

# 14.

## BÖLÜM

# KRONİK BÖBREK HASTALIĞINDA HİPERTANSİYON TEDAVİSİ

Elif ÇETİN<sup>1</sup>

## GİRİŞ

### Kronik Böbrek Hastalığı Tanım, Epidemiyoloji, Etiyoloji

Kronik böbrek hastalığı (KBH) böbreğin 3 aydan daha fazla bir süre boyunca yapısal ya da fonksiyonel bir bozukluğa maruz kalması olarak tanımlanır (1). Tüm dünya nüfusunun % 10-15'ini etkilemekte ve prevalansı giderek artmaktadır (2). Türkiye'de yapılan çalışmalarda KBH prevalansı % 15.7 olup; bu durum erişkin popülasyonda her 6-7 kişiden birinde farklı evrelerde KBH bulunduğu anlamına gelmektedir (3). KBH, kardiyovasküler hastalıklar (KVH) ile de yakından ilişkili olup mortalite ve morbiditesi giderek artan önemli bir halk sağlığı sorunudur. Diyabet, ülkemizde ve tüm dünyada KBH'nın en sık nedeni olup; bunu hipertansiyon (HT) ve yapısal böbrek hastalıkları izlemektedir (4) (Tablo 1).

**Tablo 1. Türkiye'de son dönem böbrek yetmezliğinin (SDBY) en sık nedenleri (4)**

Diyabet

Hipertansiyon

Glomerülonefrit

Polikistik böbrek hastalıkları

Amiloidoz

Tübülointerstisyel nefrit

Obstrüktif nefropati

Renovasküler hastalık

Diğer

Etiyolojisi bilinmeyen

<sup>1</sup> Uzm. Dr. Tatvan Devlet Hastanesi Kardiyoloji Kliniği, drelicetin26@gmail.com

likle KBH hastalarında hepatik atılımı olan beta blokerlerin kullanılması avantajlı olabilir.

### **Alfa Blokerler**

Alfa blokerler (doksozosin) KBH hastalarında ilk sıra tedavide kullanılmaz genelde kombinasyon tedavilerinde kullanılırlar. Glisemik kontrol üzerine olumlu etkileri mevcuttur.

## **SONUÇ**

KBH hastalarında kan basıncını düşürmek KBH ilerlemesini yavaşlatır ve KVH insidansını azaltır.

KBH'da HT'ye neden olan mekanizmaları iyi kavramak ona göre tedavi planı oluşturmak gereklidir.

Tedavi planı yaparken hem renoprotektif hem kardiyoprotektif etkileri birlikte değerlendirmek gerekir.

Kılavuzlarda optimum kan basınçları için fikir birliği yoktur; ancak kılavuzlar hem renoprotektif hem de kardiyoprotektif etkileri destekleyen kanıtlara dayanılarak oluşturulmuşlardır.

Bu nedenle hastanın özellikleri ve kanıta dayalı bu bilgiler ışığında kişisel tedavi planları yapılmalıdır.

## **KAYNAKLAR**

1. KDIGO, (2021). Clinical Practice Guideline for the Management of Blood Pressure in Chronic Kidney Disease.
2. Coresh J, Selvin E, Stevens LA, et al. (2007). Prevalence of chronic kidney disease in the United States. *JAMA*, 298(17), 2038-47. Doi: 10.1001/jama.298.17.2038.
3. Süleymanlar G, Utaş C, Arinsoy T et al. (2011). A population-based survey of Chronic Renal Disease In Turkey--the CREDIT study. *Nephrol Dial Transplant*, 26(6):1862-71. Doi: 10.1093/ndt/gfq656.
4. Türk Nefroloji Derneği, (2019). Türkiye'de Nefroloji, Diyaliz ve Transplantasyon Registry 2019.
5. Tuğlular S. (2019). Kronik Böbrek Hastalığı: Etiyopatogenez, Tanı ve Değerlendirme. Yavuz Yeniçerioğlu (Ed.), *Temel Nefroloji* içinden (s. 291-294). Ankara: Güneş Kitap Evi.
6. Lv J, Ehteshami P, Sarnak MJ et al. (2013). Effects of intensive bloodpressure lowering on the progression of chronic kidney disease: a systematic review and meta-analysis. *CMAJ*, 185(11), 949-57. Doi:10.1503/cmaj.121468.
7. Malhotra R, Nguyen HA, Benavente O et al. (2017). Association between more intensive vs less intensive blood pressure lowering and risk of mortality in chronic kidney disease stages

