

## BÖLÜM 46



# Atriyal Fibrilasyonda Medikal Tedaviyle Hız Kontrolü

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### GİRİŞ

Atriyal fibrilasyonlu (AF) hastalarda ventriküler hız, atriyoventriküler nodun iletim özelliklerince kontrol edilir. Tedavi edilmemiş AF' li tipik bir hastada ventriküler hız dakikada 150 atım ve üzerine çıkabilir. AF' li hastada medikal tedaviyle uzun süreli ventriküler hız kontrolü; semptomların önlenmesi, hemodinamik kararlılığın devamı, kendiliğinden sinüs ritmine dönüş(1,2), taşikardiyomiopatinin engellenmesi, potansiyel mortalite faydasını amaçlar. AF' li hastalarda optimal hız hedefi belirlenmemiştir(3). Sinüs ritminde olan kalp hastalarına tavsiye edilen hızlara benzer seviyedeki hızların; istirahat halinde dakikada 80 atımın altında, 6 dakikalık bir yürüyüş gibi hafif egzersizde dakikada 110 atımın altında olması önerilmiştir. Benzer hedefler, AFFIRM gibi pek çok hız kontrolümü? ritim kontrolümü? çalışmasında kullanılmıştır (4). RACE II çalışmasında 614 fiziki açıdan aktif AF' li hasta ; istirahat anında dakikada 110 atımdan düşük, istirahat anında dakikada 80 atımdan düşük; ılımlı ve sıkı hız

kontrolü olarak iki gruba ayrılmış, birincil sonuçlar; kardiyovasküler ölüm, inme, sistemik embolizasyon, kanama, kalp yetmezliği nedeniyle hastaneye yatış yönünden fark izlenmemiştir(5). Takipte ılımlı ve sıkı hız kontrolü grubunda, dakikada 93 ve 72 atım tespit edildi(6).

### FARMAKOLOJİK TEDAVİ

AF' li hastada ventriküler hız kontrolü; beta blokerler, kalsiyum kanal blokerleri, Digoksin, Amiodaron gibi atriyoventriküler(AV) nod boyunca iletimi fizyolojik mekanizmalarla yavaşlatan ilaçlarla sağlanır(7,8).

### BETA BLOKERLER

Beta blokerlerle sempatik tonus azalır, AV nodal iletim yavaşlar, istirahat halinde ve egzersiz kalp hızı belirgin olarak azalır. Çoğu beta blokerler benzer etkinliğe sahiptir. Beta blokerler AF' li hastalarda ventriküler hızın hem akut hem de kronik kontrolü için birincil tedavi olarak yaygın kullanılır. Ventriküler hızın akut

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siyum kanal blokeri % 59, beta blokerle birlikte kalsiyum kanal blokeri ve Digoksin üçlü kombinasyon tedavisi % 76 etkinliğe sahiptir(59). Bu çalışmanın, özel hız kontrol ilaçlarının rastgele verilmemesi, kalp atış hızının yetersiz bazal değerlendirilmesi gibi bazı önemli sınırlamaları bulunmaktadır.

## SONUÇ

AF'de hız kontrolünün potansiyel yararları bilinmektedir. Bu nedenle, ventriküler hızın akut kontrolünde; beta blokerler, kalsiyum kanal blokerleri, Digoksin, Amiodaron, Magnezyum sülfat' ın İV formları, ventriküler hızın kronik kontrolünde; oral formları tercih edilir. İstenilen ventriküler hız sağlanamazsa; ilaç etkileşimlerinin, ilaç advers etkilerinin ışığında kombinasyon tedavisine gidilir. Hastanın yaşı ve komorbiditesi dikkate alınarak tedavi bireyselleştirilir.

