

## KORONER ARTER BY-PASS CERRAHİSİ SONRASINDA GELİŞEN KOMPLİKASYON YÖNETİMİNDE EKOKARDİYOGRAFINİN YERİ

Sevil GÜLAŞTI<sup>1</sup>

### GİRİŞ

Koroner arter by-pass greftleme (CABG), Amerika Birleşik Devletleri'nde yıllık olarak yaklaşık 200.000 prosedür ve Batı Avrupa'da 200.000 kişi başına 62 insidans ile en sık yapılan operasyonlardan biridir (1). Elektif hastalarda %1-2 günlük mortalite oranına sahip nispeten güvenli bir prosedür olmasına rağmen oldukça karmaşık bir ameliyattır ve bir takım komplikasyonlarla ilişkilendirilmiştir (2). Son dönemde perkütan koroner girişim yöntemlerindeki gelişmeler ile koroner arter by-pass cerrahisi daha yüksek riskli hastalara yapılmaya başlamıştır ve buna bağlı olarak postoperatif komplikasyonlarda artmaktadır. Özellikle ilk bir haftada kanama ve greft oklüzyonuna bağlı kardiyak komplikasyonlar mortalite ve morbiditenin önemli bir nedenidir. Ekokardiyografi; bu hastalarda hasta başı uygulanabilir, tekrarlanabilir, hızlı ve non invaziv olması nedeniyle bize yol göstericidir. Hastaların tanısında olduğu kadar tedaviye yanıt ve prognozda da önemli bir yere sahiptir. Bu hastalarda cerrahinin başarısının yanı sıra komplikasyon geliştiğinde hızlı tanı ve tedavi mortalite ve morbiditenin azaltılmasında önemli bir yer tutmaktadır.

### OLGU

Koroner arter by-pass operasyonu geçirmiş 62 yaşında bayan hasta postoperatif 5. günde servis takibinde izlenirken; hastada nefes darlığı, çarpıntı şikayeti başlamıştır. Hasta daha önceden hipertansiyon ve kronik böbrek yetersizliği ile takiplidir. Hastanın yapılan fizik muayenesinde taşikardi, ortopne ve kalp sesleri derinden geliyordu. Hastanın ekspiryumunda sistolik tansiyonu 98 mmHG iken inspirmyumunda 70 mmHg saptanması ile pulsus paradoks paterni izlendi. Hasta yoğun bakım izlemine alınarak hızlıca ekokardiyografi ile değerlendirme yapıldı. Ekokardiyografide sol ventrikül (LV) lateral duvar komşuluğunda 28mm posterior duvar komşuluğunda ise 33 mm miktarında diyastolde bası bulgusu yaratan sağ ventrikül duvar komşuluğunda ise izlenmeyen lokalize sıvı saptandı. Mitral kapak akım hızında inspirasyonda belirgin azalma saptandı. Çekilen akciğer filminde su şişesi görünümü mevcuttu. Hastaya hızlıca cerrahi drenaj planlandı ve cerrahi olarak 800ml drenaj yapıldı. Hasta postoperatif dönemde hem klinik hemde hemodinamik olarak stabilize edildi ve postoperatif 10. Günde externe edildi.

<sup>1</sup> Uzm. Dr. Sevil GÜLAŞTI, Bursa Çekirge Devlet Hastanesi, Kardiyoloji Bölümü drsevilonay@hotmail.com