- 3 to 5: a systematic review and meta-analysis. *JAMA Intern Med*, 177(10), 1498-1505. Doi: 10.1001/jamainternmed.2017.4377.
8. Converse RL Jr, Jacobsen TN, Toto RD et al. (1992). Sympathetic overactivity in patients with chronic renal failure. *N Engl J Med*, 327(27), 1912-8. Doi: 10.1056/NEJM199212313272704.
  9. Greene EL, Kren S, Hostetter TH. (1996). Role of aldosterone in the remnant kidney model in the rat. *J Clin Invest*, 98(4), 1063-8. Doi:10.1172/JCI118867.
  10. Koomans HA, Roos JC, Boer P et al. (1982). Salt sensitivity of blood pressure in chronic renal failure. Evidence for renal control of body fluid distribution in man. *Hypertension*, 4(2), 190-7. Doi:10.1161/01.hyp.4.2.190.
  11. Dhaun N, Goddard J, Webb DJ. (2006). The endothelin system and its antagonism in chronic kidney disease. *J Am Soc Nephrol*, 17(4), 943-55. Doi:10.1681/ASN.2005121256.
  12. Townsend RR, Wimmer NJ, Chirinos JA et al. (2010). Aortic PWV in chronic kidney disease: a CRIC ancillary study. *Am J Hypertens*, 23(3), 282-9. Doi: 10.1038/ajh.2009.240.
  13. Pugh D, Gallacher PJ, Dhaun N. (2019). Management of hypertension in chronic kidney disease. *Drugs*. 79(4), 365-379. Doi: 10.1007/s40265-019-1064-1.
  14. Brazy PC, Klotman PE. (1989). Increased oxidative metabolism in renal tubules from spontaneously hypertensive rats. *Am J Physiol*, 257(5/2), 818-825. Doi:10.1152/ajprenal.1989.257.5.F818.
  15. Fabbian F, Smolensky MH, Tiseo R et al. (2013). Dipper and non-dipper blood pressure 24-hour patterns: circadian rhythm-dependent physiologic and pathophysiologic mechanisms. *Chronobiol Int*, 30(1-2), 17-30. Doi: 10.3109/07420528.2012.715872.
  16. Agarwal R, Andersen MJ. (2006). Prognostic importance of ambulatory blood pressure recordings in patients with chronic kidney disease. *Kidney Int*, 69(7), 1175-80. Doi: 10.1038/sj.ki.5000247.
  17. Davis TK, Davis AJ. (2013). Ambulatory blood pressure monitoring should be used in the primary care setting to diagnose hypertension. *Am J Hypertens*, 26(9), 1057-8. Doi: 10.1093/ajh/hpt089.
  18. Sebo P, Pechère-Bertschi A, Herrmann FR et al. (2014). Blood pressure measurements are unreliable to diagnose hypertension in primary care. *J Hypertens*, 32(3):509-17. Doi: 10.1097/HJH.0000000000000058.
  19. Banegas JR, Ruilope LM, De La Sierra A, et al. (2020). Relationship between Clinic and Ambulatory Blood-Pressure Measurements and Mortality. *N Engl J Med*, 378, 1509-20. Doi: 10.1056/NEJMc2001445.
  20. Williams B, Mancia G, Spiering W, et al. (2019). 2018 ESC/ESH Guidelines for the management of arterial hypertension. *Kardiol Pol*, 77(2), 71-159. Doi: 10.5603.
  21. Gansevoort RT, Correa-Rotter R, Hemmelgarn BR et al. (2013). Chronic kidney disease and cardiovascular risk: epidemiology, mechanisms, and prevention. *Lancet*, 382(9889), 339-52. Doi: 10.1016/S0140-6736(13)60595-4.
  22. Schmieder RE, Mann JF, Schumacher H et al. (2011). ONTARGET Investigators. Changes in albuminuria predict mortality and morbidity in patients with vascular disease. *J Am Soc Nephrol*, 22(7), 1353-64. Doi: 10.1681/ASN.20100.
  23. Levey AS, Eckardt KU, Tsukamoto Y et al. Definition and classification of chronic kidney disease: a position statement from Kidney Disease: Improving Global Outcomes (KDIGO). *Kidney Int*. 2005 Jun;67(6):2089-100. doi:10.1111/j.1523-1755.2005.00365.x.
  24. Guy M, Borzomato JK, Newall RG et al. (2009). Protein and albumin-to-creatinine ratios in random urines accurately predict 24 h protein and albumin loss in patients with kidney disease. *Ann Clin Biochem*, 46(Pt 6), 468-76. Doi: 10.1258/acb.2009.009001.