## KAYNAKLAR

- Dell'Orfano JT, Patel H, Wolbrette DL, et al. Acute treatment of atrial fibrillation: spontaneous conversion rates and cost of care. *Am J Cardiol* 1999; 83:788.
- Danias PG, Caulfield TA, Weigner MJ, et al. Likelihood of spontaneous conversion of atrial fibrillation to sinus rhythm. *J Am Coll Cardiol* 1998; 31:588.
- Dorian P. Rate control in atrial fibrillation. *N Engl J Med* 2010; 362:1439.
- Wyse DG, Waldo AL, DiMarco JP, et al. A comparison of rate control and rhythm control in patients with atrial fibrillation. *N Engl J Med* 2002; 347:1825.
- Van Gelder IC, Groenveld HF, Crijns HJ, et al. Lenient versus strict rate control in patients with atrial fibrillation. *N Engl J Med* 2010;362:1363.
- Groenveld HF, Tijssen JG, Crijns HJ, et al. Rate control efficacy in permanent atrial fibrillation: successful and failed strict rate control against a background of lenient rate control: data from RACE II (Rate Control Efficacy in Permanent Atrial Fibrillation). *J Am Coll Cardiol* 2013; 61:741.
- Pritchett EL. Management of atrial fibrillation. *N Engl J Med* 1992; 326:1264.
- Atrial fibrillation: current understandings and research imperatives. The National Heart, Lung, and Blood Institute Working Group on Atrial Fibrillation. *J Am Coll Cardiol* 1993; 22:1830.
- Shettigar UR, Toole JG, Appunn DO. Combined use of esmolol and digoxin in the acute treatment of atrial fibrillation or flutter. *Am Heart J* 1993; 126:368.
- Platia EV, Michelson EL, Porterfield JK, Das G. Esmolol versus verapamil in the acute treatment of atrial fibrillation or atrial flutter. *Am J Cardiol* 1989; 63:925.
- Schwartz M, Michelson EL, Sawin HS, MacVaugh H 3rd. Esmolol: safety and efficacy in postoperative cardiothoracic patients with supraventricular tachyarrhythmias. *Chest* 1988; 93:705.
- McNamara RL, Tamariz LJ, Segal JB, Bass EB. Management of atrial fibrillation: review of the evidence for the role of pharmacologic therapy, electrical cardioversion, and echocardiography. *Ann Intern Med* 2003; 139:1018.
- Joglar JA, Acosta AP, Shusterman NH, et al. Effect of carvedilol on survival and hemodynamics in patients with atrial fibrillation and left ventricular dysfunction: retrospective analysis of the US Carvedilol Heart Failure Trials Program. *Am Heart J* 2001; 142:498.
- Rawles JM, Metcalfe MJ, Jennings K. Time of occurrence, duration, and ventricular rate of paroxysmal atrial fibrillation: the effect of digoxin. *Br Heart J* 1990; 63:225.
- DiBianco R, Morganroth J, Freitag JA, et al. Effects of nadolol on the spontaneous and exercise-provoked heart rate of patients with chronic atrial fibrillation receiving stable dosages of digoxin. *Am Heart J* 1984; 108:1121.
- Atwood JE, Sullivan M, Forbes S, et al. Effect of beta-adrenergic blockade on exercise performance in patients with chronic atrial fibrillation. *J Am Coll Cardiol* 1987; 10:314.
- Klein HO, Pauzner H, Di Segni E, et al. The beneficial effects of verapamil in chronic atrial fibrillation. *Arch Intern Med* 1979; 139:747.
- Panidis IP, Morganroth J, Baessler C. Effectiveness and safety of oral verapamil to control exercise-induced tachycardia in patients with atrial fibrillation receiving digitalis. *Am J Cardiol* 1983; 52:1197.
- Tommaso C, McDonough T, Parker M, Talano JV. Atrial fibrillation and flutter. Immediate control and conversion with intravenously administered verapamil. *Arch Intern Med* 1983; 143:877.
- Hwang MH, Danoviz J, Pacold I, et al. Double-blind crossover randomized trial of intravenously administered verapamil. Its use for atrial fibrillation and flutter following open heart surgery. *Arch Intern Med* 1984; 144:491.
- Waxman HL, Myerburg RJ, Appel R, Sung RJ. Verapamil for control of ventricular rate in paroxysmal supraventricular tachycardia and atrial fibrillation or flutter: a double-blind randomized cross-over study. *Ann Intern Med* 1981; 94:1.
- Stern EH, Pitchon R, King BD, et al. Clinical use of oral verapamil in chronic and paroxysmal atrial fibrillation. *Chest* 1982; 81:308.
- Lang R, Klein HO, Weiss E, et al. Superiority of oral verapamil therapy to digoxin in treatment of chronic atrial fibrillation. *Chest* 1983;83:491.

