



AKUT İNME HASTALARINDA HİPERTANSİYONA YAKLAŞIM

Ahmet TAŞ¹

GİRİŞ

İnme, gelişmiş ülkelerde kardiyovasküler hastalıklar ve kanserden sonra en önemli mortalite ve morbidite sebebi olarak gösterilmektedir. Dünya Sağlık Örgütü (WHO) tarafından yapılan tanımlamaya göre vasküler nedenler dışında belirgin bir neden olmaksızın hızla ortaya çıkan 24 saat veya daha uzun süreli serebral fonksiyonlardaki fokal veya global kayba ait belirti ve bulgular inme olarak adlandırılmaktadır (1). İnmeler, oluşum mekanizmalarına göre iskemik (%85) veya hemorajik (%15) olarak iki gruba ayrılır. Her iki grupta da hipertansiyon önemli bir düzeltilebilir risk faktörü olarak karşımıza çıkmaktadır. Hipertansiyon, ofis sistolik kan basıncı (SKB) değerleri ≥ 140 mmHg ve/veya diyastolik kan basıncı (DKB) değerleri ≥ 90 mmHg tanımlanır (2). İnme riski, hipertansif (KB $\geq 140/90$ mmHg) hastalarda hipertansif olmayanlara kıyasla 3- 4 kat; sınırda hipertansiyonu (KB $\geq 130-139/85-89$ mmHg) olanlarda ise 1.5 kat artmıştır (3).

PATOFİZYOLOJİ

Sağlıklı erişkin bireylerde ortalama arteriyel kan basıncında 60-150 mmHg arasındaki dalgalanmalar, serebral kan akımında herhangi bir değişikliğe yol açmaz. Serebral kan akımını sabit tutmaya yönelik bu düzenlenmeye beyin otoregülasyonu denir. Beyin otoregülasyonunu sağlayan temel mekanizma ise serebral arteriol duvarındaki düz kas hücrelerinin transmural basınç değişikliklerinden etkilenmesi ve bunun sonucunda kasılıp gevşemesidir (4). Hipertansif hastalarda otore-

¹ Uzm. Dr., Van Eğitim ve Araştırma Hastanesi Kardiyoloji Bölümü drahmettas_21@hotmail.com

devam edilmesine büyük katkı sağlamaktadır. Trombolitik tedavi öncesi ölçülen SKB >185 mmHg ve DKB>110 mmHg ise labetalol 10-20 mg IV başlanmalıdır. Arteriyel kan basıncı hedeflenen aralıkta (sistolik≤185 ve diyastolik≤110 mmHg) değil ise trombolitik tedavi başlanmamalıdır (38). Tedaviye rağmen SKB 180-230 mmHg veya DKB 105- 120 mmHg arasında seyrederse IV labetalol tekrarlayan bolus (max 300 mg) veya infüzyon şeklinde (2-8 mg/dakika) devam edilir. SKB >230 mmHg ve DKB 121-140 mmHg ise labetalol tedavisi dışında nikardipin IV infüzyon (5 mg/saat dozunda başlanıp tansiyon değerine göre max 15 mg/saat olacak şekilde doz ayarlaması yapılır) da uygulanabilir. Bu tedavilere de yanıt alınamaması halinde IV sodyum nitroprussid infüzyonu 0.5 µg/kg/dk dozunda başlanır ve tansiyon değerine göre doz ayarlaması yapılır. DKB ≥140 mmHg ise IV nitroprussid ilk seçenek ilaç olarak değerlendirilir. Akut hemorajik inmeli hastalarda ise kan basıncı yüksek seyrediyorsa ve kan basıncı kontrolü sağlanmak isteniyorsa bunun için ortalama arteriyel kan basıncı (MAP) hesaplanmalı ve MAP değeri 130>mmHg olması durumuna IV ajanlar ile antihipertansif tedavi başlanmalıdır. Bu amaçla akut hemorajik inmeli hastalarda IV labetalol, nikardipin, nitroglicerine, esmolol, enalapril gibi ajanlar kullanılabilir.

