

# BÖLÜM 17

## Antimikrobiyal İlaçlar

Ferit KUŞCU <sup>1</sup>

Özlem ÖZKAN KUŞCU <sup>2</sup>

### GİRİŞ

Yoğun bakımlar, dirençli mikroorganizmaların, sıklıkla sağlık bakım ilişkili enfeksiyonlara yol açtığı birimlerdir. Antibiyotiklerin uygunsuz kullanımının dirençli mikroorganizmalar üzerindeki seçici baskısı bu sorunu daha da derinleştiren en önemli faktörlerdendir. El hijyeni başta olmak üzere enfeksiyon kontrol önlemlerine maksimum uyum, sağlık bakım ilişkili enfeksiyonların önlenmesinde en kritik uygulamalardır. Her bir antibiyotik kullanıma girdiği ilk günden itibaren dirençle yüz yüze gelmeye mahkumdur. Mikroorganizmalarla mücadelede sadece antibiyotik kullanımını önlemek akılcı bir yaklaşım olmadığı için yoğun bakım üniteleri başta olmak üzere hastanelerde enfeksiyon kontrol önlemlerinden taviz verilmemesi gereklidir.

Yoğun bakım ünitelerinde gelişen enfeksiyonların tedavisinde en sık kullanılan antimikrobiyal ilaçlar gruplar halinde sınıflandırılarak detaylarına yer verilecektir.

### ANTİBİYOTİKLER

#### Beta-Laktam Grubu Antibiyotikler

##### *Penisilinler:*

Penisilin ilk kez 1928 yılında Alexander Fleming tarafından keşfedilmiştir. Beta laktam halkası içeren bir kimyasal yapıya sahiptir. Penisilinlerin etki mekanizması

<sup>1</sup> Doç. Dr., Çukurova Üniversitesi, Tıp Fakültesi, Enfeksiyon Hastalıkları ve Klinik Mikrobiyoloji AD, feritkusc@gmail.com

<sup>2</sup> Uzm. Dr., Başkent Üniversitesi, Tıp Fakültesi, Anesteziyoloji ve Reanimasyon AD.

## KAYNAKLAR

1. Doi Y, Chambers HF. Penicillins and  $\beta$ -Lactamase Inhibitors In Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases : Elsevier Inc. 2014: 263-277.
2. Perry CM, Markham A. Piperacillin/tazobactam: an updated review of its use in the treatment of bacterial infections. *Drugs*. 1999;57(5):805-43
3. G Bonfiglio, Y Laksai, N Franceschini et al.: In vitro activity of piperacillin/tazobactam against 615 *Pseudomonas aeruginosa* strains isolated in intensive care units. *Chemotherapy*. 1998;44:305-312
4. MD Lyon, KR Smith, MS Saag, et al. In vitro activity of piperacillin, ticarcillin, and mezlocillin alone and in combination with aminoglycosides against *Pseudomonas aeruginosa* . *Antimicrob Agents Chemother*. 1986;30:25-30
5. CM Flynn, DM Johnson, RN Jones: In vitro efficacy of levofloxacin alone or in combination tested against multi-resistant *Pseudomonas aeruginosa* strains. *J Chemother*. 1996;8:411-415
6. G Capellier, C Cornette, A Boillot, et al.: Removal of piperacillin in critically ill patients undergoing continuous venovenous hemofiltration. *Crit Care Med*. 1998;26:88-91
7. A.J. Lepak Andes DR. Cephalosporins. J.E. Bennet (Ed.), Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases 9th ed. :Elsevier Inc: 2020: 268-284
8. Klein NC, Cunha BA. Third-generation cephalosporins. *Med Clin North Am* 1995; 79(4):705.
9. GG Zhanel, CD Lawson, H Adam et al. : Ceftazidime-avibactam: a novel cephalosporin/ $\beta$ -lactamase inhibitor combination. *Drugs*. 2013;73(2):159-177
10. Lagace-Wiens, F Tailor, P Simner, et al.: Activity of NXL104 in combination with beta-lactams against genetically characterized *Escherichia coli* and *Klebsiella pneumoniae* isolates producing class A extended-spectrum beta-lactamases and class C beta-lactamases. *Antimicrob Agents Chemother*. 2011; 55:2434-2437
11. Sanders WE Jr, Tenney JH, Kessler RE. Efficacy of cefepime in the treatment of infections due to multiply resistant *Enterobacter* species. *Clin Infect Dis* 1996; 23(3):454.
12. File TM Jr, Wilcox MH, Stein GE. Summary of ceftaroline fosamil clinical trial studies and clinical safety. *Clin Infect Dis* 2012; 55 Suppl 3:S173
13. Doi Y. Ertapenem, Imipenem, Meropenem, Doripenem, and Aztreonam, In: Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases, Elsevier. 2020:285-90
14. Papp-Wallace KM, Endimiani A, Taracila MA, Bonomo RA. Carbapenems: past, present, and future. *Antimicrob Agents Chemother*. 2011;55(11):4943-60.
15. Murray, Barbara E. et al. "Glycopeptides (Vancomycin and Teicoplanin), Streptogramins (Quinupristin-Dalfopristin), Lipopeptides (Daptomycin), and Lipoglycopeptides (Telavancin)." *Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases* 2015:377-400.
16. Safdar N, Andes D, Craig WA. In vivo pharmacodynamic activity of daptomycin. *Antimicrob Agents Chemother*. 2004;48(1): 63-8.
17. Vilay MA, Griot M, DePestel DD, et al, "Daptomycin Pharmacokinetics in Critically Ill Patients Receiving Continuous Venovenous Hemodialysis," *Crit Care Med*, 2011; 39(1):19-25.
18. Cubicin (daptomycin) [product monograph]. Mississauga, Ontario, Canada: Sunovion Pharmaceuticals Canada Inc; August 2013.

