

## BÖLÜM 10

# ARİTMİLERDE İLERİ TEDAVİLER: ELEKTROFİZYOLOJİK ÇALIŞMA (EPS) VE KALICI KALP PİLİ

İlke ERBAY<sup>1</sup>

## GİRİŞ

Acil servislerde kalp pili, elektrofizyolojik çalışma ve kateter ablasyon gerektiren durumlar sıkılıkla karşılaşmaktadır. Son yıllarda girişimsel kardiyolojinin hızlı bir şekilde yaygınlaşması, yeni gelişen teknolojiler ve üç boyutlu kardiyak haritalandırma gibi aritmik odakların daha net saptanabilmesi ile elektrofizyolojik çalışma kavramı, gelecekte acil kardiyak müdahaleler arasında önemli bir yere sahip olacaktır. Mortalitesi ve morbiditesi yüksek olan aritmik kardiyak acillerin, ilk tıbbi temas sonrası saptanması, hızlı bir şekilde değerlendirilmesi ve akut müdahalesi kadar sonrasında yönetimi de önemli bir yere sahiptir. Acil servislerde değerlendirilen hastalara ilk tıbbi müdahale sonrası elektrofizyolojik çalışma ve kateter ablasyonunun gerekliliği, hastanın semptomlarının doğru bir şekilde değerlendirilmesi ve tanımlanması ile belirlenir. Elektrofizyolojik çalışmaların sıkılıkla kullanılması, aritmik odakların tam olarak tanımlanabilmesi ve tedavide başarı oranının artması açısından büyük bir avantaj sağlar. Benzer şekilde, kateter ablasyonu da aritmik odakların hassas bir şekilde lokalize edilmesi ve tedavisinde yüksek bir başarı oranı sağlamaktadır. Sonuç olarak, acil servislerde kalp pili, elektrofizyolojik çalışma ve kateter ablasyon gibi girişimsel kardiyoloji prosedürleri, aritmik kardiyak acillerin yönetiminde önemli bir rol oynamaktadır. Bu prosedürlerin uygun bir şekilde değerlendirilmesi ve doğru bir şekilde uygulanması, hastaların mortalitesi ve morbiditesi açısından önemli bir fark yaratabilir.

<sup>1</sup> Dr. Öğr. Üyesi, Karabük Üniversitesi Tıp Fakültesi, Kardiyoloji AD., ilkeerbay@karabuk.edu.tr