KAYNAKLAR

1. World Health Organization. Cerebrovascular disorders: a clinical and research classification. World Health Organization, 1978.
2. Williams, B., Mancia, G., Spiering, W., Agabiti Rosei, E., Azizi, M., Burnier, M., ... & Desormais, I. (2018). 2018 ESC/ESH Guidelines for the management of arterial hypertension: The Task Force for the management of arterial hypertension of the European Society of Cardiology (ESC) and the European Society of Hypertension (ESH). *European heart journal*, 39(33), 3021-3104.
3. Gorelick, Philip B. "New horizons for stroke prevention: PROGRESS and HOPE." *The Lancet Neurology* 1.3 (2002): 149-156.
4. Strandgaard, S., & Paulson, O. B. (1984). Cerebral autoregulation. *Stroke*, 15(3), 413-416.
5. Strandgaard, S. J. E. N., Olesen, J., Skinhøj, E., & Lassen, N. A. (1973). Autoregulation of brain circulation in severe arterial hypertension. *Br med J*, 1(5852), 507-510.
6. Fieschi C, Agnoli A, Battistin N. Derangement of regional cerebral blood flow and of its regulatory mechanisms in acute cerebrovascular lesions. *Neurology* 1968; 18: 1166-1179.
7. Strandgaard, S. V. E. N. D. (1976). Autoregulation of cerebral blood flow in hypertensive patients. The modifying influence of prolonged antihypertensive treatment on the tolerance to acute, drug-induced hypotension. *Circulation*, 53(4), 720-727.
8. Lakka, T. A., Salonen, R., Kaplan, G. A., & Salonen, J. T. (1999). Blood pressure and the progression of carotid atherosclerosis in middle-aged men. *Hypertension*, 34(1), 51-56.
9. Chester EM, Agauranolis DP, Bauker BQ. Hypertensive encephalopathy: a clinicopathologic study of 20 cases. *Neurology* 1978;28:928-939.
10. Whelton, P. K. (1994). Epidemiology of hypertension. *Lancet* (London, England), 344(8915), 101-106.
11. Collins, Rory, et al. "Blood pressure, stroke, and coronary heart disease: part 2, short-term

- reductions in blood pressure: overview of randomised drug trials in their epidemiological context." *The Lancet* 335.8693 (1990): 827-838.
12. Mc Mahon S, Rodgers A. The effects of antihypertensive treatment on vascular disease: Reappraisal of the evidence in 1994. *J Vasc Med Biol* 1994;4:265-271 .
 13. Gueyffier F, Boissel J-P, Boutitie F, Pocock S, Coope J, Cutler J, et al. for the INDANA (Individual Data Analysis of Antihypertensive intervention trial) Project Collaborators. Effect of antihypertensive treatment in patients having already suffered from stroke: gathering the evidence. *Stroke* 1997; 28: 2557-62.
 14. Blood Pressure Lowering Treatment Trialists' Collaboration. "Effects of ACE inhibitors, calcium antagonists, and other blood-pressure-lowering drugs: results of prospectively designed overviews of randomised trials." *The Lancet* 356.9246 (2000): 1955-1964.
 15. Lawes CM, Bennett DA, Feigin VL, Rodgers A. Blood pressure and stroke: an overview of published reviews. *Stroke* 2004; 35: 776-85.
 16. Iadecola C, Gorelick PB. Hypertension, angiotensin, and stroke: Beyond blood pressure. *Stroke* 2004; 35: 348-50.
 17. Oppenheimer S, Hachinski V. Complications of acute stroke. *Lancet* 1992;339:721-724.
 18. Jorgensen HS, Nakayama H, Raaschou HO. Factors influencing blood pressure in acute stroke. The Copenhagen Stroke Study (abstract). *Cerebrovasc Dis* 1998;8(suppl 4): 1 O.
 19. Harper G, Castleden C, Potter J. Factors affecting changes in blood pressure after acute stroke. *Stroke* 1994;25: 1726-1729.
 20. Jansen, P. A. F., Schulte, B. P. M., Poels, E. F. J., & Gribnau, F. W. J. (1987). Course of blood pressure after cerebral infarction and transient ischemic attack. *Clinical neurology and neurosurgery*, 89(4), 243-246.
 21. Wallace J, Levy L: Blood pressure after stroke. *JAMA* 1981 ;246:2177-2180 .
 22. Ahmed, N., Wahlgren, N., Brainin, M., Castillo, J., Ford, G. A., Kaste, M., ... & Toni, D. (2009). Relationship of blood pressure, antihypertensive therapy, and outcome in ischemic stroke treated with intravenous thrombolysis: retrospective analysis from Safe Implementation of Thrombolysis in Stroke–International Stroke Thrombolysis Register (SITS-ISTR). *Stroke*, 40(7), 2442-2449.
 23. Wu, W., Huo, X., Zhao, X., Liao, X., Wang, C., Pan, Y., ... & TIMS-CHINA investigators. (2016). Relationship between blood pressure and outcomes in acute ischemic stroke patients administered lytic medication in the TIMS-China Study. *PLoS One*, 11(2), e0144260.
 24. LEE, Meng, et al. Effect of blood pressure lowering in early ischemic stroke: meta-analysis. *Stroke*, 2015, 46.7: 1883-1889.
 25. Zhao, Rong, et al. "Blood pressure reduction in the acute phase of an ischemic stroke does not improve short-or long-term dependency or mortality: a meta-analysis of current literature." *Medicine* 94.23 (2015).
 26. Jauch, Edward C., et al. "Guidelines for the early management of patients with acute ischemic stroke: a guideline for healthcare professionals from the American Heart Association/American Stroke Association." *Stroke* 44.3 (2013): 870-947.
 27. Sandset, Else Charlotte, et al. "The angiotensin-receptor blocker candesartan for treatment of acute stroke (SCAST): a randomised, placebo-controlled, double-blind trial." *The Lancet* 377.9767 (2011): 741-750.
 28. Robinson, Thompson G., et al. "Effects of antihypertensive treatment after acute stroke in the Continue or Stop Post-Stroke Antihypertensives Collaborative Study (COSSACS): a prospective, randomised, open, blinded-endpoint trial." *The Lancet Neurology* 9.8 (2010): 767-775.
 29. Willmot, Mark, Jo Leonardi-Bee, and Philip MW Bath. "High blood pressure in acute stroke and subsequent outcome: a systematic review." *Hypertension* 43.1 (2004): 18-24.
 30. Anderson, C. S., Heeley, E., Huang, Y., Wang, J., Stapf, C., Delcourt, C., ... & Chalmers, J. (2013). Rapid blood-pressure lowering in patients with acute intracerebral hemorrhage. *N Engl J*

