

## BÖLÜM 2

# AKUT KORONER SENDROMLAR: ACIL SERVİS YÖNETİMİ

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## GİRİŞ

Akut koroner sendromlar (AKS) acil servise başvuruların en sık nedenleri arasındadır (1). Çok hızlı bir şekilde tanısı koyulduktan sonra hastaların acil serviste tedavisini başlatmak gerekir. Çünkü akut koroner sendromlarda tedavinin erken başlaması kurtarılabilir kalp kası dokusu açısından önem taşımaktadır (2-5). Genel kabul görmüş Elektrokardiyogram (EKG) bulgularına göre AKS'ı ST-segment yükselmeli miyokard infarktüsü (STEMI), ST-segment yükselmesi olmayan miyokard infarktüsü (NSTEMI) ve kararsız anjina (unstabil angina pectoris, USAP) şeklinde sınıflayabiliriz. USAP ve NSTEMI arasında tedavi bakımından fark olmadığı için STEMI ve NSTEMI olarak iki farklı yönetim şeklinde bahsedilecektir. Bölüm içerisinde aksi belirtilmedikçe NSTEMI tabiri hem NSTEMI hem de USAP hastalarını kapsamaktadır.

## TANI ALGORİTMALARI

Acil servise göğüs ağrısı ile başvuran hastalarda öykü ve fizik muayene sonrası başvuru EKG'sinde ST elevasyonu veya eşdeğeri bulguları olan hastanın STEMI tanısını konulup yönetimine geçilebilir. Ancak başvuru sırasında EKG'de STEMI kriterlerini karşılamayan veya tamamen normal olan ancak AKS şüphesi devam eden hastalar için kılavuzlar tarafından konvansiyonel troponin (cTn) ve yüksek duyarlılıklı troponine (hs-cTn) dayalı olarak belli başlı klinik algoritmalar geliştirilmiştir. Hayatı tehdit eden acil durumlar dışlandıktan sonra tanı veya dışlama konusunda uluslararası kılavuzlarda da önerilen klinik karar verme algoritmalarının risk sınıflamasına göre örnek yaklaşımı Şekil 1'de gösterilmiştir. Bu klinik risk

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kez 500-1000 mg 1-2 hafta boyunca sonrasında dozu yarıya düşerek 2 hafta daha devam edilir.) ve kolşisin (3 ay boyunca) tedavisidir. Mekanik komplikasyonlara yatkınlığı artırma ihtimali nedeniyle kortikosteroidler önerilmez.

**Tablo 7. Akut perikardit için tanı kriterleri**

Akut perikardit tanı kriterleri ( $\geq 2$ kriter tanı için yeterli)
Plöretik göğüs ağrısı
Perikardiyal sürtünme sesi
EKG bulguları (yaygın hafif ST elevasyonu veya PR çökmesi)
Perikardiyal efüzyon

## Kardiyak Arrest

AKS erken dönemde mortalitenin başlıca sebebi VF'a bağlı kardiyak arrest durumudur. STEMI erken döneminde VF gelişme ihtimali sebebiyle hastaların defibrilatör ile monitörize bir şekilde takip edilmesi gerekir. Kardiyak arrest nedeniyle başvuran hastalarda spontan geri dönüş sağlandıktan sonra EKG'de STEMI olması veya belirsiz EKG ancak yüksek şüphe olması durumunda acil PKG önerilmektedir (<2 saat) (4, 52). Başarılı resüsitasyon sonrası hastalarda hedeflenmiş vücut sıcaklığı (diğer bir deyişle terapötik hipotermi) 32-36 \*C olacak şekilde en az 24 saat yapılabilir. Ancak bu tedavi AKS asıl tedavisi olan reperfüzyon stratejileri ve adjuvan tedavilerini geciktirmemesi gerekmektedir. Kardiyak arrest yönetimi ileri kardiyak yaşam desteği öneri ve algoritmaları doğrultusunda gerçekleştirilmelidir. Başarılı resüsitasyon AKS hastalarının sağ kalımında önemli rol oynamaktadır.