## KAYNAKLAR

1. Rosen MR, Hordof AJ, Hodess AB, Verosky M, Vulliemoz Y. Ouabain-induced changes in electrophysiologic properties of neonatal, young and adult canine cardiac Purkinje Fibers. *Journal of Pharmacology and Experimental Therapeutics*. 1975;194(1):255-63.
2. Scherlag BJ, Lau SH, Helfant RH, BERKOWITZ WD, Stein E, Damato AN. Catheter technique for recording His bundle activity in man. *Circulation*. 1969;39(1):13-8.
3. Denniss AR, Ross DL, Richards DA, Uther JB. Electrophysiologic studies in patients with unexplained syncope. *International journal of cardiology*. 1992;35(2):211-7.
4. Rodriguez RD, Schocken DD. Update on sick sinus syndrome, a cardiac disorder of aging. *Geriatrics (Basel, Switzerland)*. 1990;45(1):26-30, 3.
5. Jensen PN, Gronroos NN, Chen LY, Folsom AR, Defilippi C, Heckbert SR, et al. Incidence of and risk factors for sick sinus syndrome in the general population. *Journal of the American College of Cardiology*. 2014;64(6):531-8.
6. Brignole M, Moya A, de Lange FJ, Deharo J-C, Elliott PM, Fanciulli A, et al. Practical Instructions for the 2018 ESC Guidelines for the diagnosis and management of syncope. *European heart journal*. 2018;39(21):e43-e80.
7. Brignole M, Moya A, de Lange FJ, Deharo J-C, Elliott PM, Fanciulli A, et al. 2018 ESC Guidelines for the diagnosis and management of syncope. *European heart journal*. 2018;39(21):1883-948.
8. Glikson M, Nielsen JC, Kronborg MB, Michowitz Y, Auricchio A, Barbash IM, et al. 2021 ESC Guidelines on cardiac pacing and cardiac resynchronization therapy: Developed by the Task Force on cardiac pacing and cardiac resynchronization therapy of the European Society of Cardiology (ESC) With the special contribution of the European Heart Rhythm Association (EHRA). *European heart journal*. 2021;42(35):3427-520.
9. Fujimura O, Yee R, Klein GJ, Sharma AD, Boahene KA. The diagnostic sensitivity of electrophysiologic testing in patients with syncope caused by transient bradycardia. *New England Journal of Medicine*. 1989;321(25):1703-7.
10. Lilly LS, Braunwald E. Braunwald's heart disease: a textbook of cardiovascular medicine: Elsevier Health Sciences; 2012.
11. KAUL U, DEV V, NARULA J, MALHOTRA AK, TALWAR KK, BHATIA ML. Evaluation of patients with bundle branch block and “unexplained” syncope: a study based on comprehensive electrophysiologic testing and ajmaline stress. *Pacing and Clinical Electrophysiology*. 1988;11(3):289-97.
12. Brugada J, Katriotis DG, Arbelo E, Arribas F, Bax JJ, Blomström-Lundqvist C, et al. 2019 ESC Guidelines for the management of patients with supraventricular tachycardiaThe Task Force for the management of patients with supraventricular tachycardia of the European Society of Cardiology (ESC): Developed in collaboration with the Association for European Paediatric and Congenital Cardiology (AEPC). *European heart journal*. 2019;41(5):655-720.
13. Lip GY, Coca A, Kahan T, Boriani G, Manolis AS, Olsen MH, et al. Hypertension and cardiac arrhythmias: a consensus document from the European Heart Rhythm Association (EHRA) and ESC Council on Hypertension, endorsed by the Heart Rhythm Society (HRS), Asia-pacific heart rhythm society (APHRS) and sociedad latinoamericana de estimulacion Cardiaca y electrofisiologia (SOLEACE). *Ep Europace*. 2017;19(6):891-911.
14. Kubuš P, Víť P, Gebauer RA, Materna O, Janoušek J. Electrophysiologic profile and results of invasive risk stratification in asymptomatic children and adolescents with the Wolff–Parkinson–White electrocardiographic pattern. *Circulation: Arrhythmia and Electrophysiology*. 2014;7(2):218-23.
15. Pappone C, Santinelli V, Manguso F, Augello G, Santinelli O, Vicedomini G, et al. A randomized study of prophylactic catheter ablation in asymptomatic patients with the Wolff–Parkinson–White syndrome. *New England Journal of Medicine*. 2003;349(19):1803-11.

