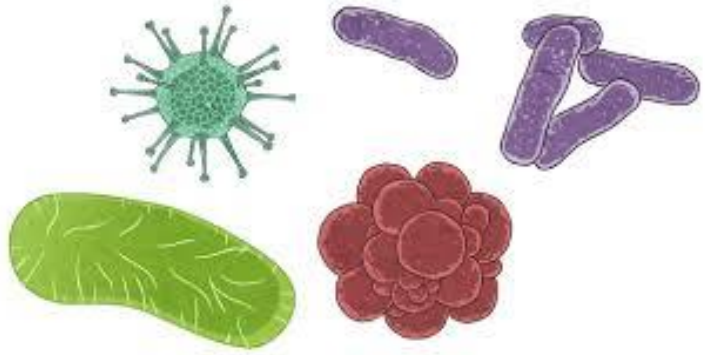
İSTANBUL
MEDENİYET ÜNİVERSİTESİ

TOPLUMDA EDİNİLMİŞ BAKTERİYEL ENFEKSİYONLAR İÇİN

AMPİRİK ANTİBİYOTİK TEDAVİSİ

Prof. Dr. Yasemin Çağ
İstanbul Medeniyet üniversitesi Tıp fakültesi
Enfeksiyon Hastalıkları ve Klinik Mikrobiyoloji AD
9.9.2023



Sunum planı

- Giriş
- Toplum kökenli (TK) pnömoni
- TK üriner sistem enfeksiyonları
- TK deri ve yumuşak doku enfeksiyonları
- TK sepsis
- TK intraabdominal enfeksiyonlar
- TK endokardit
- TK menenjit

Toplumdan Edinilmiş Enfeksiyon (Toplum Kökenli Enfeksiyon)

- Hastane dışında gelişen veya hastaneye yatıştan sonraki 48 saat içinde tanı konulan enfeksiyonlardır.
- Etken patojenlerin hastaneden edinilen enfeksiyon etkenlerine göre daha düşük antibiyotik direnç oranlarına sahip olması beklenir.
- Toplumdan edinilen patojenler arasında antibiyotik direnç sıklığı giderek artmakta.

- OECD 2018 raporunda ülkemiz antibiyotik tüketiminin en yaygın olduğu ülkeler arasında.
- Ortalama antibiyotik direnç oranın da ülkemiz Yunanistan ve Güney Kore ile birlikte (%35) en yüksek ülkeler arasında

Akılcı antibiyotik kullanımı:

- Doğru tanı sonrası
- Doğru antibiyotiğin
- Uygun yoldan
- Etkin doz ve aralıkta
- Uygun süreyle verilmesi

Ampirik tedavi kararı verirken

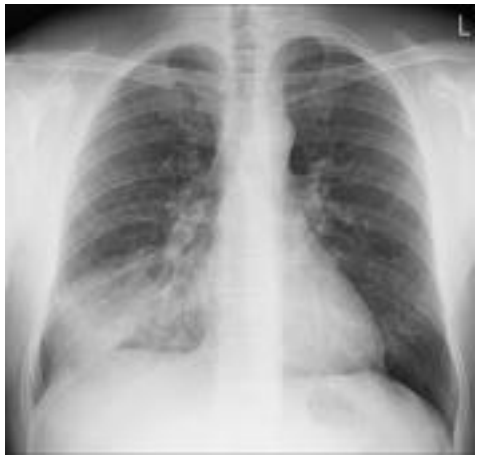
- Hastalığının şiddeti ve olası enfeksiyon kaynağı
- Muhtemel etken patojenler ve direnç profilleri
- Hastaya özel durumlar (allerji öyküsü, immun yetmezlik, böbrek yetmezliği vs. gibi komorbiditeler)
- Hastada son 6 ayda tespit edilen patojenler ve antibiyotik duyarlılıkları
- İnvaziv cihaz varlığı
- Olası ilaç yan etkileri dikkate alınmalıdır

- **Dirençli patojenleri ne zaman düşünelim**
  - Yakın zamanda hastane yatışı
  - Yakın zamanda antibiyotik kullanımı (son 90 gün)
  - Bilinen bir dirençli patojen ile kolonizasyon veya yakın zamanda geçirilmiş enfeksiyon…….

Toplum Kökenli Pnömoni

- Dünya çapında hastaneye yatış ve ölümün önde gelen enfeksiyöz nedenlerinden biridir.

- Toplum kökenli pnömoni ampirik tedavi
  - *S. pneumoniae*,
  - *H. influenzae*,
  - *S. aureus*
  - *M. pneumoniae*
  - *Legionella türleri* gibi atipik patojenleri kapsamalıdır.



AMERICAN THORACIC SOCIETY DOCUMENTS

Diagnosis and Treatment of Adults with Community-acquired Pneumonia

An Official Clinical Practice Guideline of the American Thoracic Society and Infectious Diseases Society of America

Joshua P. Metlay*, Grant W. Waterer*, Ann C. Long, Antonio Anzueto, Jan Brozek, Kristina Crothers, Laura A. Cooley, Nathan C. Dean, Michael J. Fine, Scott A. Flanders, Marie R. Griffin, Mark L. Metersky, Daniel M. Musher, Marcos I. Restrepo, and Cynthia G. Whitney; on behalf of the American Thoracic Society and Infectious Diseases Society of America

THIS OFFICIAL CLINICAL PRACTICE GUIDELINE WAS APPROVED BY THE AMERICAN THORACIC SOCIETY MAY 2019 AND THE INFECTIOUS DISEASES SOCIETY OF AMERICA AUGUST 2019

- Hastanın ayaktan ya da yatarak tedavi kararında **Pnömoni Ciddiyet İndeksi (PSI)** öneriliyor
- Vazopresör gerektiren hipotansiyon veya mekanik ventilasyon gerektiren solunum yetmezliği olan hastalar doğrudan bir YBÜ'ne yatırılmalıdır.
- Diğer hastalarda yatış yerinin belirlenmesinde **IDSA/ATS 2007 ciddiyet ölçütleri ile birlikte klinik yargının** kullanılması önerilir

Ayaktan tedavi

Komorbiditeler:

- Kronik kalp, akciğer, karaciğer veya böbrek hastalığı
- Diyabet
- Alkolizm
- Malignite
- Splenektomi

Metisiline dirençli *S. aureus* (MRSA) veya *P. aeruginosa* için risk faktörleri:

- MRSA veya *P. aeruginosa*'nın daha önce solunum örneklerinden izolasyonu
- Hastane yatışı
- IV antibiyotik kullanımı (90 gün)

Table 3. Initial Treatment Strategies for Outpatients with Community-acquired Pneumonia

	Standard Regimen
No comorbidities or risk factors for MRSA or *Pseudomonas aeruginosa**	Amoxicillin or doxycycline or macrolide (if local pneumococcal resistance is <25%)†
With comorbidities‡	Combination therapy with amoxicillin/clavulanate or cephalosporin AND macrolide or doxycycline§ OR monotherapy with respiratory fluoroquinolone‖

