İNTRATEKAL VE İNTRAPLEVRAL ANTİBİYOTİK KULLANIMI

Yrd. Doç. Dr. Derya YAPAR
Hitit Üniversitesi Tıp Fakültesi
Klimik- Aralık 2016

İntratekal Antimikrobiyal Kullanımı

Kranial cerrahi sonrası MSS enfeksiyon %0,3-6

J Neurosurg 2013

- **Ventrikülostomi ilişkili ventrikülit insidans oranı 1000 kateter günü başına 11.4**

Ramanan M. BMC Infect Dis 2015

- **Şant ilişkili enfeksiyon (%2.2-41)**

  - **Fasia altına yerleştirilen pompa; %3.6**
  - **Cilt altına yerleştirilen pompa; %20**

Cerrahi alan enfeksiyonuna sekonder menengit

Bergey GK. Neurology 2015

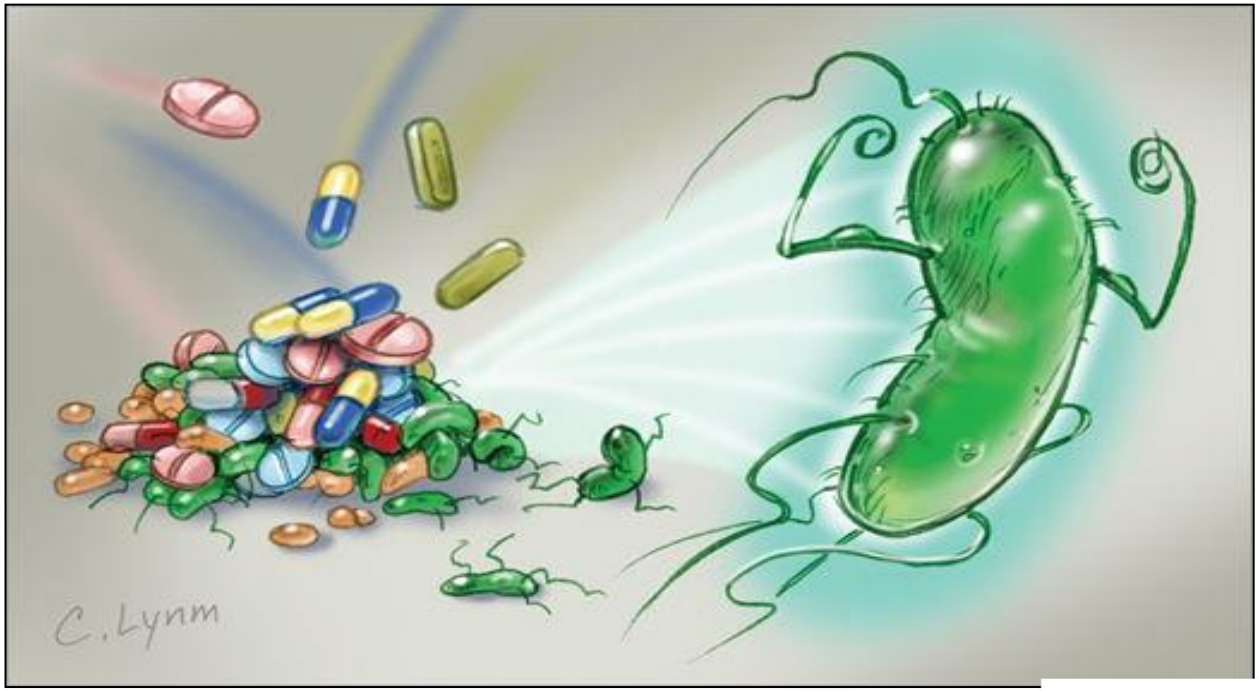
007

Cerrahi sonrası Gram(-) basiller ventrikülit ve menenjite bağlı mortalite %8-70 (3-33)