16. Alzand BS, Crijns HJ. Diagnostic criteria of broad QRS complex tachycardia: decades of evolution. *Europace*. 2011;13(4):465-72.
17. Zeppenfeld K, Tfelt-Hansen J, de Riva M, Winkel BG, Behr ER, Blom NA, et al. 2022 ESC Guidelines for the management of patients with ventricular arrhythmias and the prevention of sudden cardiac death: Developed by the task force for the management of patients with ventricular arrhythmias and the prevention of sudden cardiac death of the European Society of Cardiology (ESC) Endorsed by the Association for European Paediatric and Congenital Cardiology (AEPC). *European heart journal*. 2022;43(40):3997-4126.
18. Brilakis ES, Shen WK, Hammill SC, Hodge DO, Rea RF, Lexvold NY, et al. Role of programmed ventricular stimulation and implantable cardioverter defibrillators in patients with idiopathic dilated cardiomyopathy and syncope. *Pacing and Clinical Electrophysiology*. 2001;24(11):1623-30.
19. Schmitt C, Barthel P, Ndreppepa G, Schreieck J, Plewan A, Schöming A, et al. Value of programmed ventricular stimulation for prophylactic internal cardioverter-defibrillator implantation in postinfarction patients preselected by noninvasive risk stratifiers. *Journal of the American College of Cardiology*. 2001;37(7):1901-7.
20. Orvin K, Eisen A, Goldenberg I, Gottlieb S, Kornowski R, Matetzky S, et al. Outcome of contemporary acute coronary syndrome complicated by ventricular tachyarrhythmias. *EP Europe*. 2016;18(2):219-26.
21. Hoffmayer KS, Bhave PD, Marcus GM, James CA, Tichnell C, Chopra N, et al. An electrocardiographic scoring system for distinguishing right ventricular outflow tract arrhythmias in patients with arrhythmogenic right ventricular cardiomyopathy from idiopathic ventricular tachycardia. *Heart Rhythm*. 2013;10(4):477-82.
22. Baman TS, Lange DC, Ilg KJ, Gupta SK, Liu T-Y, Alguire C, et al. Relationship between burden of premature ventricular complexes and left ventricular function. *Heart rhythm*. 2010;7(7):865-9.
23. van Huls van Taxis CF, Piers SR, de Riva Silva M, Dekkers OM, Pijnappels DA, Schalij MJ, et al. Fatigue as presenting symptom and a high burden of premature ventricular contractions are independently associated with increased ventricular wall stress in patients with normal left ventricular function. *Circulation: Arrhythmia and Electrophysiology*. 2015;8(6):1452-9.
24. Glikson M, Nielsen JC, Kronborg MB, Michowitz Y, Auricchio A, Barbash IM, et al. 2021 ESC Guidelines on cardiac pacing and cardiac resynchronization therapy: Developed by the Task Force on cardiac pacing and cardiac resynchronization therapy of the European Society of Cardiology (ESC) With the special contribution of the European Heart Rhythm Association (EHRA). *EP Europe*. 2022;24(1):71-164.
25. Members WC, Epstein AE, DiMarco JP, Ellenbogen KA, Estes III NM, Freedman RA, et al. ACC/AHA/HRS 2008 guidelines for device-based therapy of cardiac rhythm abnormalities: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (Writing Committee to Revise the ACC/AHA/NASPE 2002 Guideline Update for Implantation of Cardiac Pacemakers and Antiarrhythmia Devices): developed in collaboration with the American Association for Thoracic Surgery and Society of Thoracic Surgeons. *Circulation*. 2008;117(21):e350-e408.
26. Mangrum JM, DiMarco JP. The evaluation and management of bradycardia. *New England Journal of Medicine*. 2000;342(10):703-9.
27. Jiang Z, Mangharam R, editors. Modeling cardiac pacemaker malfunctions with the virtual heart model. 2011 Annual International Conference of the IEEE Engineering in Medicine and Biology Society; 2011: IEEE.
28. Tang AS, Wells GA, Talajic M, Arnold MO, Sheldon R, Connolly S, et al. Cardiac-resynchronization therapy for mild-to-moderate heart failure. *New England Journal of Medicine*. 2010;363(25):2385-95.

29. Cleland JG, Daubert J-C, Erdmann E, Freemantle N, Gras D, Kappenberger L, et al. The effect of cardiac resynchronization on morbidity and mortality in heart failure. *New England Journal of Medicine*. 2005;352(15):1539-49.
30. Groh WJ, Silka MJ, Oliver RP, Halperin BD, McAnulty JH, Kron J. Use of implantable cardioverter-defibrillators in the congenital long QT syndrome. *American Journal of Cardiology*. 1996;78(6):703-6.
31. Saksena S, From TPIG. Clinical outcome of patients with malignant ventricular tachyarrhythmias and a multiprogrammable implantable cardioverter-defibrillator implanted with or without thoracotomy: an international multicenter study. *Journal of the American College of Cardiology*. 1994;23(7):1521-30.