Definition of abbreviations: ER = extended release; MRSA = methicillin-resistant *Staphylococcus aureus*.
*Risk factors include prior respiratory isolation of MRSA or *P. aeruginosa* or recent hospitalization AND receipt of parenteral antibiotics (in the last 90 d).
†Amoxicillin 1 g three times daily, doxycycline 100 mg twice daily, azithromycin 500 mg on first day then 250 mg daily, clarithromycin 500 mg twice daily, or clarithromycin ER 1,000 mg daily.
‡Comorbidities include chronic heart, lung, liver, or renal disease; diabetes mellitus; alcoholism; malignancy; or asplenia.
§Amoxicillin/clavulanate 500 mg/125 mg three times daily, amoxicillin/clavulanate 875 mg/125 mg twice daily, 2,000 mg/125 mg twice daily, cefpodoxime 200 mg twice daily, or cefuroxime 500 mg twice daily; AND azithromycin 500 mg on first day then 250 mg daily, clarithromycin 500 mg twice daily, clarithromycin ER 1,000 mg daily, or doxycycline 100 mg twice daily.
‖Levofloxacin 750 mg daily, moxifloxacin 400 mg daily, or gemifloxacin 320 mg daily.

2005 yılında bir çalışmada ülkemizde pnömokoklarda makrolid direnci %25.7 olarak bildirilmiş.

Bayram A. Et al. Türk Mikrobiyol Cem Derg (2005)

Yatan Hasta Tedavisi

Table 4. Initial Treatment Strategies for Inpatients with Community-acquired Pneumonia by Level of Severity and Risk for Drug Resistance

	Standard Regimen	Prior Respiratory Isolation of MRSA	Prior Respiratory Isolation of *Pseudomonas aeruginosa*	Recent Hospitalization and Parenteral Antibiotics and Locally Validated Risk Factors for MRSA	Recent Hospitalization and Parenteral Antibiotics and Locally Validated Risk Factors for *P. aeruginosa*
Nonsevere inpatient pneumonia*	β-Lactam + macrolide† or respiratory fluroquinolone‡	Add MRSA coverage§ and obtain cultures/nasal PCR to allow deescalation or confirmation of need for continued therapy	Add coverage for *P. aeruginosa*‖ and obtain cultures to allow deescalation or confirmation of need for continued therapy	Obtain cultures but withhold MRSA coverage unless culture results are positive. If rapid nasal PCR is available, withhold additional empiric therapy against MRSA if rapid testing is negative or add coverage if PCR is positive and obtain cultures	Obtain cultures but initiate coverage for *P. aeruginosa* only if culture results are positive
Severe inpatient pneumonia*	β-Lactam + macrolide† or β-lactam + fluroquinolone‡	Add MRSA coverage§ and obtain cultures/nasal PCR to allow deescalation or confirmation of need for continued therapy	Add coverage for *P. aeruginosa*‖ and obtain cultures to allow deescalation or confirmation of need for continued therapy	Add MRSA coverage§ and obtain nasal PCR and cultures to allow deescalation or confirmation of need for continued therapy	Add coverage for *P. aeruginosa*‖ and obtain cultures to allow deescalation or confirmation of need for continued therapy

Definition of abbreviations: ATS = American Thoracic Society; CAP = community-acquired pneumonia; HAP = hospital-acquired pneumonia; IDSA = Infectious Diseases Society of America; MRSA = methicillin-resistant *Staphylococcus aureus*; VAP = ventilator-associated pneumonia.

*As defined by 2007 ATS/IDSA CAP severity criteria guidelines (*see* Table 1).

†Ampicillin + sulbactam 1.5–3 g every 6 hours, cefotaxime 1–2 g every 8 hours, ceftriaxone 1–2 g daily, or ceftaroline 600 mg every 12 hours AND azithromycin 500 mg daily or clarithromycin 500 mg twice daily.

‡Levofloxacin 750 mg daily or moxifloxacin 400 mg daily.

§Per the 2016 ATS/IDSA HAP/VAP guidelines: vancomycin (15 mg/kg every 12 h, adjust based on levels) or linezolid (600 mg every 12 h).

‖Per the 2016 ATS/IDSA HAP/VAP guidelines: piperacillin-tazobactam (4.5 g every 6 h), cefepime (2 g every 8 h), ceftazidime (2 g every 8 h), imipenem (500 mg every 6 h), meropenem (1 g every 8 h), or aztreonam (2 g every 8 h). Does not include coverage for extended-spectrum β-lactamase–producing Enterobacteriaceae, which should be considered only on the

- **MRSA için vankomisin, teikoplanin veya linezolid**
- ***P. aeruginosa* için piperasilin-tazobaktam (4X4,5 gr/gün), sefepim, seftazidim, meropenem veya imipenem ile tedavi**

Table 4. Initial Treatment Strategies for Inpatients with Community-acquired Pneumonia by Level of Severity and Risk for Drug Resistance

	Standard Regimen	Prior Respiratory Isolation of MRSA	Prior Respiratory Isolation of *Pseudomonas aeruginosa*	Recent Hospitalization and Parenteral Antibiotics and Locally Validated Risk Factors for MRSA	Recent Hospitalization and Parenteral Antibiotics and Locally Validated Risk Factors for *P. aeruginosa*
Nonsevere inpatient pneumonia*	β-Lactam + macrolide† or respiratory fluroquinolone‡	Add MRSA coverage§ and obtain cultures/nasal PCR to allow deescalation or confirmation of need for continued therapy	Add coverage for *P. aeruginosa*‖ and obtain cultures to allow deescalation or confirmation of need for continued therapy	Obtain cultures but withhold MRSA coverage unless culture results are positive. If rapid nasal PCR is available, withhold additional empiric therapy against MRSA if rapid testing is negative or add coverage if PCR is positive and obtain cultures	Obtain cultures but initiate coverage for *P. aeruginosa* only if culture results are positive
Severe inpatient pneumonia*	β-Lactam + macrolide† or β-lactam + fluroquinolone‡	Add MRSA coverage§ and obtain cultures/nasal PCR to allow deescalation or confirmation of need for continued therapy	Add coverage for *P. aeruginosa*‖ and obtain cultures to allow deescalation or confirmation of need for continued therapy	Add MRSA coverage§ and obtain nasal PCR and cultures to allow deescalation or confirmation of need for continued therapy	Add coverage for *P. aeruginosa*‖ and obtain cultures to allow deescalation or confirmation of need for continued therapy

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- **MRSA için vankomisin, teikoplanin veya linezolid,**
- ***P. aeruginosa* için piperasilin-tazobaktam (4X4,5 gr/gün), sefepim, seftazidim, meropenem veya imipenem ile tedavi edilmelidir.**

- TK pnömonide tedavi süresi ne olmalı?
    - Klinik stabilite sağlanana dek en az 5 gün

Toplum Kökenli Üriner Sistem Enfeksiyonları

Multidrug resistance in pathogens of community-acquired urinary tract infections in Turkey: a multicentre prospective observational study