Remes F. J Neurosurg.2013

Mortalite	**%30-50**
MDR	**%50-70**

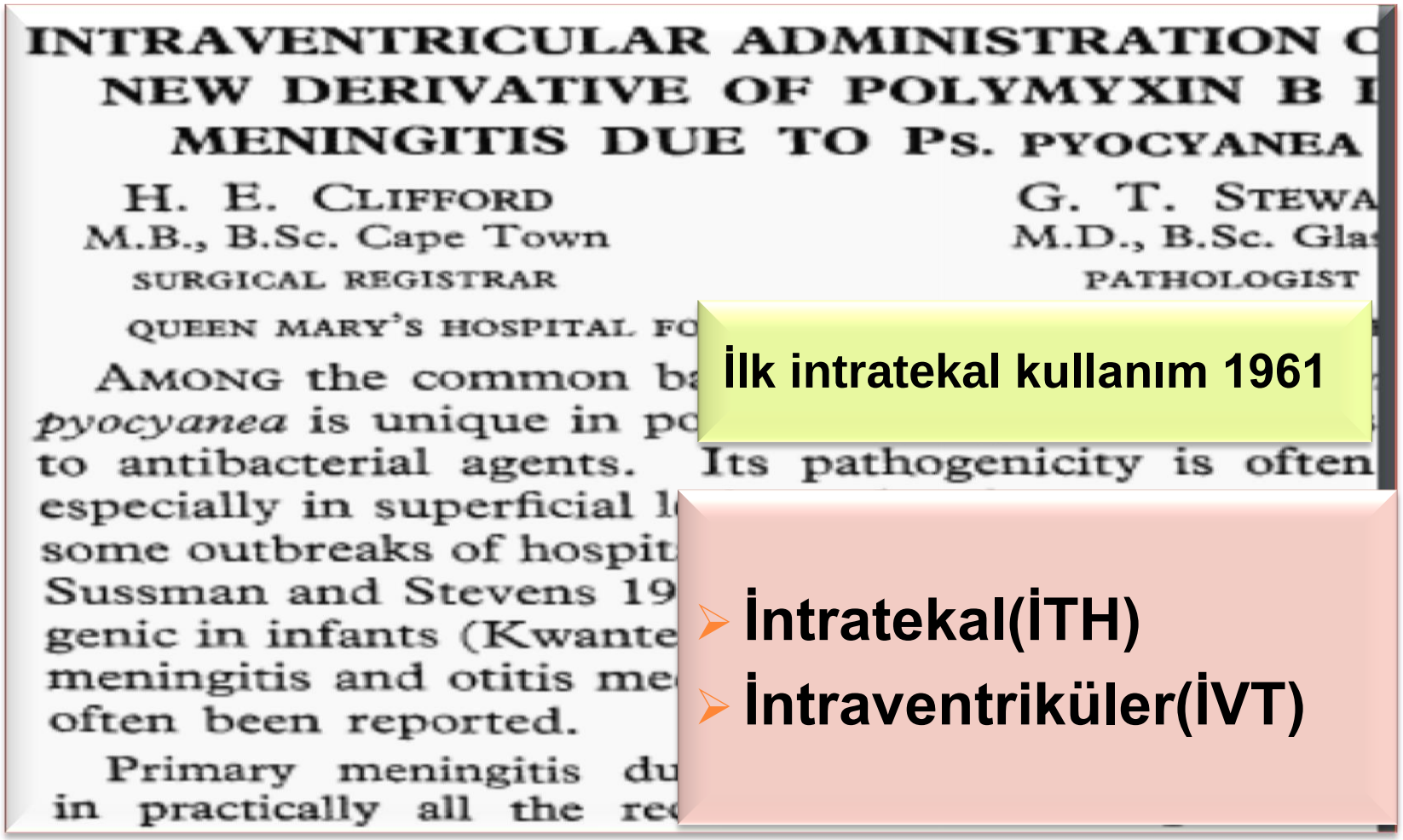
Tuon FF. Braz J Infect Dis 2010



Şimdi nasıl tedavi edelim
Nasıl yönetelim


Size zokal anestezi yapacağız...
Zokal mi? O ne bez...
www.penguen.com

İntratekal Antibiyotik Kullanımı



INTRAVENTRICULAR ADMINISTRATION C
NEW DERIVATIVE OF POLYMYXIN B I
MENINGITIS DUE TO Ps. PYOCYANEA

H. E. CLIFFORD
M.B., B.Sc. Cape Town
SURGICAL REGISTRAR
QUEEN MARY'S HOSPITAL FO

G. T. STEWA
M.D., B.Sc. Gla
PATHOLOGIST

AMONG the common ba
pyocyanea is unique in po
to antibacterial agents. Its pathogenicity is often
especially in superficial l
some outbreaks of hospit
Sussman and Stevens 19
genic in infants (Kwante
meningitis and otitis me
often been reported.

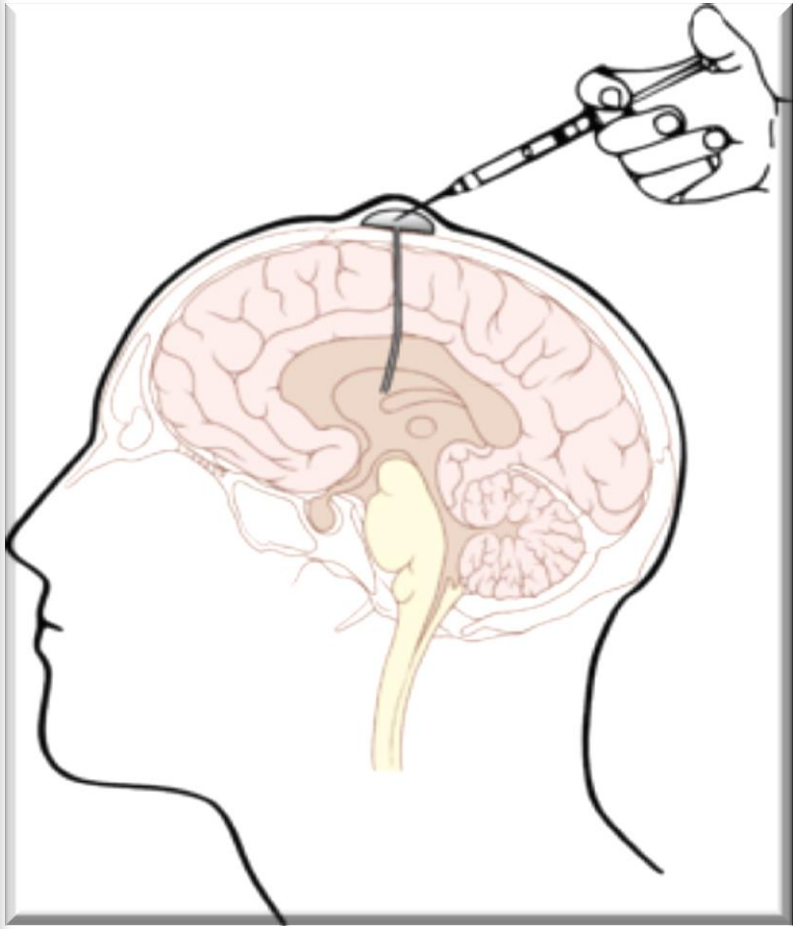
Primary meningitis du
in practically all the re