19. Mandell GL, Bennett JE, Dolin R. Aminoglycosides. In: Principles and Practice of Infectious Diseases (6th Ed). New York: Churchill Livingstone: 2005.
20. Kumana CR, Yuen KY. Parenteral aminoglycoside therapy. Selection, administration and monitoring. *Drugs* 1994;47(6):902.
21. Stein GE, Craig WA. Tigecycline: a critical analysis. *Clin Infect Dis* 2006;43(4):518.
22. US Food and Drug Administration (FDA). FDA drug safety communication: Increased risk of death with Tygacil (tigecycline) compared to other antibiotics used to treat similar infections. <http://www.fda.gov/Drugs/DrugSafety/ucm224370.htm> (Accessed on September 02, 2010).
23. Moellering RC. Linezolid: the first oxazolidinone antimicrobial. *Ann Intern Med* 2003; 139(10):135.
24. Nation RL, Velkov T, Li J. Colistin and polymyxin B: peas in a pod, or chalk and cheese? *Clin Infect Dis* 2014;59(1):88.
25. Kucers Alvis, Crowe SM, Grayson ML et al. The Use of Antibiotics: A Clinical Review of Antibacterial, Antifungal, Antiparasitic, and Antiviral Drugs, (7th ed). Boca Raton: CRC Press; 2018. p.1420.
26. Dismukes WE. Antifungal therapy: lessons learned over the past 27 years. *Clin Infect Dis* 2006;42(9):1289.
27. Pappas PG, Kauffman CA, Andes DR, et al. Clinical Practice Guideline for the Management of Candidiasis: 2016 Update by the Infectious Diseases Society of America. *Clin Infect Dis* 2016;62(4):e1.
28. Centers for Disease Control and Prevention. Clinical Alert to U.S. Healthcare Facilities - June 2016 | Fungal Diseases | CDC. Fungal Diseases. <http://www.cdc.gov/fungal/diseases/candidiasis/candida-auris-alert.html>. Published 2016(Accessed september 2021).
29. American Society of Health System Pharmacists, Inc., DynaMed [Internet]. Ipswich (MA): EBSCO Information Services. 1995 - . Record No. 233400, Fluconazole; [updated 2011 Aug 03, cited 2017 Dec 13]; [about 45 screens]. Available from <http://search.ebscohost.com/login.aspx?direct=true&db=dnh&AN=233400&site=dynamed-live&scope=site>.
30. Carrillo-Munoz AJ, Giusiano G, Ezkurra PA, Quindos G. Antifungal agents: mode of action in yeast cells. *Rev Esp Quimioter* 2006;19(2):130-139.
31. Denning DW. Echinocandin antifungal drugs. *Lancet* 2003;362(9390):1142-1151
32. Maschmeyer G, Glasmacher A. Pharmacological properties and clinical efficacy of a recently licensed systemic antifungal, caspofungin. *Mycoses* 2005; 48(4): 227-234.
33. Chandrasekar PH, Sobel JD. Micafungin: a new echinocandin. *Clin Infect Dis* 2006; 42(8): 1171-1178
34. Mora-Duarte J, Betts R, Rotstein C, et al. Comparison of caspofungin and amphotericin B for invasive candidiasis. *N Engl J Med* 2002; 347(25):2020-2029.
35. Reboli AC, Rotstein C, Pappas PG, et al. Anidulafungin versus fluconazole for invasive candidiasis. *N Engl J Med* 2007;356(24):2472-82.
36. Kuse ER, Chetchotisakd P, da Cunha CA, et al. Micafungin versus liposomal amphotericin B for candidaemia and invasive candidosis: a phase III randomised double-blind trial. *Lancet* 2007; 369(9572):1519-1527.