Şencan İ [1], Karabay O [2], Altay FA [3], Yıldız SS [4], Şimşek H [4], Gözükara MG [5], Kuzi S [6], Karlıdağ GE [7], Kaya Ş [8], Kul G [9], Türkoğlu E [10], Sezer BE [11], Korkmaz N [12], Kaya SY [13], Sayar MS [14], Bulut D [1], Akgül F [15], Çağ Y [16], Ağalar C [17], Dursun ZB [18] ... [Show all 31] ... Sürme S [26]

Results

Of the 1588 culture growths, 1269 (79. 9%) were Escherichia coli and 152 (9.6%) were Klebsiella spp. Male sex, advancedage, and having two or more risk factors showed a statistically significant relation with MDR existence ($p < 0.001$, p: 0.014, $p < 0.001$, respectively) that increasing number of risk factors or degree of advancing in age directly affects the number of antibiotic groups detected to have resistance by pathogens. In total, MDR isolates corresponded to 36.1% of our CAUTI samples; MDR existence was 35.7% in E. coli isolates and 57.2% in Klebsiella spp. isolates. Our results did not show an association between resistance or MDR occurrence rates and NUTS regions.

Discussion

The necessity of urine culture in outpatient clinics should be taken into consideration, at least after evaluating risk factorsfor antibacterial resistance individually. Community-acquired UTIs should be followed up time- and region-dependently. Antibiotic stewardship programmes should be more widely and effectively administrated.

- **Mart 2019-Mart 2020**
- **20 Merkez**
- **1588 idrar kültürü**

Toplum kökenli ÜSE'de MDR oranları

- ***E. coli* %35**
- ***Klebsiella spp.*'de %57**

Table 5. Percentages and resistance rates of isolated bacteria for the routinely used antibiotics.

Bacteria (%)*	AM(n,%)	AMC (n,%)	P(n,%)	CZ(n,%)	CXA(n,%,)	CFM(n,%)	TMP-STX(n,%)	FF(n,%)	F(n,%)	GEN(n,%)	CIP(n,%)	VA(n,%)	≥2res(n,%)	MDR
E. coli n=1269 (79.9)	**622 (49.8) *n:1248***	**285 (24.3) *n:1175***	**N/A**	**635 (91.5) *n:694***	**159 (13.6) *n:1166***	**231 (21.8) *n:1058***	**326 (27.4) *n:1190***	**229 (24.0) *n:953***	**41 (3.4) *n:1209***	**132 (10.4) *n:1267***	**248 (20.4) *n:1218***	**N/A**	**686 (54.1) *n:1269***	**453 (35.7) *n:1269***
Stafilococcu n=10 (0.6)	1 (16.7) *n:6*	N/A	3 **(42.9)** *n:7*	N/A	N/A	N/A	0 (0) *n:9*	N/A	N/A	0(0) *n:7*	6 **(75.0)** *n:8*	N/A	2 **(20)** *n:10*	0 (0) *n:10*
Streptococcusn=15 (0.9)	N/A	N/A	1 (6.7) *n:15*	N/A	N/A	N/A	1 (10) *n:10*	N/A	0 (0) *n:4*	N/A	N/A	N/A	0 (0) *n:15*	0 (0) *n:15*
CNS n=28 (1.8)	12 **(60)** *n:20*	N/A	7 **(63.6)** *n:11*	N/A	N/A	N/A	4 (16.0) *n:25*	N/A	N/A	1 (4.5) *n:22*	16 **(59.3)** *n:27*	N/A	13 **(46.4)** *n:28*	4 (14.3) *n:28*
Serratia n=3 (0.2)	3 **(100)** *n:3*	2 **(66.7)** *n:3*	N/A	1 **(100)** *n:1*	0(0) *n:2*	0 (0) *n:2*	1 **(33.3)** *n:3*	2 **(100)** *n:2*	1 **(50)** *n:2*	0(0) *n:3*	0 (0) *n:3*	N/A	2 **(66.7)** *n:3*	1 **(33.3)** *n:3*
Providencia n=2 (0.1)	2 **(100)** *n:2*	2 **(100)** *n:2*	N/A	N/A	0 (0) *n:1*	0 (0) *n:2*	1 **(50)** *n:2*	2 **(100)** *n:2*	2 **(100)** *n:2*	1 **(50)** *n:2*	1 **(50)** *n:2*	N/A	2 **(100)** *n:2*	2 **(100)** *n:2*
Proteus n=26 (1.6)	9 **(34.6)** *n:26*	3 (12.0) *n:25*	N/A	19 **(100)** *n:19*	4 (15.4) *n:26*	4 (16) *n:25*	18**(72.0)** *n:25*	3 (13.0) *n:23*	18**(72.0)** *n:25*	1 (4) *n:25*	1 (4.0) *n:25*	N/A	17 **(65.4)** *n:26*	11 **(42.3)** *n:26*
Citrobacter n=8 (0.5)	5 **(62.5)** *n:8*	3 **(42.9)** *n:7*	N/A	5 **(62.5)** **n**:8	1 **(20)** *n:5*	1**(20)** *n:5*	1 (12.5) *n:8*	2 **(28.6)** *n:7*	1 (14.3) *n:7*	0 (0) *n:8*	1 (14.3) *n:7*	N/A	1 (12.5) *n:8*	1 (12.5) *n:8*
Enterococcus n=43 (2.7)	22 **(52.4)** *n:42*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4 (13.3) *n:30*	N/A	15 **(40.5)** *n:37*	3 **(100)** *n:3*	12 **(27.9)** *n:43*	2 (4.7) *n:43*
Klebsiella n=152 (9.6)	**134(93.1) *n:144***	**58 (40) *n:145***	**N/A**	**65(84.4) *n:77***	**15(11.1) *n:135***	**29 (23.6) *n:123***	**44(30.6) *n:144***	**61(58.1) *n:105***	**28(20.3) *n:138***	**20(13.2) *n:152***	**32 (21.3) *n:150***	**N/A**	**111(73.0) *n:152***	**87 (57.2) *n:152***
Pseudomonas and Acinetobacter n=32 (2)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	24 **(75.0)** n:30	N/A	N/A	N/A
TOTAL	810 (54.0) n:1499	353 (26.0) n:1357	11 (33.3) n:33	725 (45.7) n:796	179 (13.4) n:1335	265 (21.8) n:1215	396 (28.0) n:1416	299 (27.4) n:1092	95 (6.7) n:1417	155 (10.4) n:1486	344 (22.8) n:1507	3 (100) n:3	846 (54.4) n:1556	561 (36.1) n:1556

AM: ampicillin, **AMC**: amoxicillin-clavulanate, **P:** benzylpenicillin, **CZ**: cefazolin, **FOX**: cefoxitin, **CXA**: cefuroxime-axetil, **CFM**: cefixime, **TMP-STX**: trimethoprim sulfamethoxazole, **FF**: fosfomycin, **F**: nitrofurantoin, **GEN**: gentamicin, **CIP:** ciprofloxacin, **VA**: vankomycin, **N/A**: nonavailable. Data of *E. coli* and *Klebsiella* spp. are all in bold.