## KAYNAKLAR

1. National Hospital Ambulatory Medical Care Survey: 2020 Emergency Department Summary Tables. In: National Center for Health S, ed. Hyattsville, MD: <https://dx.doi.org/10.15620/cdc:121911>, 2022.
2. Nikolaou NI, Arntz HR, Bellou A, et al. European Resuscitation Council Guidelines for Resuscitation 2015 Section 8. Initial management of acute coronary syndromes. Resuscitation. 2015; 95: 264-77.
3. Collet J-P, Thiele H, Barbato E, et al. 2020 ESC Guidelines for the management of acute coronary syndromes in patients presenting without persistent ST-segment elevation: The Task Force for the management of acute coronary syndromes in patients presenting without persistent ST-segment elevation of the European Society of Cardiology (ESC). Eur Heart J. 2020; 42: 1289-367.
4. Ibanez B, James S, Agewall S, et al. 2017 ESC Guidelines for the management of acute myocardial infarction in patients presenting with ST-segment elevation: The Task Force for the mana-

- gement of acute myocardial infarction in patients presenting with ST-segment elevation of the European Society of Cardiology (ESC). *Eur Heart J*. 2017; 39: 119-77.
5. Gulati M, Levy PD, Mukherjee D, et al. 2021 AHA/ACC/AASE/CHEST/SAEM/SCCT/SCMR Guideline for the Evaluation and Diagnosis of Chest Pain: A Report of the American College of Cardiology/American Heart Association Joint Committee on Clinical Practice Guidelines. *Circulation*. 2021; 144: e368-e454.
  6. Nestelberger T, Cullen L, Lindahl B, et al. Diagnosis of acute myocardial infarction in the presence of left bundle branch block. *Heart*. 2019; 105: 1559-67.
  7. Than M, Cullen L, Aldous S, et al. 2-Hour accelerated diagnostic protocol to assess patients with chest pain symptoms using contemporary troponins as the only biomarker: the ADAPT trial. *J Am Coll Cardiol*. 2012; 59: 2091-8.
  8. Mahler SA, Riley RF, Hiestand BC, et al. The HEART Pathway randomized trial: identifying emergency department patients with acute chest pain for early discharge. *Circ Cardiovasc Qual Outcomes*. 2015; 8: 195-203.
  9. Mark DG, Huang J, Chettipally U, et al. Performance of Coronary Risk Scores Among Patients With Chest Pain in the Emergency Department. *J Am Coll Cardiol*. 2018; 71: 606-16.
  10. Stopyra JP, Miller CD, Hiestand BC, et al. Validation of the No Objective Testing Rule and Comparison to the HEART Pathway. *Acad Emerg Med*. 2017; 24: 1165-68.
  11. Stopyra JP, Riley RF, Hiestand BC, et al. The HEART Pathway Randomized Controlled Trial One-year Outcomes. *Acad Emerg Med*. 2019; 26: 41-50.
  12. Twerenbold R, Costabel JP, Nestelberger T, et al. Outcome of Applying the ESC 0/1-hour Algorithm in Patients With Suspected Myocardial Infarction. *J Am Coll Cardiol*. 2019; 74: 483-94.
  13. Hess EP, Perry JJ, Ladouceur P, et al. Derivation of a clinical decision rule for chest radiography in emergency department patients with chest pain and possible acute coronary syndrome. *CJEM*. 2010; 12: 128-34.
  14. Scirica BM. Acute coronary syndrome: emerging tools for diagnosis and risk assessment. *J Am Coll Cardiol*. 2010; 55: 1403-15.
  15. Hobl EL, Stimpfl T, Ebner J, et al. Morphine decreases clopidogrel concentrations and effects: a randomized, double-blind, placebo-controlled trial. *J Am Coll Cardiol*. 2014; 63: 630-35.
  16. Kubica J, Adamski P, Ostrowska M, et al. Morphine delays and attenuates ticagrelor exposure and action in patients with myocardial infarction: the randomized, double-blind, placebo-controlled IMPRESSION trial. *Eur Heart J*. 2015; 37: 245-52.
  17. Parodi G, Bellandi B, Xanthopoulou I, et al. Morphine Is Associated With a Delayed Activity of Oral Antiplatelet Agents in Patients With ST-Elevation Acute Myocardial Infarction Undergoing Primary Percutaneous Coronary Intervention. *Circ Cardiovasc Interv*. 2015; 8: e001593.
  18. Amsterdam EA, Wenger NK, Brindis RG, et al. 2014 AHA/ACC Guideline for the Management of Patients with Non-ST-Elevation Acute Coronary Syndromes: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines. *J Am Coll Cardiol*. 2014; 64: e139-e228.
  19. Montalescot G, van 't Hof AW, Lapostolle F, et al. Prehospital Ticagrelor in ST-Segment Elevation Myocardial Infarction. *N Engl J Med*. 2014; 371: 1016-27.
  20. Koul S, Smith JG, Scherstén F, et al. Effect of upstream clopidogrel treatment in patients with ST-segment elevation myocardial infarction undergoing primary percutaneous coronary intervention. *Eur Heart J*. 2011; 32: 2989-97.
  21. O'Gara PT, Kushner FG, Ascheim DD, et al. 2013 ACCF/AHA Guideline for the Management of ST-Elevation Myocardial Infarction. *Circulation*. 2013; 127: e362-e425.
  22. Mehta SR, Tanguay JF, Eikelboom JW, et al. Double-dose versus standard-dose clopidogrel and high-dose versus low-dose aspirin in individuals undergoing percutaneous coronary intervention for acute coronary syndromes (CURRENT-OASIS 7): a randomised factorial trial. *Lancet*. 2010; 376: 1233-43.
  23. Sabatine MS, Cannon CP, Gibson CM, et al. Addition of clopidogrel to aspirin and fibrinolytic