24. Lundström T, Rydén L. Ventricular rate control and exercise performance in chronic atrial fibrillation: effects of diltiazem and verapamil. *J Am Coll Cardiol* 1990; 16:86.
25. Böhm M, Schwinger RH, Erdmann E. Different cardiodepressant potency of various calcium antagonists in human myocardium. *Am J Cardiol* 1990; 65:1039.
26. Salerno DM, Dias VC, Kleiger RE, et al. Efficacy and safety of intravenous diltiazem for treatment of atrial fibrillation and atrial flutter. The Diltiazem-Atrial Fibrillation/Flutter Study Group. *Am J Cardiol* 1989; 63:1046.
27. Ellenbogen KA, Dias VC, Plumb VJ, et al. A placebo-controlled trial of continuous intravenous diltiazem infusion for 24-hour heart rate control during atrial fibrillation and atrial flutter: a multicenter study. *J Am Coll Cardiol* 1991; 18:891.
28. Ellenbogen KA, Dias VC, Cardello FP, et al. Safety and efficacy of intravenous diltiazem in atrial fibrillation or atrial flutter. *Am J Cardiol* 1995; 75:45.
29. Steinberg JS, Katz RJ, Bren GB, et al. Efficacy of oral diltiazem to control ventricular response in chronic atrial fibrillation at rest and during exercise. *J Am Coll Cardiol* 1987; 9:405.
30. Roth A, Harrison E, Mitani G, et al. Efficacy and safety of medium- and high-dose diltiazem alone and in combination with digoxin for control of heart rate at rest and during exercise in patients with chronic atrial fibrillation. *Circulation* 1986; 73:316.
31. Barbarash RA, Bauman JL, Lukazewski AA, et al. Verapamil infusions in the treatment of atrial tachyarrhythmias. *Crit Care Med* 1986; 14:886.
32. Phillips BG, Gandhi AJ, Sanoski CA, et al. Comparison of intravenous diltiazem and verapamil for the acute treatment of atrial fibrillation and atrial flutter. *Pharmacotherapy* 1997; 17:1238.
33. Klein HO, Lang R, Weiss E, et al. The influence of verapamil on serum digoxin concentration. *Circulation* 1982; 65:998.
34. Hori R, Okamura N, Aiba T, Tanigawara Y. Role of P-glycoprotein in renal tubular secretion of digoxin in the isolated perfused rat kidney. *J Pharmacol Exp Ther* 1993; 266:1620.
35. Hedman A, Angelin B, Arvidsson A, et al. Digoxin-verapamil interaction: reduction of biliary but not renal digoxin clearance in humans. *Clin Pharmacol Ther* 1991; 49:256.
36. Hallberg P, Lindbäck J, Lindahl B, et al. Digoxin and mortality in atrial fibrillation: a prospective cohort study. *Eur J Clin Pharmacol* 2007; 63:959.
37. Whitbeck MG, Charnigo RJ, Khairy P, et al. Increased mortality among patients taking digoxin--analysis from the AFFIRM study. *Eur Heart J* 2013; 34:1481.
38. Freeman JV, Reynolds K, Fang M, et al. Digoxin and risk of death in adults with atrial fibrillation: the ATRIA-CVRN study. *Circ Arrhythm Electrophysiol* 2015; 8:49.
39. Friberg L, Hammar N, Rosenqvist M. Digoxin in atrial fibrillation: report from the Stockholm Cohort study of Atrial Fibrillation (SCAF). *Heart* 2010; 96:275.
40. Gheorghide M, Fonarow GC, van Veldhuisen DJ, et al. Lack of evidence of increased mortality among patients with atrial fibrillation taking digoxin: findings from post hoc propensity-matched analysis of the AFFIRM trial. *Eur Heart J* 2013; 34:1489.
41. Turakhia MP, Santangeli P, Winkelmayr WC, et al. Increased mortality associated with digoxin in contemporary patients with atrial fibrillation: findings from the TREAT-AF study. *J Am Coll Cardiol* 2014; 64:660.
42. Washam JB, Stevens SR, Lokhnygina Y, et al. Digoxin use in patients with atrial fibrillation and adverse cardiovascular outcomes: a retrospective analysis of the Rivaroxaban Once Daily Oral Direct Factor Xa Inhibition Compared with Vitamin K Antagonism for Prevention of Stroke and Embolism Trial in Atrial Fibrillation (ROCKET AF). *Lancet* 2015; 385:2363.
43. Allen LA, Fonarow GC, Simon DN, et al. Digoxin Use and Subsequent Outcomes Among Patients in a Contemporary Atrial Fibrillation Cohort. *J Am Coll Cardiol* 2015; 65:2691.
44. Lopes RD, Rordorf R, De Ferrari GM, et al. Digoxin and Mortality in Patients With Atrial Fibrillation. *J Am Coll Cardiol* 2018; 71:1063.
45. January CT, Wann LS, Alpert JS, et al. 2014 AHA/ACC/HRS guideline for the management of patients with atrial fibrillation: executive summary: a report of the American College of Cardiology/American Heart Association Task Force on practice guidelines and the Heart Rhythm Society. *Circulation* 2014; 130:2071.
46. January CT, Wann LS, Alpert JS, et al. 2014 AHA/ACC/HRS guideline for the management of patients with atrial fibrillation: a report of the American College of Cardiology/American Heart Association Task Force on practice guidelines and the Heart Rhythm Society. *Circulation* 2014; 130:e199.
47. Farshi R, Kistner D, Sarma JS, et al. Ventricular rate control in chronic atrial fibrillation during daily activity and programmed exercise: a crossover open-label study of five drug regimens. *J Am Coll Cardiol* 1999; 33:304.
48. Beasley R, Smith DA, McHaffie DJ. Exercise heart rates at different serum digoxin concentrations in patients with atrial fibrillation. *Br Med J (Clin Res Ed)* 1985; 290:9.
49. Falk RH, Leavitt JI. Digoxin for atrial fibrillation: a drug whose time has gone? *Ann Intern Med* 1991; 114:573.
50. David D, Segni ED, Klein HO, Kaplinsky E. Inefficacy of digitalis in the control of heart rate in patients with chronic atrial fibrillation: beneficial effect of an added beta adrenergic blocking agent. *Am J Cardiol* 1979; 44:1378.
51. Segal JB, McNamara RL, Miller MR, et al. The evidence regarding the drugs used for ventricular rate control. *J Fam Pract* 2000; 49:47.
52. Khalsa A, Edvardsson N, Olsson SB. Effects of metoprolol on heart rate in patients with digitalis treated chronic atrial fibrillation. *Clin Cardiol* 1978; 1:91.
53. Sarter BH, Marchlinski FE. Redefining the role of di-

