

## BÖLÜM 22

# KALP DIŐI CERRAHİLERDE KARDİYOVASKÜLER DEĞERLENDİRME

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## GİRİŐ

**Anamnez:** Hastalar kardiyak hastalıklar (iskemik kalp hastalığı, kardiyomiyopati, valvüler patolojiler) ve kardiyovasküler hastalıklar yönünden risk oluşturacak diyabet, böbrek yetmezliği, serebrovasküler hastalık ve periferik arter hastalığı yönünden değerlendirilmelidir. Geçirilmiş kardiyak cerrahi, perkütan koroner anjiyografi ve implante edilmiş kardiyovasküler cihazın mevcudiyeti sorulmalıdır. Senkop, göğüs ağrısı ve nefes darlığı gibi semptomlar sorgulanmalı ve hastaların efor kapasitesi değerlendirilmelidir.

**Fonksiyonel Kapasite:** Henüz tanı konulmamış kardiyovasküler hastalığı bulunan hastaların, preoperatif dönemde belirlenmesinde fonksiyonel kapasitenin değerlendirilmesi önem taşımaktadır. Nefes darlığı, baş dönmesi ve göğüs ağrısı gibi semptomlar olmaksızın, 4 metabolik eşdeğer (MET) düzeyinde (örnek; 2 kat merdiven çıkabilme) egzersiz yapabilme durumu değerlendirilmelidir. Düşük fonksiyonel kapasite perioperatif komplikasyonlarla ilişkilidir. Fonksiyonel kapasitesi <4MET olan hastaların, perioperatif kardiyovasküler komplikasyon riskinin 2 kat fazla olduğu belirtilmektedir (1).

**Fizik Muayene:** Akciğer ve kalp oskültasyonu, pretibial ödem, nabız muayenesi, batin muayenesi ve tansiyon ölçümü yapılmalıdır. Akciğer oskültasyonu ile belirlenen ral, ekstremitte ödemi, kardiyak üfürüm, frotman, batin muayenesi ile belirlenen hepatik konjesyon ve nabız muayenesiyle fark edilen aritmi kardiyovasküler hastalıklar yönünden uyarıcıdır.

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## KAYNAKLAR

1. Reilly DF, McNeely MJ, Doerner D, et al. Self-reported exercise tolerance and the risk of serious perioperative complications. *Arch Intern Med.* 1999;159(18):2185-2192.
2. Ford MK, Beattie WS, Wijeyesundera DN. Systematic review: prediction of perioperative cardiac complications and mortality by the revised cardiac risk index. *Ann Intern Med.* 2010;152(1):26-35.
3. Smilowitz NR, Berger JS. Perioperative cardiovascular risk assessment and management for noncardiac Surgery: A review. *JAMA.* 2020 Jul 21;324(3):279-290.
4. Smilowitz NR, Gupta N, Ramakrishna H, Guo Y, Berger JS, Bangalore S. Perioperative major adverse cardiovascular and cerebrovascular events associated with noncardiac surgery. *JAMA Cardiol.* 2017;2(2):181-187.
5. YILDIZ, Banu Şahin; GÜRSOY, Mustafa Ozan. Kalp Dışı Cerrahi Girişim Uygulanacak Kalp Hastalarında Preoperatif Değerlendirme.
6. Poldermans D, Bax JJ, Boersma E, De Hert S, Eeckhout E, Fowkes G, et al. Task Force for Preoperative Cardiac Risk Assessment and Perioperative Cardiac Management in Non-cardiac Surgery; European Society of Cardiology (ESC), Guidelines for pre-operative cardiac risk assessment and perioperative cardiac management in non-cardiac surgery. *Eur Heart J* 2009;30:2769-812.
7. Rabbitts JA, Nuttall GA, Brown MJ, Hanson AC, Oliver WC, Holmes DR, et al. Cardiac risk of noncardiac surgery after percutaneous coronary intervention with drug-eluting stents. *Anesthesiology* 2008;109:596-604.
8. Vicenzi MN, Meislitz T, Heitzinger B, et al. Coronary artery stenting and non-cardiac surgery-a prospective outcome study. *Br J Anesth* 2006;96(6):686-693.
9. Mandolini C, Tornini A, Borgia MC. About cardiovascular risk in non-cardiac surgery. *Ann Ital Med Int* 2004;19:262-268.
10. Kazmers A, Cerqueira MD, Zierler RE. Perioperative and late outcome in patients with left ventricular ejection fraction of 35% or less who require major vascular surgery. *J Vasc Surg* 1988;8:307-15.
11. Kertai MD, Boersman E, Bax JJ, et al. A meta-analysis comprising the prognostic accuracy of six diagnostic test for predicting perioperative cardiac risk in patients undergoing major vascular surgery. *Heart* 2003;89:1327-1334.
12. Bhatia RS, Tu JV, Lee DS, Austin PC, Fang J, Haouzi A, et al. Outcome of heart failure with preserved ejection fraction in a population-based study. *N Engl J Med* 2006;355:260-9.
13. Feringa HH, Bax JJ, Schouten O, Poldermans D. Protecting the heart with cardiac medication in patients with left ventricular dysfunction undergoing major noncardiac vascular surgery. *Semin Cardiothorac Vasc Anesth* 2006;10:25-31.
14. Kristensen SD, Knuuti J, Saraste A, Anker S, Botker HE, Hert SD, et al. "2014 ESC/ESA Kalp Dışı Cerrahi Kılavuzu: Kardiyovasküler değerlendirme ve yönetim".
15. Howell SJ, Sear JW, Foe" x P. Hypertension, hypertensive heart disease and peri-operative cardiac risk. *Br J Anaesth* 2004;92:570-583.
16. Casadei B, Abuzeid H. Is there a strong rationale for deferring elective surgery in patients with poorly controlled hypertension? *J Hypertens* 2005;23:19-22.
17. Mancia G, Fagard R, Narkiewicz K, Redon J, Zanchetti A, Bo" hmMet al. 2013 ESH/ESC guidelines for the management of arterial hypertension: the Task Force for the Management of Arterial Hypertension of the European Society of Hypertension (ESH) and of the European Society of Cardiology (ESC). *Eur Heart J* 2013;34:2159-2219.
18. Kihara S, Brimacombe J, Yaguchi Y, Watanabe S, Taguchi N, Komatsuzaki T. Hemodynamic responses among three tracheal intubation devices in normotensive and hypertensive patients. *Anesth Analg* 2003;96:890-895.
19. Charlson ME, MacKenzie CR, Gold JP, Ales KL, Topkins M, Shires GT. Intraoperative blood