İlk intratekal kullanım 1961

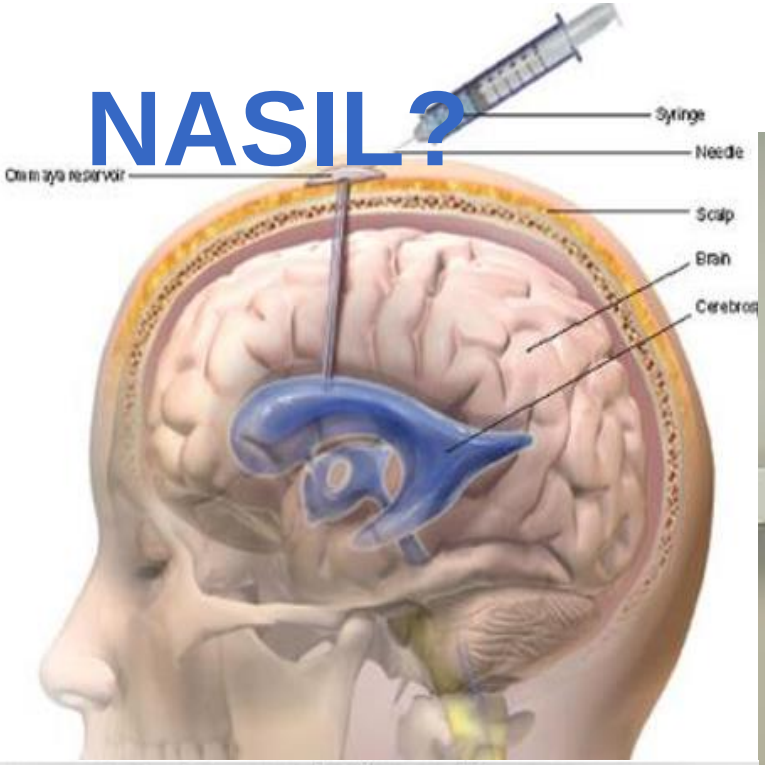
- **İntratekal(İTH)**
- **İntraventriküler(İVT)**

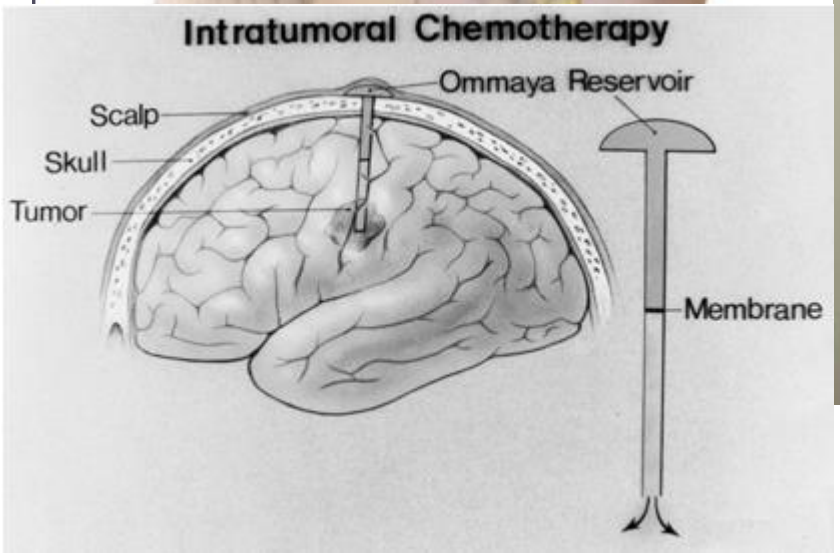
NASIL?

- Kafa içi basınç artışını önlemek için, uygulamadan önce eşdeğer bir BOS hacmi atılmalı
- Ekstraventriküler drenaj (EVD) mümkünse en az 1-2 saat boyunca kapalı tutulmalı

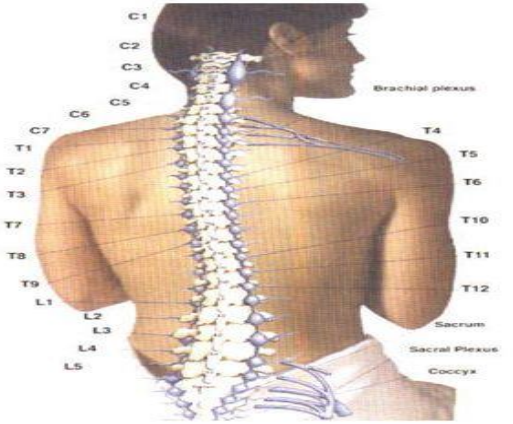


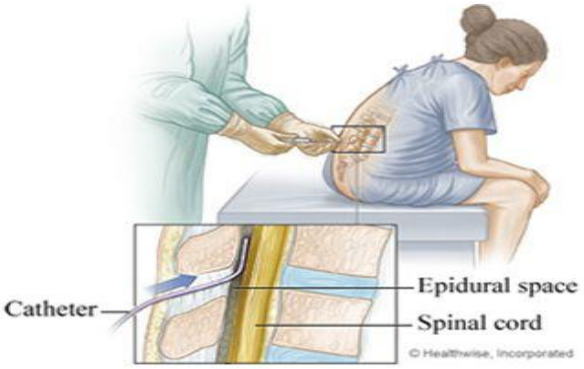
NASIL?