- therapy for myocardial infarction with ST-segment elevation. *N Engl J Med.* 2005; 352: 1179-89.
24. Chen ZM, Jiang LX, Chen YP, et al. Addition of clopidogrel to aspirin in 45,852 patients with acute myocardial infarction: randomised placebo-controlled trial. *Lancet.* 2005; 366: 1607-21.
  25. Steg PG, Bhatt DL, Hamm CW, et al. Effect of cangrelor on periprocedural outcomes in percutaneous coronary interventions: a pooled analysis of patient-level data. *Lancet.* 2013; 382: 1981-92.
  26. Engström T, Kelbæk H, Helqvist S, et al. Complete revascularisation versus treatment of the culprit lesion only in patients with ST-segment elevation myocardial infarction and multivessel disease (DANAMI-3—PRIMULTI): an open-label, randomised controlled trial. *Lancet.* 2015; 386: 665-71.
  27. Smits PC, Abdel-Wahab M, Neumann F-J, et al. Fractional Flow Reserve–Guided Multivessel Angioplasty in Myocardial Infarction. *N Engl J Med.* 2017; 376: 1234-44.
  28. Elgendy IY, Mahmoud AN, Kumbhani DJ, et al. Complete or Culprit-Only Revascularization for Patients With Multivessel Coronary Artery Disease Undergoing Percutaneous Coronary Intervention: A Pairwise and Network Meta-Analysis of Randomized Trials. *JACC Cardiovasc Interv.* 2017; 10: 315-24.
  29. Collet JP, Huber K, Cohen M, et al. A direct comparison of intravenous enoxaparin with unfractionated heparin in primary percutaneous coronary intervention (from the ATOLL trial). *Am J Cardiol.* 2013; 112: 1367-72.
  30. Montalescot G, Zeymer U, Silvain J, et al. Intravenous enoxaparin or unfractionated heparin in primary percutaneous coronary intervention for ST-elevation myocardial infarction: the international randomised open-label ATOLL trial. *Lancet.* 2011; 378: 693-703.
  31. Silvain J, Beygui F, Barthélémy O, et al. Efficacy and safety of enoxaparin versus unfractionated heparin during percutaneous coronary intervention: systematic review and meta-analysis. *Bmj.* 2012; 344: e553.
  32. Sutton NR, Li S, Thomas L, et al. The association of left ventricular ejection fraction with clinical outcomes after myocardial infarction: Findings from the Acute Coronary Treatment and Intervention Outcomes Network (ACTION) Registry-Get With the Guidelines (GWTG) Medicare-linked database. *Am Heart J.* 2016; 178: 65-73.
  33. Ng VG, Lansky AJ, Meller S, et al. The prognostic importance of left ventricular function in patients with ST-segment elevation myocardial infarction: the HORIZONS-AMI trial. *Eur Heart J Acute Cardiovasc Care.* 2014; 3: 67-77.
  34. Mehta SR, Eikelboom JW, Natarajan MK, et al. Impact of right ventricular involvement on mortality and morbidity in patients with inferior myocardial infarction. *J Am Coll Cardiol.* 2001; 37: 37-43.
  35. Desta L, Jernberg T, Löfman I, et al. Incidence, temporal trends, and prognostic impact of heart failure complicating acute myocardial infarction. The SWEDEHEART Registry (Swedish Web-System for Enhancement and Development of Evidence-Based Care in Heart Disease Evaluated According to Recommended Therapies): a study of 199,851 patients admitted with index acute myocardial infarctions, 1996 to 2008. *JACC Heart Fail.* 2015; 3: 234-42.
  36. Velagaleti RS, Pencina MJ, Murabito JM, et al. Long-term trends in the incidence of heart failure after myocardial infarction. *Circulation.* 2008; 118: 2057-62.
  37. Goldberg RJ, Spencer FA, Gore JM, et al. Thirty-year trends (1975 to 2005) in the magnitude of, management of, and hospital death rates associated with cardiogenic shock in patients with acute myocardial infarction: a population-based perspective. *Circulation.* 2009; 119: 1211-9.
  38. Thiele H, Zeymer U, Neumann FJ, et al. Intraaortic balloon support for myocardial infarction with cardiogenic shock. *N Engl J Med.* 2012; 367: 1287-96.
  39. Thiele H, Zeymer U, Thelemann N, et al. Intraaortic Balloon Pump in Cardiogenic Shock Complicating Acute Myocardial Infarction. *Circulation.* 2019; 139: 395-403.
  40. Thiele H, Zeymer U, Thelemann N, et al. Intraaortic Balloon Pump in Cardiogenic Shock