Med, 368, 2355-2365.

31. Qureshi, Adnan I., et al. "Intensive blood-pressure lowering in patients with acute cerebral hemorrhage." *New England Journal of Medicine* 375.11 (2016): 1033-1043.
32. PROGRESS Collaborative Group. Randomised trial of a perindopril-based blood-pressure-lowering regimen among 6,105 individuals with previous stroke or transient ischaemic attack. *Lancet* 2001;358:1033–1041.
33. White, C. L., Szychowski, J. M., Pergola, P. E., Field, T. S., Talbert, R., Lau, H., ... & Secondary Prevention of Small Subcortical Strokes Study Investigators. (2015). Can blood pressure be lowered safely in older adults with lacunar stroke? The Secondary Prevention of Small Subcortical Strokes study experience. *Journal of the American Geriatrics Society*, 63(4), 722-729.
34. Kernan, W. N., Ovbiagele, B., Black, H. R., Bravata, D. M., Chimowitz, M. I., Ezekowitz, M. D., ... & Wilson, J. A. (2014). Guidelines for the prevention of stroke in patients with stroke and transient ischemic attack: a guideline for healthcare professionals from the American Heart Association/American Stroke Association. *Stroke*, 45(7), 2160-2236.
35. Collier, D. J., Poulter, N. R., Dahlöf, B., Sever, P. S., Wedel, H., Buch, J., ... & Ascot Investigators. (2011). Impact of amlodipine-based therapy among older and younger patients in the Anglo-Scandinavian Cardiac Outcomes Trial– Blood Pressure Lowering Arm (ASCOT-BP-LA). *Journal of hypertension*, 29(3), 583-591.
36. National Institute for Health and Clinical Excellence. Hypertension (CG127): clinical management of primary hypertension in adults. www.nice.org.uk/guidance/CG127 (April 2018).
37. Vickrey, B. G., Rector, T. S., Wickstrom, S. L., Guzy, P. M., Sloss, E. M., Gorelick, P. B., ... & Levin, R. A. (2002). Occurrence of secondary ischemic events among persons with atherosclerotic vascular disease. *Stroke*, 33(4), 901-906.
38. Schrader J, Luders S, Kulschewski A, Berger J, Zidek W, Treib J, et al. Acute Candesartan Cilexetil Therapy in Stroke Survivors Study Group. The ACCESS Study: evaluation of Acute Candesartan Cilexetil Therapy in Stroke Survivors. *Stroke* 2003; 34: 1699- 703.