25. Williams B, Mancia G, Spiering W et al. 2018 ESC/ESH Guidelines for the management of arterial hypertension [2018 ESC/ESH Guidelines for the management of arterial hypertension]. *Kardiol Pol.* 2019;77(2):71-159. Polish. doi: 10.5603/KP.2019.0018.
26. Whelton PK, Carey RM, Aronow WS et al. (2018). 2017 ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/NMA/PCNA guideline for the prevention, detection, evaluation, and management of high blood pressure in adults: a report of the american college of cardiology/american heart association task force on clinical practice guidelines. *J Am Coll Cardiol*, 71(19), 127-248. Doi: 10.1016/j.jacc.2017.11.006.
27. Chronic kidney disease in adults: assessment and management. (2015). London: National Institute for Health and Care Excellence (UK). PMID: 32208570.
28. Klahr S, Levey AS, Beck GJ, et al. (1994). The effects of dietary protein restriction and blood-pressure control on the progression of chronic renal disease. modification of diet in renal disease study group. *N Engl J Med*, 330(13), 877-84. Doi:10.1056/NEJM199403313301301.
29. Wright JT Jr, Bakris G, Greene T, et al. (2002). African American Study of Kidney Disease and Hypertension Study Group. Effect of blood pressure lowering and antihypertensive drug class on progression of hypertensive kidney disease: results from the AASK trial. *JAMA*, 288(19), 2421-31. Doi:10.1001/jama.288.19.2421.
30. Ruggenenti P, Perna A, Loriga G et al. (2005). REIN-2 Study Group. Blood-pressure control for renoprotection in patients with non-diabetic chronic renal disease (REIN-2): multicentre, randomised controlled trial. *Lancet*, 365(9463), 939-46. Doi: 10.1016/S0140-6736(05)71082-5.
31. Cushman WC, Evans GW, Byington RP, et al. (2010). Effects of intensive blood-pressure control in type 2 diabetes mellitus. *N Engl J Med*, 362(17), 1575-85. doi: 10.1056/NEJMoa1001286.
32. Wright JT Jr, Williamson JD, Whelton PK et al. (2015). A Randomized trial of intensive versus standard blood-pressure control. *N Engl J Med*, 373(22):2103-16. doi: 10.1056/NEJMoa1511939.
33. Evans PD, McIntyre NJ, Fluck RJ et al. (2012). Anthropomorphic measurements that include central fat distribution are more closely related with key risk factors than BMI in CKD stage 3. *PLoS One*, 7(4), 34699. Doi:10.1371/journal.pone.0034699.
34. Ku E, Glidden DV, Johansen KL et al. (2015). Association between strict blood pressure control during chronic kidney disease and lower mortality after onset of end-stage renal disease. *Kidney Int*, 87(5), 1055-60. Doi: 10.1038/ki.2014.376.
35. Slagman MC, Waanders F, Hemmelder MH et al. (2011). Holland nephrology study group. moderate dietary sodium restriction added to angiotensin converting enzyme inhibition compared with dual blockade in lowering proteinuria and blood pressure: randomised controlled trial. *BMJ*, 343, 4366. Doi: 10.1136/bmj.d4366.
36. Vogt L, Waanders F, Boomsma F et al. (2008). Effects of dietary sodium and hydrochloroazide on the antiproteinuric efficacy of losartan. *J Am Soc Nephrol*, 19(5):999-1007. Doi: 10.1681/ASN.2007060693.
37. McMahan EJ, Campbell KL, Mudge DW et al. (2012). Achieving salt restriction in chronic kidney disease. *Int J Nephrol*, 2012, 720429. Doi:10.1155/2012/720429.
38. Navaneethan SD, Yehnert H, Moustarah F et al. (2009). Weight loss interventions in chronic kidney disease: a systematic review and meta-analysis. *Clin J Am Soc Nephrol*, 4(10):1565-74. Doi:10.2215/CJN.02250409.
39. Morales E, Valero MA, León M et al. (2003). Beneficial effects of weight loss in overweight patients with chronic proteinuric nephropathies. *Am J Kidney Dis*, 41(2), 319-27. Doi: 10.1053/ajkd.2003.50039.