- **Komplike olmayan sistitli kadınlarda** IDSA/ESCMID kılavuzları, antibiyotiğin türüne bağlı olarak tedavi sürelerini önermektedir.
- **Nitrofurantoin 100 mg 2x1, 5 gün**
- Ciprofloksasin 250-500 mg 2x1, 3 gün
- Sefiksim 400 mg 1x1, 3 gün
- Sefuroksim aksetil 250-500 mg 2x1- 3-7 gün,
- Trimetoprim-sülfametoksazol (TMP-SMZ) 160/80 mg, 2x1, 3 gün
- Fosfomisin 3gr tek doz, içeren kısa süreli tedavi

> Eur J Clin Microbiol Infect Dis. 2022 Mar;41(3):421-430. doi: 10.1007/s10096-021-04392-2. Epub 2022 Jan 3.

Increasing rates of extended-spectrum β-lactamase-producing Escherichia coli and Klebsiella pneumoniae in uncomplicated and complicated acute pyelonephritis and evaluation of empirical treatments based on culture results

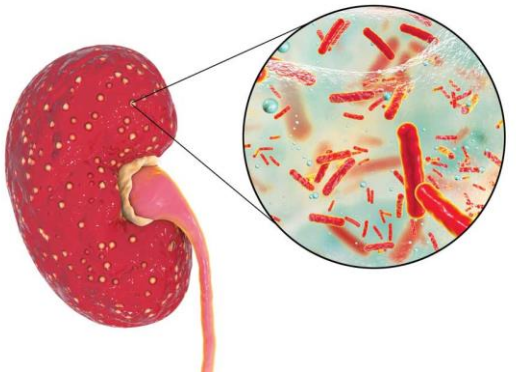
Bircan Kayaaslan [1], Zeynep Oktay [2], Imran Hasanoglu [3], Ayse Kaya Kalem [3], Fatma Eser [3], Muge Ayhan [2], Rahmet Guner [3]

Abstract

Increasing rates of extended-spectrum beta-lactamase (ESBL) producing *E. coli* and *K. pneumoniae* over time made empirical treatment complicated. Knowing local antimicrobial resistance patterns of common pathogens can make it easier to decide on empirical antibiotics. We aimed to investigate the prevalence and risk factors of ESBL positivity of *E. coli* and *K. pneumoniae* strains in uncomplicated and complicated pyelonephritis acquired in community and healthcare associations and to evaluate the appropriateness of empirical treatment. Adult patients hospitalized with diagnosis of community-acquired or healthcare-associated uncomplicated/complicated pyelonephritis initiated empirical antimicrobial therapy were included in the study. Appropriateness of empirical treatment at 48–72 h based on culture results and treatment modifications were evaluated. A total of 369 uncomplicated (94) and complicated (275) episodes of pyelonephritis were evaluated. The most common agents were *E. coli* (71.0%) and *K. pneumoniae* (17.7%), and the ESBL-production rate was 64.4%, and higher in healthcare-associated pyelonephritis (*P* 0.013). Being of healthcare-associated infection, previous antibiotic use, and presence of urinary catheters were independent risk factors for ESBL-producing *E. coli* and *K. pneumoniae* (*P* 0.009, < 0.001, and 0.024, respectively). The treatment inappropriateness was mostly associated with use of ceftriaxone (56.3%) (*P* < 0.001). Treatment has escalated in 41.5% of ceftriaxone-initiated patients, in only 8.8% and 9.5% ertapenem and piperacillin-tazobactam-initiated patients, respectively. ESBL-production rates are quite high even in community-acquired infections. The use of broad-spectrum antibiotics covering ESBL-producing pathogens to increase the appropriateness of empirical treatment and then narrowing treatment based on culture results appears a better and life-saving choice.

- MDR oranları
  - TK piyelonefritte %53,8
- ESBL pozitifliği
  - TK piyelonefritte %57,5
- MDR ve ESBL oranları komplike piyelonefritte komplike olmayan piyelonefrite göre daha yüksek (P = 0.012 ve 0.024).

Akut Piyelonefrit



- Sefepim
- Seftazidim
- Piperasilin-tazobaktam
- Meropenem
- İmipenem
- Aminoglikozitler (ayaktan hastada) tedavi seçenekleri
- Toplumda direnç oranı %10 dan fazla ise kinolonlar ampirik tedavide tercih edilmemeli
- Hafif veya orta şiddetli komplike olmayan olgularda 7 günlük tedavi yeterli olabilir
- Komplike olgularda ve şiddetli enfeksiyonlarda 10-14 günlük tedavi

Deri ve Yumuşak Doku Enfeksiyonları

- Etkenlerinin çoğu ***S. aureus*** ya da **beta-hemolitik streptokoklardır.**
- Toplum kökenli MRSA risk faktörleri
  - Hastanede yatış öyküsü
  - Yakın zamanda antibiyotik kullanımı
  - MRSA taşıyıcılığı
  - Geçirilmiş MRSA enfeksiyonu
  - Hemodiyaliz
  - İntravenöz kateter varlığı
  - İV ilaç kullanıcısı
  - Diyabet
- Toplum kökenli MRSA riski varsa **ko-trimoksazol, klindamisin veya doksisiklin** oral kullanılabilecek ilaçlar

The Turkish Journal of Pediatrics 2021; 63: 200-205
https://doi.org/10.24953/turkjped.2021.02.003

Original Article

Upward trend in the frequency of community-acquired methicillin-resistant *Staphylococcus aureus* as a cause of pediatric skin and soft tissue infections over five years: a cross-sectional study