## KAYNAKLAR

- Melly L, Torregrossa G, Lee T, Jansens JL, Puskas JD. Fifty years of coronary artery bypass grafting. *J Thorac Dis.* 2018;10(3):1960-1967. doi:10.21037/jtd.2018.02.43.
- Selim M. Perioperative stroke. *N Engl J Med.* 2007;356(7):706-713. doi:10.1056/NEJMra062668.
- Lomivorotov VV, Efremov SM, Kirov MY, Fominskiy AV, Karaskov AM. Low-cardiac-output syndrome after cardiac surgery. *J Cardiothorac Vasc Anesth.* 2017; 31: 291-308.
- Sa MP, Nogueira JR, Ferraz PE, Figueiredo OJ, Cavalcante WC, Cavalcante TC, et al. Risk factors for low cardiac output syndrome after coronary artery bypass grafting surgery. *Rev Bras Cir Cardiovasc.* 2012; 27: 217-223.
- Algarni KD, Maganti M, Yau TM. Predictors of low cardiac output syndrome after isolated coronary artery bypass surgery: trends over 20 years. *The Annals of thoracic surgery.* 2011;92(5):1678-84. Epub 2011/09/24
- Denault AY, Couture P, Beaulieu Y, Haddad F, Deschamps A, Nozza A, et al. Right Ventricular Depression After Cardiopulmonary Bypass for Valvular Surgery. *Journal of cardiothoracic and vascular anesthesia.* 2015;29(4):836-44. Epub 2015/05/16.
- Shi Y, Denault AY, Couture P, Butnaru A, Carrier M, Tardif JC. Biventricular diastolic filling patterns after coronary artery bypass graft surgery. *The Journal of thoracic and cardiovascular surgery.* 2006;131(5):1080-6. Epub 2006/05/09
- Flynn BC, Spellman J, Bodian C, Moitra VK. Inadequate visualization and reporting of ventricular function from transthoracic echocardiography after cardiac surgery. *Journal of cardiothoracic and vascular anesthesia.* 2010;24(2):280-4. Epub 2009/10/17.
- Landoni G, Lomivorotov VV, Alvaro G, Lobreglio R, Pisano A, Guarracino F, et al. Levosimendan for Hemodynamic Support after Cardiac Surgery. *N Engl J Med.* 2017;376(21):2021-31. Epub 2017/03/23
- Desai AS, Jarcho JA. Levosimendan for the Low Cardiac Output Syndrome after Cardiac Surgery. *The New England journal of medicine.* 2017;376(21):2076-8. Epub 2017/05/26
- Mebazaa A, Tolppanen H, Mueller C, Lassus J, DiSomma S, Baksyte G, et al. Acute heart failure and cardiogenic shock: a multidisciplinary practical guidance. *Intensive care medicine.* 2016;42(2):147-63. Epub 2015/09/16.
- Zarragoikoetxea, Iratxe; Vicente, Rosario; Pajares, Azucena; Carmona, Paula; Lopez, Marta; Moreno, Ignacio; Argente, Pilar; Hornero, Fernando; Valera, Francisco; Aguero, Jaume. Quantitative Transthoracic Echocardiography of the Response to Dobutamine in Cardiac Surgery Patients With Low Cardiac Output Syndrome. *J Cardiothorac Vasc Anesth.* 2020 Jan;34(1):87-96.
- Yau JM, Alexander JH, Hafley G, Mahaffey KW, Mack MJ, Kouchoukos N, et al. Impact of perioperative myocardial infarction on angiographic and clinical outcomes following coronary artery bypass grafting (from Project of Ex-vivo Vein graft ENgineering via Transfection [PREVENT] IV). *Am J Cardiol.* 2008; 102: 546-551.
- Pretto P, Martins GF, Biscaro A, Kruczan DD, Jessen B. Perioperative myocardial infarction in patients undergoing myocardial revascularization surgery. *Rev Bras Cir Cardiovasc.* 2015; 30: 49-54.
- Thygesen K, Alpert JS, Jaffe AS, Simoons ML, Chaitman BR, White HD; Joint ESC/ACCF/AHA/WHF Task Force for the Universal Definition of Myocardial. *Eur Heart J.* 2012;33:2551-67.
- Windecker S, Kolh P, Alfonso F, Alfonso F, et al. 2014 ESC/EACTS Guidelines on myocardial revascularization: The Task Force on Myocardial Revascularization of the European Society of Cardiology (ESC) and the European Association for Cardio-Thoracic Surgery (EACTS) Developed with the special contribution of the European Association of Percutaneous Cardiovascular Interventions (EAPCI). *Eur Heart J* 2014;35:2541-619.
- Laflamme M, DeMey N, Bouchard D, et al. Management of early postoperative coronary artery bypass graft failure. *Interact Cardiovasc Thorac Surg* 2012;14:452-6.
- Szavits-Nossan J, Stipić H, Sesto I, et al. Angiographic control and percutaneous treatment of myocardial ischemia immediately after CABG. *Coll Antropol* 2012;36:1391-4.
- Karthik S, Grayson AD, McCarron EE. Reexploration for bleeding after coronary artery bypass surgery: risk factors, outcomes, and the effect of time delay. *Ann Thorac Surg.* 2004; 78: 527-534.
- Mehta RH, Sheng S, O'Brien SM. Reoperation for bleeding in patients undergoing coronary artery bypass surgery: incidence, risk factors, time trends, and outcomes. *Society of Thoracic Surgeons.*
- Mepi, M, Muratori, P, Barbier, E, Doria, V, Arena, M, Berti, F, Celeste, M, Guazzi, G, Tamborini Pericardial Effusion After Cardiac Surgery: Incidence, Site, Size, and Haemodynamic Consequences *Br Heart J* 1994 Oct;72(4):327-31. doi: 10.1136/hrt.72.4.327.
- Villareal RP, Hariharan R, Liu BC, et al. Postoperative atrial fibrillation and mortality after coronary artery bypass surgery. *J Am Coll Cardiol* 2004; 43: 742.
- Mathew JP, Fontes ML, Tudor IC, et al. A multicenter risk index for atrial fibrillation after cardiac surgery. *JAMA* 2004; 291: 1720.
- Nardi F, Diena M, Caimmi PP, Iraghi G, Lazzero M, Cerin G, et al. Relationship between left atrial volume and atrial fibrillation following coronary artery bypass grafting. *J Card Surg.* 2012; 27:128-135.
- Her AY, Kim JY, Kim YH, Choi EY, Min PK, Yoon YW, et al. Left atrial strain assessed by speckle tracking imaging is related to new-onset atrial fibrillation after coronary artery bypass grafting. *Can J Cardiol.* 2013; 29: 377-383.
- Naveed A, Azam H, Murtaza HG, Ahmad RA, Baig MAR. Incidence and risk factors of Pulmonary Complications after Cardiopulmonary bypass. *Pak J Med Sci.* 2017; 33 (4) : 993-996. doi: 10.12669/pjms.334.12846.
- Selim M. Perioperative stroke. *N Engl J Med.* 2007;356(7):706-713. doi:10.1056/NEJMra062668.
- McKhann GM, Goldsborough MA, Borowicz LM Jr, et al. Predictors of stroke risk in coronary artery bypass patients. *Ann Thorac Surg.* 1997;63(2):516-521. doi:10.1016/S0003-4975(97)83384-X.
- Glas KE, Swaminathan M, Reeves ST, Shanewise JS, Rubenson D, Smith PK, Mathew JP, Shernan SK; Council for Intraoperative Echocardiography of the American

