current Opinion in Gastroenterology* 2005;1 (1):36-41.