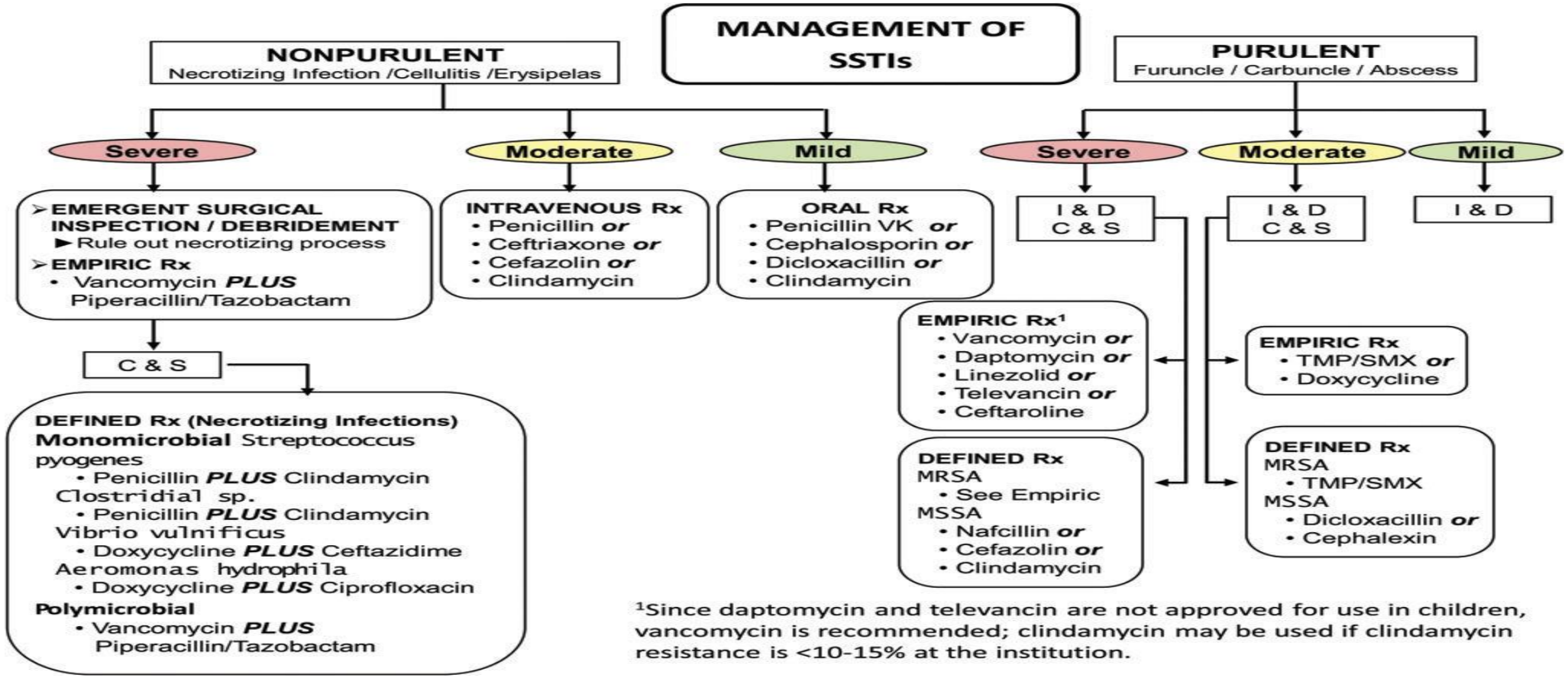
Elif Böncüoğlu[1], Elif Kıymet[1], İlknur Çağlar[1], Yeliz Oruç[2],

Table I. The annual rates of community-acquired *Staphylococcus aureus* in patients with skin and soft tissue infections.

Year	Total number of patients admitted to the hospital (n)	Number of cases with SSTIs (n)	MRSA positive cases (n)	MSSA positive cases (n)	Prevalence of MRSA per 10,000 cases with SSTI (n)	Prevalence of MSSA per 10,000 cases with SSTI (n)
2013	582,067	539	0	5	0	92.7
2014	636,396	1048	1	11	9.5	104.9
2015	657,147	1153	3	8	26	69.3
2016	752,123	1112	6	15	53.9	134.8
2017	788,702	1239	12	20	96.8	161.4
2018	817,730	1627	13	18	79.9	110.0
Total	4,234,165	6718	35	77	52.1	114.6

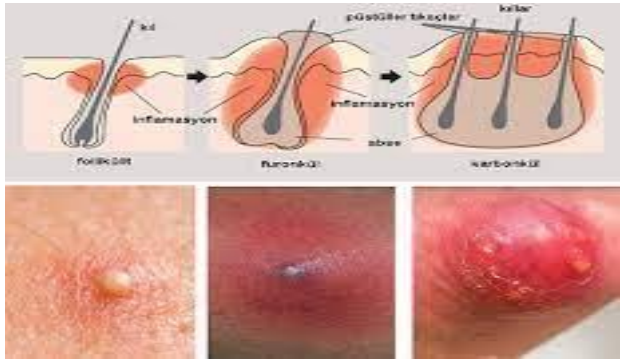
SSTI: skin and soft tissue infections, MRSA: methicillin-resistant *Staphylococcus aureus*, MSSA: methicillin-sensitive *Staphylococcus aureus*.

Practice Guidelines for the Diagnosis and Management of Skin and Soft Tissue Infections: 2014 Update by the Infectious Diseases Society of America



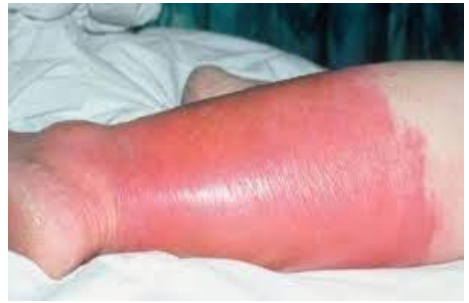
[1]Since daptomycin and televancin are not approved for use in children, vancomycin is recommended; clindamycin may be used if clindamycin resistance is <10-15% at the institution.

Fronkül, karbonkül ve cilt apsesi



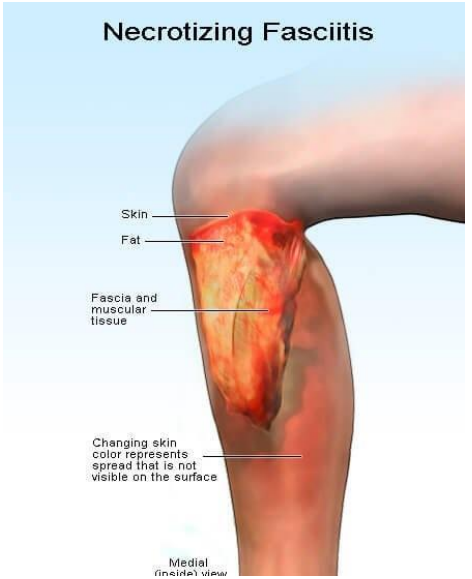
- **Hafif enfeksiyonda** sistemik enfeksiyon bulguları yoktur.
    - Tedavi: İnsizyon ve drenaj
- **Orta ve ciddi enfeksiyonda** sistemik enfeksiyon bulguları vardır.
    - Tedavi: **İnsizyon + drenaj + antibiyotik (amoksisilin-klavulonik asit, oral sefalosporinler, tmp-sxt, klindamisin veya doksisiklin)**
    - Tedavi öncesi aspirasyon materyali alınarak Gram boyama ve kültür yapılmalı; Kültür sonucuna göre gerekirse tedavi revize edilmelidir.
    - Tedavi süresi akut inflamasyon düzelene kadar **5-10 gün**

Erizipel ve sellülit



- **Hafif enfeksiyon** (sistemik enfeksiyon bulguları yok):
  - Oral amoksisilin-klavulanat, sefalosporinler, tmp-sxt, doksisiklin veya klindamisin.
  - Tedavi süresi en az 5 gün
- **Orta şiddetli enfeksiyon** (sistemik enfeksiyon bulguları var):
  - Hastaneye yatırılarak kısa süreli İV antibiyotik sonrası, oral ardışık tedaviye geçilebilir.
  - Ampisilin sulbaktam, sefazolin, seftriakson, +/- klindamisin
- **Şiddetli enfeksiyon:** genel durum bozukluğu, sistemik enfeksiyon bulguları, immün yetmezlik, derin infeksiyon bulguları (bül, deride soyulma gibi), organ disfonksiyonu veya oral antibiyotiklere yanıtsızlık
- Piperasilin-tazobaktam + MRSA etkili antibiyotikler (daptomisin, vankomisin, teikoplanin, linezolid, tigesiklin)