- Complicating Acute Myocardial Infarction: Long-Term 6-Year Outcome of the Randomized IABP-SHOCK II Trial. *Circulation*. 2019; 139: 395-403.
41. Piccini JP, Schulte PJ, Pieper KS, et al. Antiarrhythmic drug therapy for sustained ventricular arrhythmias complicating acute myocardial infarction. *Crit Care Med*. 2011; 39: 78-83.
  42. Gorenek B, Blomström Lundqvist C, Brugada Terradellas J, et al. Cardiac arrhythmias in acute coronary syndromes: position paper from the joint EHRA, ACCA, and EAPCI task force. *Europace*. 2014; 16: 1655-73.
  43. Enjoji Y, Mizobuchi M, Muranishi H, et al. Catheter ablation of fatal ventricular tachyarrhythmias storm in acute coronary syndrome--role of Purkinje fiber network. *J Interv Card Electrophysiol*. 2009; 26: 207-15.
  44. Haissaguerre M, Vigmond E, Stuyvers B, et al. Ventricular arrhythmias and the His-Purkinje system. *Nat Rev Cardiol*. 2016; 13: 155-66.
  45. Peichl P, Cihák R, Kozeluhová M, et al. Catheter ablation of arrhythmic storm triggered by monomorphic ectopic beats in patients with coronary artery disease. *J Interv Card Electrophysiol*. 2010; 27: 51-9.
  46. Batra G, Svennblad B, Held C, et al. All types of atrial fibrillation in the setting of myocardial infarction are associated with impaired outcome. *Heart*. 2016; 102: 926-33.
  47. Schmitt J, Duray G, Gersh BJ, et al. Atrial fibrillation in acute myocardial infarction: a systematic review of the incidence, clinical features and prognostic implications. *Eur Heart J*. 2009; 30: 1038-45.
  48. Lemery R, Smith HC, Giuliani ER, et al. Prognosis in rupture of the ventricular septum after acute myocardial infarction and role of early surgical intervention. *Am J Cardiol*. 1992; 70: 147-51.
  49. Calvert PA, Cockburn J, Wynne D, et al. Percutaneous closure of postinfarction ventricular septal defect: in-hospital outcomes and long-term follow-up of UK experience. *Circulation*. 2014; 129: 2395-402.
  50. Bajaj A, Sethi A, Rathor P, et al. Acute Complications of Myocardial Infarction in the Current Era: Diagnosis and Management. *J Investig Med*. 2015; 63: 844-55.
  51. Fasol R, Lakew F, Wetter S. Mitral repair in patients with a ruptured papillary muscle. *Am Heart J*. 2000; 139: 549-54.
  52. Link MS, Berkow LC, Kudenchuk PJ, et al. Part 7: Adult Advanced Cardiovascular Life Support. *Circulation*. 2015; 132: S444-S64.