40. Jafar TH, Stark PC, Schmid CH et al. (2003). AIPRD Study Group. Progression of chronic kidney disease: the role of blood pressure control, proteinuria, and angiotensin-converting enzyme inhibition: a patient-level meta-analysis. *Ann Intern Med*, 139(4):244-52. Doi: 10.7326/0003-4819-139-4-200308190-00006.
41. Pohl MA, Blumenthal S, Cordonnier DJ et al. (2005). Independent and additive impact of blood pressure control and angiotensin II receptor blockade on renal outcomes in the irbesartan diabetic nephropathy trial: clinical implications and limitations. *J Am Soc Nephrol*, 16(10), 3027-37. Doi: 10.1681/ASN.2004110919.
42. Sarafidis PA, Khosla N, Bakris GL. (2007). Antihypertensive therapy in the presence of proteinuria. *Am J Kidney Dis*, 49(1):12-26. Doi: 10.1053/j.ajkd.2006.10.014.
43. Yusuf S, Teo KK, Pogue J et al. (2008). Telmisartan, ramipril, or both in patients at high risk for vascular events. *N Engl J Med*, 358(15), 1547-59. Doi: 10.1056/NEJMoa0801317.
44. Fried LF, Emanuele N, Zhang JH et al. (2013). VA NEPHRON-D Investigators. Combined angiotensin inhibition for the treatment of diabetic nephropathy. *N Engl J Med*, 369(20), 1892-903. Doi: 10.1056/NEJMoa1303154.
45. Zamboli P, De Nicola L, Minutolo R et al. (2011). Effect of furosemide on left ventricular mass in non-dialysis chronic kidney disease patients: a randomized controlled trial. *Nephrol Dial Transplant*, 26(5), 1575-83. Doi: 10.1093/ndt/gfq565.
46. Edwards NC, Ferro CJ, Kirkwood H et al. (2010). Effect of spironolactone on left ventricular systolic and diastolic function in patients with early stage chronic kidney disease. *Am J Cardiol*, 106(10):1505-11. Doi: 10.1016/j.amjcard.2010.07.018.
47. Jamerson K, Weber MA, Bakris GL et al; ACCOMPLISH Trial Investigators. Benazepril plus amlodipine or hydrochlorothiazide for hypertension in high-risk patients. *N Engl J Med*. 2008 Dec 4;359(23), 2417-28. Doi: 10.1056/NEJMoa0806182.
48. Gottlieb SS, McCarter RJ, Vogel RA. (1998). Effect of beta-blockade on mortality among high-risk and low-risk patients after myocardial infarction. *N Engl J Med*, 339(8), 489-97. Doi: 10.1056/NEJM199808203390801.