- pressure. What patterns identify patients at risk for postoperative complications? *Ann Surg* 1990;212:567-580.
20. Weksler N, Klein M, Szendro G, Rozentsveig V, Schily M, Brill S, et al. The dilemma of immediate preoperative hypertension: To treat and operate, or to postpone surgery? *J Clin Anesth* 2003;15:179-83.
  21. Mancía G, De Backer G, Dominiczak A, Cifkova R, Fagard R, Germano G, et al. The Task Force for the management of arterial hypertension of the European Society of Hypertension, the Task Force for the management of arterial hypertension of the European Society of C. 2007 Guidelines for the management of arterial hypertension: The Task Force for the Management of Arterial Hypertension of the European Society of Hypertension (ESH) and of the European Society of Cardiology (ESC). *Eur Heart J* 2007;28:1462-536.
  22. Balser JR, Martinez EA, Winters BD, PerduePW, ClarkeAW, HuangWZ et al. betaadrenergic blockade accelerates conversion of post-operative supraventricular tachyarrhythmias. *Anesthesiology* 1998;89:1052-1059.
  23. Bayliff CD, Massel DR, Inculet RI, Malthaner RA, Quinton SD, Powell FS, et al. Propranolol for the prevention of postoperative arrhythmias in general thoracic surgery. *Ann Thorac Surg* 1999;67:182-6.
  24. Zipes DP, Camm AJ, Borggrefe M, Buxton AE, Chaitman B, Fromer M, et al. ACC/AHA/ESC 2006 guidelines for management of patients with ventricular arrhythmias and the prevention of sudden cardiac death: A report of the American College of Cardiology/American Heart Association Task Force and the European Society of Cardiology Committee for Practice Guidelines (Writing Committee to Develop Guidelines for Management of Patients with Ventricular Arrhythmias and the Prevention of Sudden Cardiac Death). *J Am Coll Cardiol* 2006;48:247-346.
  25. Vardas PE, Auricchio A, Blanc JJ, Daubert JC, Drexler H, Ector H, et al. Guidelines for cardiac pacing and cardiac resynchronization therapy: The Task Force for Cardiac Pacing and Cardiac Resynchronization Therapy of the European Society of Cardiology. Developed in collaboration with the European Heart Rhythm Association. *Eur Heart J* 2007;28:2256-95.
  26. Eagle KA, Boucher CA: Cardiac risk of noncardiac surgery. *N Engl J Med*, 1989; 321:1330
  27. AYŞAN, E., KAYGUSUZ, O. D. A., & KALEL, O. E. Özgül Hastalıklarda Preoperatif Değerlendirme. *İstanbul Tıp Dergisi* 1998; 3: 42-49.
  28. Healey JS, Merchant R, Simpson C, Tang T, Beardsall M, Tung S et al. Canadian Cardiovascular Society/Canadian Anesthesiologists' Society/Canadian Heart Rhythm Society joint position statement on the peri-operative management of patients with implanted pacemakers, defibrillators, and neurostimulating devices. *Can J Cardiol* 2012;28:141-151.
  29. Madigan JD, Choudhri AF, Chen J, Spotnitz HM, Oz MC, Edwards N. Surgical management of the patient with an implanted cardiac device: implications of electromagnetic interference. *Ann Surg* 1999;230:639-47.
  30. Nishimura RA, Otto CM, Bonow RO, Carabello BA, Erwin JP 3rd, Fleisher LA, Jneid H, Mack MJ, McLeod CJ, O'Gara PT, Rigolin VH, Sundt TM 3rd, Thompson A. 2017 AHA/ACC Focused Update of the 2014 AHA/ACC Guideline for the management of patients with valvular heart disease: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. *Circulation*. 2017 Jun 20;135(25):e1159-e1195.
  31. Chaudhry W, Cohen MC. Cardiac screening in the noncardiac surgery patient. *Surg Clin North Am*. 2017 Aug;97(4):717-732.
  32. Agarwal S, Rajamanickam A, Bajaj NS, Griffin BP, Catacutan T, Svensson LG, Anabtawi AG, Tuzcu EM, Kapadia SR. Impact of aortic stenosis on postoperative outcomes after noncardiac surgeries. *Circ Cardiovasc Qual Outcomes*. 2013 Mar 1;6(2):193-200.
  33. Fleisher LA, Fleischmann KE, Auerbach AD, et al. 2014 ACC/AHA guideline on perioperative cardiovascular evaluation and management of patients undergoing noncardiac surgery: a report of the American College of Cardiology/American Heart Association Task Force on practice guide- lines. *J Am Coll Cardiol* 2014; 64:e77-137.