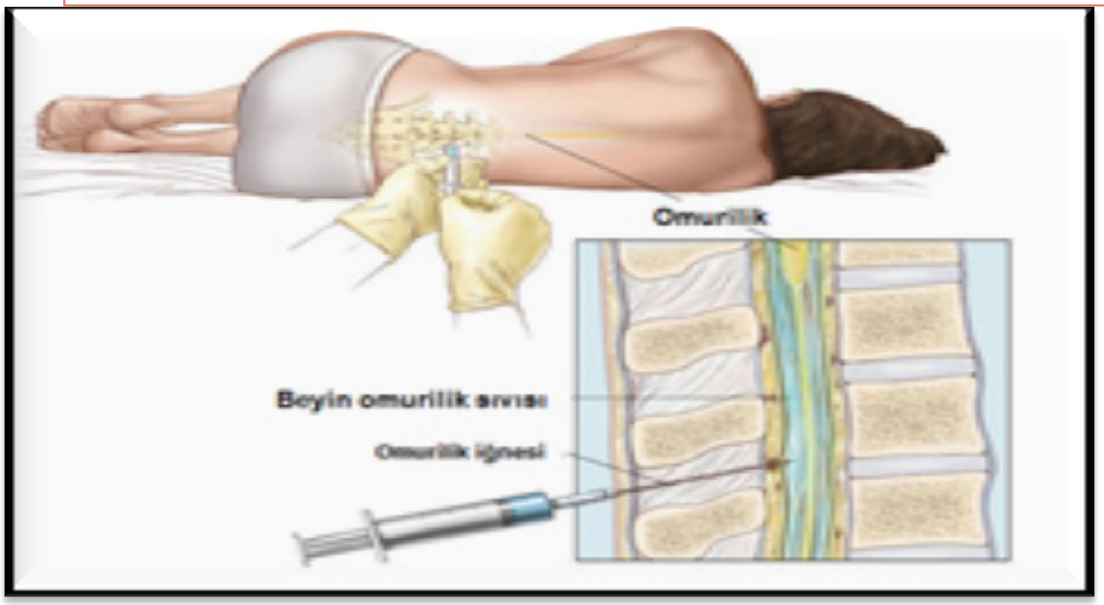

Syringe
Needle
Ommaya reservoir
Scalp
Brain
Cerebros


Intratumoral Chemotherapy
Ommaya Reservoir
Scalp
Skull
Tumor
Membrane

İntratekal


C1
C2
C3
C4
C5
C6
C7
T1
T2
T3
T7
T8
T9
L1
L2
L3
L4
L5
Brachial plexus
T4
T5
T6
T10
T11
T12
Sacrum
Sacral Plexus
Coccyx


Catheter
Epidural space
Spinal cord
© Healthwise, Incorporated


Omurilik
Beyin omurilik sıvısı
Omurilik iğnesi

Kolistin

- **MSS enfeksiyonlarında kolistin; endotoksin ile bağlanma mekanizması?**
- **Enflamasyon ve virülansı azaltma ile iyileşmeye katkı**
- **Konsantrasyona bağlı öldürme**

I.Karaiskos . Int J Antimicr Agents 2013

- **Kolistin hedef doz: Cmax/MIC: 8-10 kat**

Clin Ther 2008

International Journal of Antimicrobial Agents 41 (2013) 499–508

Contents lists available at SciVerse ScienceDirect

International Journal of Antimicrobial Agents

journal homepage: http://www.elsevier.com/locate/ijantimicag

Review

Intraventricular and intrathecal colistin as the last therapeutic resort for the treatment of multidrug-resistant and extensively drug-resistant *Acinetobacter baumannii* ventriculitis and meningitis: a literature review

Ilias Karaiskos, Lambrini Galani, Fotini Baziaka, Helen Giamarellou*

500.000 IU(40 mg) yükleme dozu

24 saat bir- IVT

125.000-250.000 IU(10-20mg)

48 saat bir-ITH

BOS kültürü negatif

Le Infezioni in Medicina, n. 1, 3-11, 2016

REVIEW

Intrathecal or intraventricular colistin: a review

Olivia Bargiacchi[1], Francesco Giuseppe De Rosa[2]

- P. *aeruginosa*
- K. *pneumoniae*

daha düşük doz yeterli

- A. *baumannii*

MSS enf.

ITH/IVT 125.000 IU/gün

BOS sterilizasyonu için zamanı ve tedavi süresi arasında fark yok

Toplam 1,750,000 IU ITH / IVT kolistin

(1x125,000 IU/gün 14 gün)

Infection (2014) 42:801–809
DOI 10.1007/s15010-014-0618-0

REVIEW

Intrathecal/intraventricular colistin in external ventricular device-related infections by multi-drug resistant Gram negative bacteria: case reports and review

O. Bargiacchi · A. Rossati · P. Car ·

IDSA:125.000 İU/gün

- ✓ **Heterosit bakterilerin seçilmesi**
- ✓ **Nüks MSS enfeksiyonu**
- ✓ **Daha önce kolistine maruziyet**

250.000 IU / gün

- **Sadece IV alanlarda BOS konsantrasyonları çok düşük**

Combined intravenous and intraventricular administration of colistin methanesulfonate in critically ill patients with central nervous system infection. Antimicrob. Agents Chemother. 2013

- **IV+IVT kombine uygulandığında eradikasyon potansiyeli artmakta**

Mairi Z. Combined intravenous and intraventricular administration of colistin methane sulphonate in critically ill patients with CNS infection. Antimicrob Agents Chemother 2013

- **Kombine tedavi (IV+IVT/ITH) şiddetli MSS enfeksiyonlarını tedavisinde daha etkin**

Tumbarello M. Predictors of Mortality in Bloodstream Infections Caused by Klebsiella pneumoniae Carbapenemase–Producing K. pneumoniae: Importance of Combination Therapy. 2012

EXPERT REVIEWS

Intraventricular or intrathecal colistin for the treatment of central nervous system infections caused by multidrug-resistant Gram-negative bacteria

Expert Rev. Anti Infect. Ther. Early online, 1–8 (2014)

Table 1. Summary of clinical information obtained from 92 patients treated with intraventricular or intrathecal colistin (cont.).

	Patients (n = 92)
Clinical and/or microbiological cure	
Yes	83 (90.2%)
No	9 (9.8%)

A. *baumannii* 5/67(% 7,5)
E. *aerogenes* 3/5(% 60)
K. *pneumoniae* 1/7(%14,3)

Kolistin

Tedavi süresi

- **IVT/ITH tedavi median süre 20 gün (2–56 gün)**
- **BOS sterilizasyon süresi: 4 gün (1-28 gün)**

Imberti R. Anti Infect. Ther 2014

Kolistin

Yan etki

- Kimyasal menenjit ve ventrikülit atakları

- Negatif kültür; BOS'ta düşük glc düzeyi, WBC artışı

  - Tedavi kesilmesi
  - Tedavi ertelenmesi
  - Doz aralığı açılması

Imberti R. Anti Infect. Ther 2014

Kolistin

Yan etki

- **Nöbet: antiepileptikler ile doz azaltılması**
- **Kauda ekina sendromu: klinik düzelmeye göre kademeli doz düzenlenmesi**

Clinical Microbiology and Infection, 2010

- Kolistin ve polimiksin çocuklarda kullanımı uygun

Dosificación de fármacos en administración cerebroespina. Arm Hosp.2005

Aminoglikozit

- **Gentamisin:** 3x3 mg (Orta şiddet 2x3 mg)
- **Netilmisin:** 2x150 mg
- **Amikasin:** 40 mg
- **Tobramisin:** 5-20 mg
- **Streptomisin** 2x2-4 mg

Büke Ç. Journal of Infection 2005
Motaouakkil S. Braz J Infect Dis 2008
Masvosva P. J Pediatr Pharmacol Ther. 2003

Aminoglikozit

- Gram(-) cerrahi sonrası gelişen 31 ventrikülomenenjit
- IV+IVT gentamicin → nüks yok
- IV → %30 nüks (p = 0.03)

Tängdén T. Neurosurgical gram-negative bacillary ventriculitis and meningitis: a retrospective study evaluating the efficacy of intraventricular gentamicin therapy in 31 consecutive cases. Clin Infect Dis 2011

Aminoglikozit

- **Olası yan etkiler:**
- Radiküler ağrı
- Menengial iritasyon
- Sersemlik
- Ototoksisite

- Ancak belirgin yan etki bildirilmemiş
- Tolere edilebilir maksimum-optimal doz ?