- goxin in the treatment of atrial fibrillation. *Am J Cardiol* 1992; 69:71G.
54. Donovan KD, Power BM, Hockings BE, et al. Intravenous flecainide versus amiodarone for recent-onset atrial fibrillation. *Am JCardiol* 1995; 75:693.
  55. Delle Karth G, Geppert A, Neunteufl T, et al. Amiodarone versus diltiazem for rate control in critically ill patients with atrialtachyarrhythmias. *Crit Care Med* 2001; 29:1149.
  56. Davey MJ, Teubner D. A randomized controlled trial of magnesium sulfate, in addition to usual care, for rate control in atrialfibrillation. *Ann Emerg Med* 2005; 45:347.
  57. Ramesh T, Lee PYK, Mitta M, Allencherril J. Intravenous magnesium in the management of rapid atrial fibrillation: A systematicreview and meta-analysis. *J Cardiol* 2021; 78:375.
  58. Kotecha D, Bunting KV, Gill SK, et al. Effect of Digoxin vs Bisoprolol for Heart Rate Control in Atrial Fibrillation on Patient-ReportedQuality of Life: The RATE-AF Randomized Clinical Trial. *JAMA* 2020; 324:2497.
  59. Olshansky B, Rosenfeld LE, Warner AL, et al. The Atrial Fibrillation Follow-up Investigation of Rhythm Management (AFFIRM) study:approaches to control rate in atrial fibrillation. *J Am Coll Cardiol* 2004; 43:1201.