Society of Echocardiography; Society of Cardiovascular Anesthesiologists; Society of Thoracic Surgeons Guidelines for the performance of a comprehensive intraoperative epiaortic ultrasonographic examination: recommendations of the American Society of Echocardiography and the Society of Cardiovascular Anesthesiologists; endorsed by the Society of Thoracic Surgeons *Anesth Analg*. 2008 May;106(5):1376-84. doi: 10.1213/ane.0b013e31816a6b4c. PMID: 18420847.

30. Bucnerius J, Gummert JF, Borger MA, et al. Stroke after cardiac surgery: a risk factor analysis of 16,184 consecutive adult patients. *Ann Thorac Surg* 2003;75:472-478.
31. Ho PM, Arciniegas DB, Grigsby J, et al. Predictors of cognitive decline following coronary artery bypass graft surgery. *Ann Thorac Surg*. 2004;77(2):597-603; discussion 603. doi:10.1016/s0003-4975(03)01358-4.
32. Patel NV, Woznick AR, Welsh KS, Bendick PJ, Boura JA, Mucci SJ, et al. Predictors of mortality after muscle flap advancement for deep sternal wound infections. *Plast Reconstr Surg*. 2009; 123: 132-138.
33. Bryan CS, Yarbrough WM. Preventing deep wound infection after coronary artery bypass grafting: a review. *Tex Heart Inst J*. 2013; 40: 125-139.
34. Braxton JH, Marrin CA, McGrath PD, et al. 10-Year follow-up of patients with and without mediastinitis. *Seminars in Thoracic and Cardiovascular Surgery*. 2004;16(1):70-76.
35. Abraham VS, Swain JA. Cardiopulmonary bypass and kidney. In: Gravlee GP, Davis RF, eds. *Cardiopulmonary bypass: principles and practice*. Philadelphia, Pa, USA: Lippincott Williams & Wilkins; 2000: 382-391.
36. Holzmann MJ, Sartipy U. Relation between preoperative renal dysfunction and cardiovascular events (stroke, myocardial infarction, or heart failure or death) within three months of isolated coronary artery bypass grafting. *Am J Cardiol*. 2013; 112: 1342-1346.
37. Santos FO, Silveira MA, Maia RB, Monteiro MD, Martinelli R. Acute renal failure after coronary artery bypass surgery with extracorporeal circulation: Incidence, risk factors, and mortality. *Arq Bras Cardiol*. 2004; 83: 150-154.