Kloramfenikol

- FDA onaylı
- VR E. *faecium* meningitis FDA onay yok: bakteriostatik
- IVT+IV kullanımla etkinlik artışı
- Ancak etki ve yan etki açısından daha kullanışlı alternatif tedaviler mevcut

Vancomycin-resistant Enterococcus faecium meningitis in adults: Case series and review of the literature Scandinavian Journal of Infectious Diseases, 2013

Journal of Medical Microbiology (2010), 59, 1371–1374 DOI 10.1099/jmm.0.022921-0

Case Report

Successful treatment of vancomycin-resistant *Enterococcus faecium* ventriculitis with combined intravenous and intraventricular chloramphenicol in a newborn

Carolin Hartmann,[1] Corinna Peter,[1] Elvis Hermann,[2] Benno Ure,[3]

- 2 aylık infant VRE ventrikülit
- IV linezolid +IVT gentamisin tedavisi

Başarısız

IV+IVT Kloramfenikol

7.gün BOS sterilizasyonu

Quinupristin-Dalfopristin(QD)

- VR E.*faecium* enfeksiyonlarında FDA onay
- Ama menenjitte yok: Yüksek moleküler ağırlık

- ITH Q/D 2 mg/gün etkisiz
  5 mg/gün etkili

IDSA 2-5 mg

Tan TY. Treatment of vancomycin-resistant Enterococcus faecium ventricular drain infection with quinupristin/dalfopristin and review of the literature. J Infect 2000

- ITH Q/D 1 mg/gün etkisiz
  2 mg/gün etkili

Garey KW. Cerebrospinal fluid concentrations of quinupristin–dalfopristin in a patient with vancomycin-resistant Enterococcus faecalis ventriculitis. Pharmacotherapy 2001

QD

- **Yan etki**

- Anemi
- Trombositopeni
- Myalji
- Artralji

Vankomisin

2013-2015 kraniotomi op.sonrası İK enfeksiyon
60 vaka retrospektif
Vankomisin 4x500 mg + meropenem/ 4. KSS

IV
n=25

IV+ITH
n=35
Vankomisin
İTH 20 mg

- ✓ İTH+ İV iyileşme oranı yüksek (p=0.040)
- ✓ Erken iyileşme (p=0.009)
- ✓ Sinir kökü iritasyon bulgusu 3 hasta: yavaş uygulama

Vankomisin İV+İTH intrakraniyal enfeksiyon için güvenli ve etkili bir tedavi

Combined intravenous and intrathecal vancomycin in treatment of patients with intracranial infections after craniotomy. 2016

Vankomisin

- EVD ile ilişkili enfeksiyon önlemek için preemptif İTH 10 mg/gün vankomisin
- 262 EVD; 2010-2012 retrospektif

- 111 İTH vankomisin
- 151 kontrol grubu

%2,7
%11,9 **(p<0,01)**

- Her iki grupta da VRE yok

British Journal of Neurosurgery. 2016

Preemptif İTH Vankomisin
EVD ile ilişkili enfeksiyon önlemede etkili

Teikoplanin

IDSA 20-40 mg

- 20-40 mg IVT teikoplanin

Treatment of Cerebrospinal Fluid Shunt Infections with Teicoplanin. Eur. J. Clin. Microbiol. Infect. Dis.1994

- İTH teikoplanin + IV klindamisin/rifampin/ampisilin

Successful treatment of meningitis due to multiply resistant Enterococcus faecium with a combination of intrathecal teicoplanin and intravenous antimicrobial agents. Clin Infect Dis. 1994

Daptomisin

- Ampisilin ve vankomisin duyarlı; YD gentamisin direnci
- Vankomisin İVT 10 mg

10. Günde BOS üreme

- Daptomisin IVT 10 mg/3 günde bir
  5 mg/3 günde bir

2 hafta

- Aynı etkenle rekürren ventrikülit

- 4 hafta Daptomisin IVT 10 mg/3 günde bir

Treatment of external ventricular drain-associated ventriculitis caused by Enterococcus faecalis with intraventricular daptomycin. 2007

Daptomisin

Case Report

Successful Treatment of Ventriculostomy-Associated Meningitis Caused by Multidrug Resistant Coagulase-Negative *Staphylococcus epidermidis* Using Low-Volume Intrathecal Daptomycin and Loading Strategy

Annals of Pharmacotherapy
2014, Vol. 48(10) 1376–1379

DOI: 10.1177/1060028014542634
aop.sagepub.com
SAGE

- MDR S. *epidermidis* ventrikülostomi ilişkili menenjit
- IV daptomisin + ITH vankomisin
- 5 mg ITH daptomisin- 3 saatte/3 gün → 72 saatte bir

BOS 1.gün steril

Yükleme dozu

- 18 gün
- CK normal
- 50. günde antibiyotiksiz taburcu

J Neurosurg 119:1596–1602, 2013

Intraventricular and lumbar intrathecal administration of antibiotics in postneurosurgical patients with meningitis and/or ventriculitis in a serious clinical state

- **Meropenem** → **MİC' e göre doz**

Intraventricular and lumbar intrathecal antibiotics. J Neurosurg. 2013

İmipenem

European Review for Medical and Pharmacological Sciences 2013; 17: 711-719

Comparison of the pharmacokinetics of imipenem after intravenous and intrathecal administration in rabbits

Y. WANG, L. QIU[1], J. DONG, B. WANG, Z. SHI, B. LI
W. WANG, J. ZHANG, S. CAI, G. YE, X. CAI

Department of Neurosurgery, People's Liberation Army No. 1
and Pharmaceuticals, Jiangnan University, P.R. China
Yuhai Wang and *Liying Qiu* contributed equally to this manu

Abstract. – BACKGROUND: Intrathecal administration of antibiotics has potentially high effectiveness for the treatment for severe intracranial infections, particularly nosocomial meningitis. The use of intrathecal injection of antibiotics has been reported mostly in case reports. However, there is sparse data regarding the pharmacokinetics of antibiotics after intrathecal administration.