34. Bajaj NS, Agarwal S, Rajamanickam A, et al. Impact of severe mitral regurgitation on postoperative out-comes after noncardiac surgery. *Am J Med* 2013;126: 529–35.
35. Lai HC, Lai HC, Lee WL, et al. Impact of chronic advanced aortic regurgitation on the perioperative outcome of noncardiac surgery. *Acta Anaesthesiol Scand* 2010; 54:580–8.
36. Bihorac A, Yavas S, Subbiah S, Hobson CE, Schold JD, Gabrielli A et al. Longterm risk of mortality and acute kidney injury during hospitalization after major surgery. *Ann Surg* 2009;249:851–858.
37. Kheterpal S, Tremper KK, Heung M, Rosenberg AL, Englesbe M, Shanks AM et al. Development and validation of an acute kidney injury risk index for patients undergoing general surgery: results from a national data set. *Anesthesiology* 2009;110:505–515.
38. Kertai MD, Boersma E, Bax JJ, van den Meiracker AH, van Urk H, Roelandt JR, et al. Comparison between serum creatinine and creatinine clearance for the prediction of postoperative mortality in patients undergoing major vascular surgery. *Clin Nephrol* 2003;59:17-23.
39. Fleisher, Lee A., et al. “ACC/AHA 2007 guidelines on perioperative cardiovascular evaluation and care for noncardiac surgery: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (Writing Committee to Revise the 2002 Guidelines on Perioperative Cardiovascular Evaluation for Noncardiac Surgery).” *Circulation* 2007;116.17; e418-e500.
40. WILSON, William C.; BENUMOF, Jonathan L.; MILLER, R. D. An-esthesia for thoracic surgery. *Miller’s anesthesia*, 6th edn. New York: Elsevier Churchill Living-stone, 2005: 1911-4.
41. SMETANA, Gerald W.; LAWRENCE, Valerie A.; CORNELL, John E. Preoperative pulmonary risk stratification for noncardiothoracic surgery: systematic review for the American College of Physicians. *Annals of internal medicine*, 2006, 144.8: 581-595.
42. Flu WJ, van Kuijk JP, Chonchol M, et al. Timing of pre-operative beta-blocker treatment in vascular surgery patients: influence on post-operative outcome. *J Am Coll Cardiol*. 2010;56(23):1922-1929.
43. Lindenauer PK, Pekow P, Wang K, Gutierrez B, Benjamin EM. Lipid-lowering therapy and in-hospital mortality following major noncardiac surgery. *JAMA*. 2004;291(17):2092-2099.
44. Berwanger O, de Barros E Silva PG, Barbosa RR, et al; LOAD Investigators. Atorvastatin for high-risk statin-naïve patients undergoing noncardiac surgery: the Lowering the Risk of Operative Complications Using Atorvastatin Loading Dose (LOAD) randomized trial. *Am Heart J*. 2017;184:88- 96.
45. Tafur A, Douketis J. Perioperative management of anticoagulant and antiplatelet therapy. *Heart*. 2018 Sep;104(17):1461-1467.
46. Douketis JD, Spyropoulos AC, Kaatz S, et al. Perioperative bridging anticoagulation in patients with atrial fibrillation. *N Engl J Med* 2015;373:823–33.
47. Türk anesteziyoloji ve reanimasyon derneği, antitrombotik ve trombolitik tedavi alan hastada reyonel anestezi, 2016 kılavuzu