Nekrotizan fasit ve Fournier gangreni



- Erken tanı ve tedavi önemlidir.
- Mortalite %6-76 arasındadır.
- **Tedavi: Acil cerrahi debridman** ve parenteral antibiyotik
  - **Karbapenem veya piperasilin-tazobaktam + MRSA etkili bir ajan + klindamisin** (antitoksin)

SEPSİS

	Şok var	Şok yok
Kesin veya yüksek olası sepsis	Antimikrobiyalleri hemen, ideal olarak kabulden sonra 1 saat içinde uygulayın (LOW)	Antimikrobiyalleri hemen, ideal olarak kabulden sonra 1 saat içinde uygulayın (VERY LOW)
Olası sepsis	Antimikrobiyalleri hemen, ideal olarak kabulden sonra 1 saat içinde uygulayın (MODERATE)	Akut hastalığın enfeksiyöz ve enfeksiyöz olmayan nedenlerinin hızlı değerlendirilmesi* (BEST PRACTICE) İnfeksiyon şüphesi devam ederse 3 saat içinde antimikrobiyallaeri uygulayın (VERY LOW)

*Hızlı değerlendirme, öykü ve klinik muayeneyi, akut hastalığın hem enfeksiyöz hem de enfeksiyöz olmayan nedenlerine yönelik testleri ve sepsisi taklit edebilen akut durumlar için acil tedaviyi içerir. Mümkün olduğunda, hastanın başvurusunun enfeksiyöz bir nedeni olma olasılığına ilişkin bir karar verilebilmesi için başvurudan sonraki 3 saat içinde tamamlanmalı ve sepsis olasılığının yüksek olduğu düşünülüyorsa zamanında antimikrobiyal tedavi sağlanmalıdır.

PLoS One. 2018 Sep 26;13(9):e0204608. doi: 10.1371/journal.pone.0204608. eCollection 2018.

Development and validation of a modified quick SOFA scale for risk assessment in sepsis syndrome.

Cag Y[1], Karabay O[2], Sipahi OR[3], Aksoy F[4], Durmus G[5], Batirel A[6], Ak O[6], Kocak-Tufan Z[7], Atilla A[8], Piskin N[9], Akbas T[10], Erol S[11], Ozturk-Engin D[11], Caskurlu H[1], Onal U[3], Erdogan H[12], Demirel A[13], Dogru A[1], Harman R[14], Hamidi AA[15], Karasu D[16], Korkmaz F[17], Korkmaz P[18], Civelek Eser F[19], Onem Y[20], Cesur S[10], Salmanoglu M[20], Erdem İ[21], Diktas H[22], Vahaboglu H[1].

Abstract

Sepsis is a severe clinical syndrome owing to its high mortality. Quick Sequential Organ Failure Assessment (qSOFA) score has been proposed for the prediction of fatal outcomes in sepsis syndrome in emergency departments. Due to the low predictive performance of the qSOFA score, we propose a modification to the score by adding age. We conducted a multicenter, retrospective cohort study among regional referral centers from various regions of the country. Participants recruited data of patients admitted to emergency departments and obtained a diagnosis of sepsis syndrome. Crude in-hospital mortality [illegible] model with random intercepts produc[illegible] partitioning demonstrated the effects [illegible] internally validated. The H measure c[illegible] 22 centers were included for further a[illegible] administration of carbapenem for emp[illegible] severe sepsis (OR, 4.40; CIs, 2.35–8.2[illegible] CIs, 1.02–1.05) and time to antibiotics [illegible] fatal outcomes. A decision tree demo[illegible] Sequential Organ Failure Assessment [illegible] point) and compared this to the conve[illegible] found to be 0.11 and 0.14, respectively[illegible] use of the modified qSOFA score for e[illegible] triage and management of this fatal sy[illegible]

Vakaların % 33.4'ünde kan kültürü üremesi mevcut.
E. coli **(43.8%)**
S. aureus **(18.6%)**
KNS (9.7%)
K. pneumoniae **(7.7%)**
Enterococcus spp. **(5%)**
Enterobacteriaceae **(4.1%)**
S. pneumoniae **(4.1%)**

Antibiyotik Seçimi

- Enfeksiyon odağına yönelik tedavi planlanmalı
- Olası patojenlere karşı **(bakteriyel/fungal)** etkili bir veya daha fazla antibiyotiği içermeli (geniş spektrum)
- Gram (+) ve Gram (-) bakterileri kapsamalı

Enfeksiyon odağı belirsiz ise ampirik tedavi

- Meropenem veya imipenem
- MRSA açısından yüksek riskli sepsis veya septik şoklu yetişkinler için, MRSA etkili antibiyotikler (vankomisinin, teikoplanin, linezolid, akciğer dışı MRSA için daptomisin) ile kombinasyon
- İlk bolustan sonra **uzun süreli beta-laktam infüzyonu** önerilmekte.

İntraabdominal Enfeksiyonlar (İAİ)

Ulus Cerrahi Derg. 2016; 32(4): 306–321. PMCID: PMC5245729
Published online 2016 Dec 1. doi: 10.5152/UCD.2016.3688 PMID: 28149134

Recommendations for intra-abdominal infections consensus report

Vildan Avkan-Oğuz,[1] Nurcan Baykam,[2] Selman Sökmen,[3] Rahmet Güner,[4] Fatih Agalar,[5] Emine Alp,[6] Ahmet Doğrul,[7]

Hafif - orta dereceli toplum kökenli İAİ tedavisi

- Ertapenem, moksifloksasin veya tigesiklin monoterapisi
- Metronidazol **ile** sefazolin, sefuroksim, seftriakson, sefotaksim, levofloksasin veya siprofloksasin kombinasyonları

Yüksek riskli İAİ tedavisi

- Piperasilin-tazobaktam, seftazidim, meropenem, imipenem monoterapisi
- Metronidazol **ile** sefepim, siprofloksasin veya levofloksasin kombinasyonları

- ***Kinolonlar ampirik tedavide tek başına kullanılmamalı (yüksek kinolon direnci)***

Endokardit

- **Toplum kökenli Doğal kapak veya geç prostatik kapak endokarditi (ameliyattan ≥12 ay sonra):**
- Tedavi stafilokok, streptokok ve enterokokları kapsamalıdır.