AIM: This study investigated whether intrathecal injection is an effective method for the administration of imipenem.

MATERIALS AND METHODS: The pharmaco-

tion of c
ranging
phylacti
effective
sion-rela
vestigato
incidenc
50%[7], othe
treme difficulty
mortality rates among patients who develop post-surgical meningitis can be as high as 30-40%[2,8].

- **Sağlam tavşanlarda İTH+İV imipenem**
- **BOS düzeyleri yeterli**
- **Yan etki izlenmemiş**

Amfoterisin B

IV Amfoterisin B deoksikolat (AmBd) BOS % 2-4

- Candida spp. (C. *lusitaniae* hariç)
- Aspergillus spp. (A. *terreus* hariç)
- Cryptococcus *neoformans*
- Mucorales
- Coccidioides *immitis*
- H. *capsulatum*
- Sporothrix *schenckii*

- **İTH AmBd öncesi premedikasyon**
- Sisternal uygulama tecrübe gerekir: Önce steroid
- Ommaya uygulama: Önce AmBd

Amfoterisin B

- ITH AmBd 0.1 mg haftada -3 kez
- Doz haftalık 0.1 mg artırılır

- Ommaya rezervuarı/ ITH 0.9 mg
- Sisternal yolla 0.8 mg

Max. tolere edilebilir doz

Intrathecal amphotericin B: A 60 year experience in treating coccidioidal meningitis. 2016

Amfoterisin B

Hindawi Publishing Corporation
Journal of Tropical Medicine
Volume 2015, Article ID 864271, 6 pages
http://dx.doi.org/10.1155/2015/864271

Clinical Study

Short-Course Induction Treat
Intrathecal Amphotericin B Li
Patients with Cryptococcal Me

Gerardo Alvarez-Uria,[1] Manoranjan Midd
Pradeep Sukumar Yalla,[1] Praveen Kumar Naik,[1] and Raghuprakash Reddy[2]

[1]*Department of Infectious Diseases, RDT Bathalapalli Hospital, Kadiri Road, Bathalapalli 515661, India*
[2]*Department of Microbiology, RDT Bathalapalli Hospital, Kadiri Road, Bathalapalli 515661, India*

Correspondence should be addressed to Gerardo Alvarez-Uria; gerardouria@gmail.com

Received 4 June 2015; Revised 28 August 2015; Accepted 30 August 2015

Kriptokok menenjitli HIV pozitif

İV L-AmB 0.7 mg /kg 7 gün
İTH L-AmB 2.5 mg 7 gün
po Flukonazol 600 mg 14 gün

Mortalitede azalma
İyi tolerasyon

Amfoterisin B

- 20 yaş immünsüprese
- Temporal bölgede Aspergillus *fumigatus*'a bağlı apse

Sistemik amfoterisin B+Cerrahi drenaj/debritman

İntrakaviter AmBd

Neurosurgery. 1992

Amfoterisin B

- Serebral mukormukozis

- Cerrahi+ İV antifungal
- İTH amfoterisin B

Başarı oranı artabilir

Whalen MJ. Ann Intern Med 1979
Hamill R. Arch Intern Med 1983
Fong KM. Aust N Z J Med 1990
Adler DE. Neurosurgery 1998
Hamilton JF. Pediatr Neurosurg 2003
Ibrahim M. Arch Neurol 2009
Tsung LL. Hong Kong Med J 2010
Grannan BL. J Clin Neuroscience 2014

Lipozomal Amfoterisin B(LampB)

Case Reports/Journal of Clinical Neuroscience 21 (2014) 1819–1821

Use of external ventriculostomy and intrathecal anti-fungal treatment in cerebral mucormycotic abscess

Benjamin L. Grannan, Vijay Yanamadala, Andrew S. Venteicher, Brian P. Walcott *, John C. Barr

Department of Neurosurgery, Massachusetts General Hospital, 55 Fruit Street, WACC 745, Boston, MA 02115, USA
Harva

- 42 yaş allojenik KİT- Serebral mukormikozis
- İV L-ampB+ İV Posokonazol+ Cerrahi rezeksiyon
- EVD aracılığı ile 3 kez 1,5 mg L-ampB 1. hafta
- Postop 8. gün EVD çekilmiş
- Postop 17. gün taburcu

Amfoterisin B

- **Beklenen yan etkileri:**
- Baş ağrısı, bulantı, kusma

- Oftalmopleji
- İşitme kaybı
- Ataksi
- Parapleji
- Nörojenik mesane
- Erektil disfonksiyon

Geçici yan etkiler

Curr Infect Dis Rep (2016) 18: 34
DOI 10.1007/s11908-016-0541-x

Central Nervous System Device Infections

Rodrigo Hasbun [1]

Table 2 Intravenous and intraventricular dosing of the most commonly used antimicrobial agents in the treatment of central nervous system device infections