- Ampisilin + seftriakson

  veya

  ampisilin + sefazolin + gentamisin

ESC European Society of Cardiology
European Heart Journal (2023) **00**, 1–95
https://doi.org/10.1093/eurheartj/ehad193

2023 ESC Guidelines for the management of endocarditis

Recommendation Table 10 — Recommendations for antibiotic regimens for initial empirical treatment of infective endocarditis (before pathogen identification)[a]

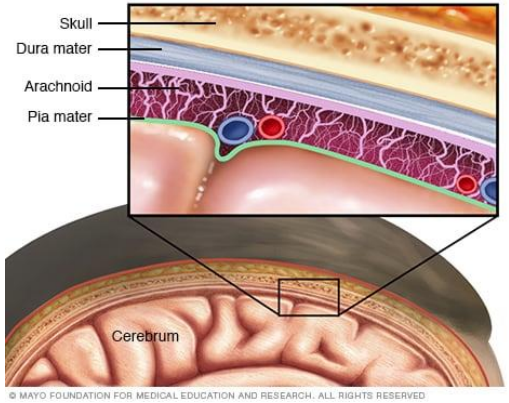
Recommendations		Class[b]	Level[c]
In patients with community-acquired NVE or late PVE (≥12 months post-surgery), ampicillin in combination with ceftriaxone or with (flu)cloxacillin and gentamicin should be considered using the following doses:[255]		IIa	C
Adult antibiotic dosage and route			
Ampicillin	12 g/day i.v. in 4–6 doses		
Ceftriaxone	4 g/day i.v. or i.m. in 2 doses		
(Flu)cloxacillin	12 g/day i.v. in 4–6 doses		
Gentamicin[d]	3 mg/kg/day i.v. or i.m. in 1 dose		

Penisilin allerjisinde

Sefazolin veya vankomisin + gentamisin

Allergy to beta-lactams			
In patients with community-acquired NVE or late PVE (≥12 months post-surgery) who are allergic to penicillin, cefazolin, or vancomycin in combination with gentamicin may be considered using the following doses:		IIb	C
Adult antibiotic dosage and route			
Cefazolin	6 g/day i.v. in 3 doses		
Vancomycin[e]	30 mg/kg/day i.v. in 2 doses		
Gentamicin[d]	3 mg/kg/day i.v. or i.m. in 1 dose		

Toplum Kökenli Bakteriyel Menenjit



- Ampirik antibiyotik tedavisi demografik/epidemiyolojik faktörlere

(yaş ve antibiyotik duyarlılığı) göre farklılık gösterir.

- Erişkinlerde en sık görülen patojenler kapsanmalı
  - *S. pneumoniae*
  - *N. meningitidis*
  - *L. monocytogenes* (50 yaş üstü ve immunsupresif bireyler).

ESCMID guideline: diagnosis and treatment of acute bacterial meningitis

Erişkinlerde en sık görülen patojenler
- *S. pneumoniae*
- *N. meningitidis*
- *L. monocytogenes*

TABLE 4.1. Empiric antibiotic in-hospital treatment for community-acquired bacterial meningitis [3]

Patient group	Standard treatment: Reduced *Streptococcus pneumoniae* antimicrobial sensitivity to penicillin	Standard treatment: *S. pneumoniae* susceptible to penicillin	Intravenous dose[a]
Neonates <1 month old	Amoxicillin/ampicillin/penicillin plus cefotaxime, or amoxicillin/ampicillin plus an aminoglycoside		Age <1 week: cefotaxime 50 mg/kg q8h; ampicillin/amoxicillin 50 mg/kg q8h; gentamicin 2.5 mg/kg q12h Age 1–4 weeks: ampicillin 50 mg/kg q6h; cefotaxime 50mg/kg q6–8h; gentamicin 2.5 mg/kg q8h; tobramycin 2.5 mg/kg q8h; amikacin 10 mg/kg q8h
Age 1 month to 18 years	Cefotaxime or ceftriaxone plus vancomycin or rifampicin	Cefotaxime or ceftriaxone	Vancomycin 10–15 mg/kg q6h to achieve serum trough concentrations of 15–20 µg/mL; rifampicin 10 mg/kg q12h up to 600 mg/day; cefotaxime 75 mg/kg q6–8h; ceftriaxone 50 mg/kg q12h (maximum 2 g q12h)
Age >18 and <50 years	Cefotaxime or ceftriaxone plus vancomycin or rifampicin	Cefotaxime or ceftriaxone	Ceftriaxone 2 g q12h or 4 g q24h; cefotaxime 2 g q4–6 h; vancomycin 10–20 mg/kg q8–12h to achieve serum trough concentrations of 15–20 µg/mL; rifampicin 300 mg q12h
Age >50 years, or Age >18 and <50 years plus risk factors for *Listeria monocytogenes*[a]	Cefotaxime or ceftriaxone plus vancomycin or rifampicin plus amoxicillin/ampicillin/penicillin G	Cefotaxime or ceftriaxone plus amoxicillin/ampicillin/ penicillin G	Ceftriaxone 2 g q12h or 4 g q24h; cefotaxime 2 g q4–6h; vancomycin 10–20 mg/kg q8–12h to achieve serum trough concentrations of 15–20 µg/mL; rifampicin 300 mg q12h, amoxicillin or ampicillin 2 g q4h

[a]Diabetes mellitus, use of immunosuppressive drugs, cancer and other conditions causing immunocompromise.

The first results of national antimicrobial resistance surveillance system in Turkey

Türkiye'de ulusal antimikrobiyal direnç surveyans sisteminin ilk sonuçları

Nilay ÇÖPLÜ[1], Hüsniye ŞİMŞEK[2], Deniz GÜR[3], Ayşegül GÖZALAN[4], Ufuk HASDEMİR[5],

55 Merkez verisi

***S. Pneumoniae'*da (n=128) menenjit sınır değerleri için penisilin direnç oranı %44,8**

Direnç oranları %20'yi aştığında ampirik antibiyotik tedavisi değiştirilmelidir

Table 4. Antimicrobial resistance percentages of *S. pneumoniae* (n=128) isolates

Antimicrobial	Site of Infection	Isolate(n)	R%	I%	S%	R 95% - C.I.%
Penicillin G*	Non meningitis †	58	5.2	6.9	87.9	0.0-40.2
Penicillin G	Meningitis †	58	44.8	0.0	55.2	31.9-58.3
Ceftriaxone *	Non meningitis †	14	0.0	21.4	78.6	0.0-26.8
Ceftriaxone	Meningitis †	14	21.4	21.4	57.2	5.7-51.2
Cefotaxime*	Non meningitis †	41	0.0	14.6	85.4	0.0-69.0
Cefotaxime	Meningitis †	41	14.3	23.8	61.9	6.0-29.2
Levofloxacin		78	2.6	0.0	97.4	0.5-9.9
Erythromycin		100	32.0	2.0	66.0	23.2-42.2

*Penicillin G. ceftriaxone. cefotaxim. have been studied by determination of MIC values. others either disk diffusion or MIC determination.
†The breakpoint of the antimicrobial is changed by the site of infection which cause difference in the percentage of resistance.

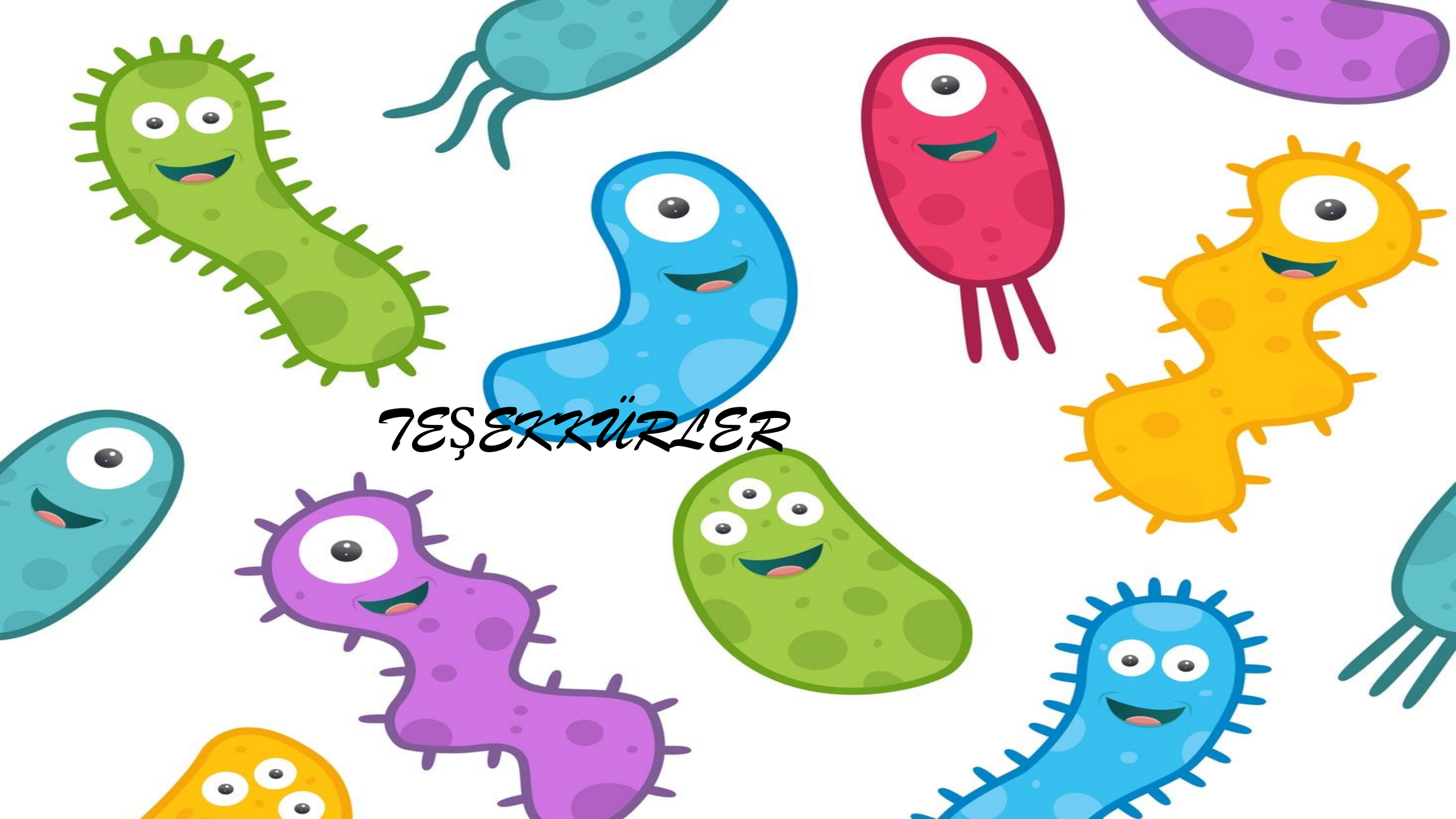
TABLE 4.2. Specific antibiotic in-hospital treatment for community-acquired bacterial meningitis[a]

Microorganism	Standard treatment	Alternatives	Duration
Streptococcus pneumoniae			
Penicillin susceptible (MIC <0.1 μg/mL)	Penicillin or amoxicillin/ampicillin	Ceftriaxone, cefotaxime, chloramphenicol	10–14 days
Penicillin resistant (MIC >0.1 μg/mL), third-generation cephalosporin susceptible (MIC <2 μg/mL)	Ceftriaxone or cefotaxime	Cefepime, meropenem, moxifloxacin[b]	10–14 days
Cephalosporin resistant (MIC ≥2 μg/mL)	Vancomycin *plus* rifampicin, or vancomycin *plus* ceftriaxone or cefotaxime, or rifampicin *plus* ceftriaxone or cefotaxime[c]	Vancomycin *plus* moxifloxacin,[b] linezolid	10–14 days
Neisseria meningitidis			
Penicillin susceptible (MIC <0.1 μg/mL)	Penicillin or amoxicillin/ampicillin	Ceftriaxone, cefotaxime, chloramphenicol	7 days
Penicillin resistant (MIC ≥0.1 μg/mL)	Ceftriaxone or cefotaxime	Cefipime, meropenem, ciprofloxacin or chloramphenicol	7 days
Listeria monocytogenes	Amoxicillin or ampicillin, penicillin G[d]	trimethoprim-sulfamethoxazole, moxifloxacin,[b] meropenem, linezolid	At least 21 days
Haemophilus influenzae			
β-Lactamase negative	Amoxicillin or ampicillin	Ceftriaxone, cefotaxime or chloramphenicol	7–10 days
β-Lactamase positive	Ceftriaxone or cefotaxim	Cefepime, ciprofloxacin, chloramphenicol	7–10 days
β-Lactamase negative ampicillin resistant	Ceftriaxone or cefotaxime *plus* meropenem	Ciprofloxacin	7–10 days
Staphylococcus aureus			
Methicillin sensitive	Flucloxacillin, nafcillin, oxacillin	Vancomycin, linezolid, rifampicin,[e] fosfomycin,[e] daptomycin[b]	At least 14 days
Methicillin resistant	Vancomycin[f]	Trimethoprim/sulfamethoxazole, linezolid, rifampicin,[e] fosfomycin,[e] daptomycin	At least 14 days
Vancomycin resistant (MIC >2.0 μg/mL)	Linezolid[f]	Rifampicin,[e] fosfomycin,[e] daptomycin[b]	At least 14 days

[a]Recommendations must be in accordance with the results of the susceptibility testing.
[b]Based on case reports.
[c]Ceftriaxone dose 2 g q12h and cefotaxime 2–3g q6h.
[d]Adding an aminoglycoside can be considered.
[e]Must not be used in monotherapy.
[f]Addition of rifampicin can be considered.

Sonuç

- Antibiyotik direnci doğrudan antibiyotik kullanımıyla ilişkili
- Doğru ampirik antibiyotik seçimi için ulusal ve yerel direnç oranları dikkate alınmalı
- Başlanan ampirik tedaviler kültür sonuçlarına göre revize edilmeli
- Uzun süreli tedavilerden kaçınılmalı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