Antimicrobial agent	Intravenous (pediatric)	Intravenous (adult)	Intraventricular[a]
Amikacin	7.5 mg/kg q 8 h	5 mg/kg q 8 h	30 mg per day
Amphotericin B-lipid formulation	3–5 mg/kg q 24 h	3–5 mg/kg q 24 h	0.1–1 mg per day
Ampicillin	100 mg/kg q 6 h	2 g q 4 h	NR
Aztreonam	40 mg/kg q 8 h	2 g q 6 h or q 8 h	NR
Cefepime	50 mg/kg q 8 h	2 g q 8 h	NR
Ceftazidime	50 mg/kg q 8 h	2 g q 8 h	NR
Ceftriaxone	50 mg/kg q 12 h	2 g q 12 h	NR
Ciprofloxacin	10 mg/kg q 8 h	400 mg q 8 h or q 12 h	NR
Colistin	2.5 mg/kg q 12 h	2.5 mg/kg q 12 h	10 mg per day
Daptomycin	6–10 mg/kg q 12 h	6–10 mg/kg q 24 h	2–5 mg per day
Fluconazole	12 mg/kg q 24 h	400–800 mg q 24 h	NR
Gentamicin	2.5 mg/kg q 8 h	5 mg/kg q 24 h	1–8 mg per day
Meropenem	40 mg/kg q 8 h	2 g q 8 h	NR
Nafcillin	50 mg/kg q 4 h	2 g q 4 h	NR
Penicillin G	75,000 units/kg q 6 h	4 million units q 6 h	NR
Rifampin	20 mg/kg q 24 h	600 mg q 24 h	NR
Tobramycin	2.5 mg/kg q 8 h	5 mg/kg q 24 h	5–20 mg per day
Trimethoprim-sulfamethoxazole	5 mg/kg q6h or q 12 h	5 mg/kg q 6 h o q12h	NR
Vancomycin	15 mg/kg q6 h	15–20 mg/kg q 8 h or q 12 h	5–20 mg per day

Dosing with normal renal and hepatic function

NR not reported

HİTİT ÜNİVERSİTESİ

Practice Guidelines for the Management of Bacterial Meningitis

Allan R. Tunkel.[1] Barry J. Hartman.[2] Sheldon L. Kaplan.[3] Bruce A. Kaufman.[4] Karen L. Roos.[5] W. Michael Scheld.[6] and Richard J. Whitley[7]

Antibiyotik	Günlük IV doz, mg
Vancomycin	5-20
Gentamicin	1-8 (1-2 mg YD-çocuk) (4-8 mg yetişkin)
Tobramycin	5-20
Amikacin	5-50
Polymyxin B	5 (çocuk 2 mg)
Colistin	10 (≈120,000 IU)
Quinupristin/dalfopristin	2-5
Teicoplanin	5-40

MIC ≥10-20 katı konsantrasyon

IDSA 2004
Van de Beek D.NEJM.2013

Sonuç olarak…

- Dirençli MSS enfeksiyonları hayatı tehdit edici ve artmakta
- IVT/ITH antimikrobiyal uygulama kullanışlı
- IVT/ITH antimikrobiyal uygulama güvenli
- Nörotoksisite gelişebilir ancak genellikle sekelsiz iyileşme
- İTH/İVT uygulama öncesi BOS akım çalışması

Healthcare-Associated Ventriculitis and Meningitis

Share this Guideline

Published: xx

NEW GUIDELINE
IN DEVELOPMENT*

''''

* Estimated publication Spring 2017

İntraplevral Antimikrobiyal Uygulamaları

İntraplevral Antibiyotik Uygulamaları

Spontan pnömotoraksta plöredez

- Tetrasiklin ve tü
- Povidon iyot
- Gümüş nitrat
- Kinakrin
- Klaritromisin
- Kinolon

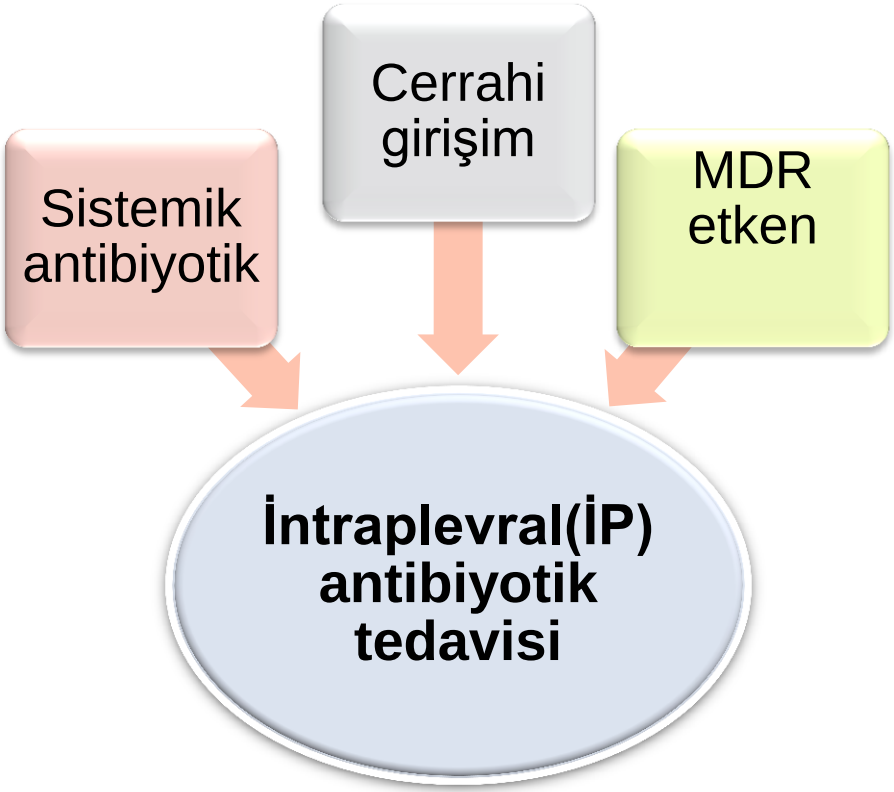
Rehberlerde İP antibiyotik ile plöredez ilgili öneri yok

Investigation of a unilateral pleural effusion in adults: British Thoracic Society Pleural Disease Guideline 2010

Huang PM. 2011
Chen JS. Lancet. 2013
Kıran B.Türk Toraks Dergisi. 2000
Teixeira LR. Clinics.2006
Asian Pacific Society of Respirology. 2010

İntraplevral Antibiyotik Uygulamaları

- **Postpnömonektomi ampiyem(PPA)**
- **İnsidans oranı %5-10**
- **%75 ilk 3 ayda**
- **Mortalite >% 20**



İntraplevral Antibiyotik Uygulamaları

- Sistemik antibiyotikler plevral sıvıda yeterli konsantrasyona ulaşır
- Ama enfeksiyonda mikrosirkülasyon bozulmasına bağlı sterilizasyon zorlaşır

✓ **Torakostomi**
✓ **Sistemik antibiyotik**
✓ **Cerrahi debritman**

+

✓ **Plevral kavitenin antibiyotik ile irigasyonu**

Rutin İP ab tedavisi yok

Ferri's Clinical Advisor 2013

İntraplevral(TORASENTEZ)

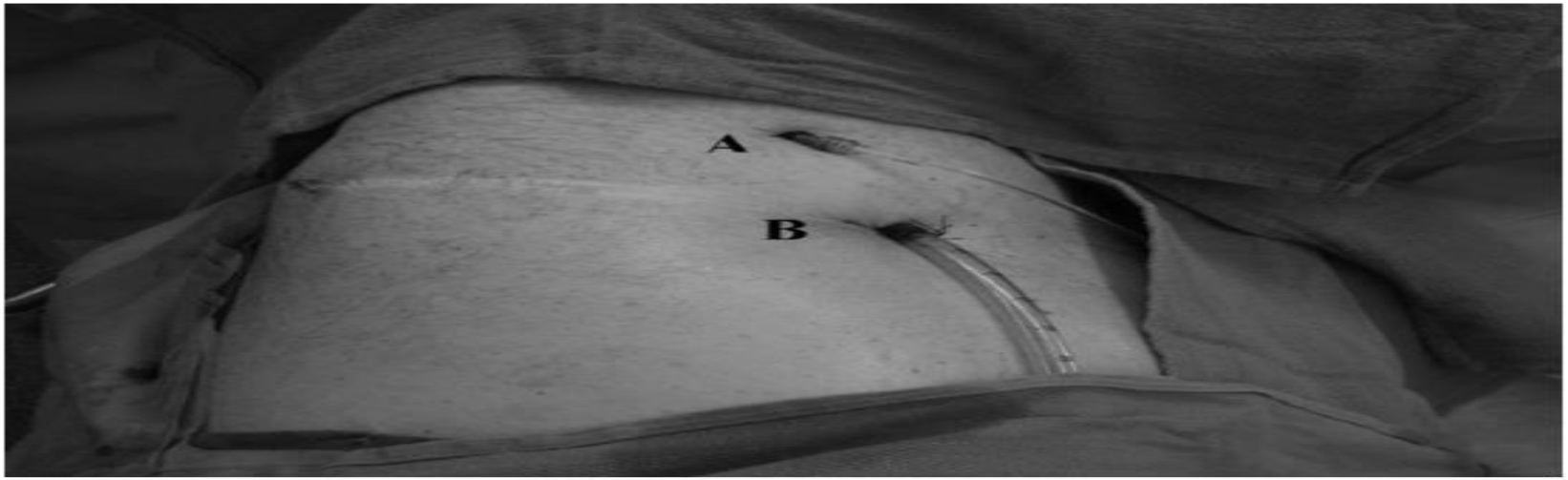


Figure 1. Irrigation system. (A) 8-F irrigating catheter. (B) 36-F drainage catheter.

Research Article

Intrapleural Antimicrobial Irrigation for Postpneumonectomy Empyema in Patients With Lung Cancer

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Abstract

Purpose: Postpneumonectomy empyema (PPE) is a possible complication after a pneumonectomy in patients with lung cancer. The use of intrapleural (IP) antibiotic irrigation to treat infections in the pleural space may be indicated after systemic antimicrobial therapy, and drainage of the pleural space has been insufficient. *Methods:* Adult patients ≥18 years old who received IP antibiotic irrigation between 2006 and 2011 were included. Demographic data, past medical history, surgical procedure, systemic antibiotics, and culture data were collected. Additionally, the IP antibiotic administered, the dose, and how it was prepared and administered were collected. *Results:* A total of 18 patients were evaluated in this retrospective descriptive analysis. The majority of patients underwent an extrapleural pneumonectomy (EPP; 72%). Most patients received systemic antibiotics before IP antibiotic administration (95%). Vancomycin was the most common antibiotic used for both systemic therapy (100%) and IP irrigation

Table 1. Intrapleural Antimicrobial Preparation.

Antibiotic	Dose, mg	Diluent
Vancomycin	1000	1000 mL NS
Meropenem	1000	1000 mL NS
Voriconazole	1000	1000 mL NS
Metronidazole	500	500 mL NS
Ceftazidime	1000	1000 mL NS

Abbreviation: NS, normal saline.

- 18 vaka retrospektif
- En sık vankomisin İP
- 42 mL/h infüzyon yada direkt
- 6 ay içinde %28 nüks
- Belirgin bir yan etki yok

İntraplevral Antibiyotik Uygulamaları

- 18 vaka
- Sistemik+ IP antibiyotik tedavisi 10 gün sonrası videotorakoskopik debritman(VATS)
- ≈44,4 aylık izlemde → %88.8 rekürrens yok
- Tolerabilite-güvenirlilik yorumu yok

Bagan P. Postpneumonectomy empyema treated with a combination of antibiotic irrigation followed by videothoracoscopic debridement. J Thorac Cardiovasc Surg. 2006

İntraplevral Antibiyotik Uygulamaları

Standart doz ?
İrigasyon süresi?
Drenaj süresi?
Etken?
Hangi antibiyotik?

İP Tedavinin Bireyselleştirilmesi


8. ULUSAL
HİDATİDOLOJİ
KONGRESİ
ULUSLARARASI KATILIMLI
14-16 NİSAN 2017
TÜRKİYE HİDATİDOLOJİ DERNEĞİ
HİTİT ÜNİVERSİTESİ
2. Duyuru


TEŞEKKÜRLER