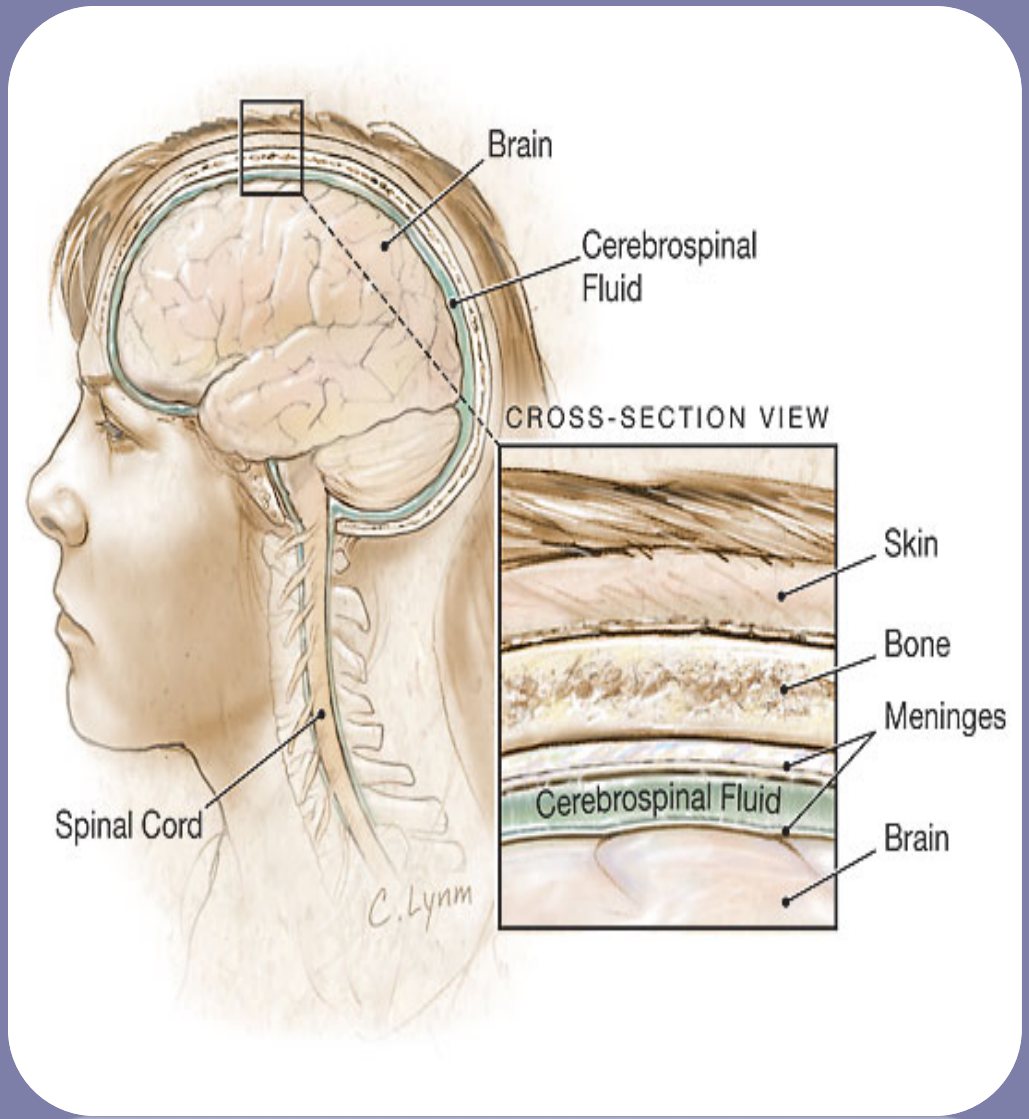
Meningoencefalite



ACADEMIA LATINOAMERICANA DE MEDICINA DEL ADULTO MAYOR

ALMA

Grupo 2:

Gamrski Roberto
Tobon Yarelis
Garcia Virgílio
Oscar Lopez
Perez Mariangela
Oscar Rosas

Meningite em Idosos

- Nos EUA 3/100.000 casos- 20%> 60 anos
- 20% de fatalidade em idosos

- Complicações>50 anos 85% x 41% jovens
- Virus menos comuns em idosos

- Associado a uma maior prevalência de doenças crônicas e a uma influência da imunosenescência.

Yoshikawa t. Infeccious diseases in aging. 2ed. 2009.

Meningitis em Idosos (Bactérias mais prevalentes)

Table 1 Surveillance Studies of Bacterial Meningitis in Older Adults (Age > 60 Years)

	Studies					
	Wenger et al.		Schlech et al.		Schuchat et al.	
Organisms	AR	CFR	AR	CFR	AR	CFR
S. pneumoniae	1.5	31	0.5	54	1.9	20
L. monocytogenes	0.5		0.1	41	0.6	
H. influenzae	0.2		0.09	24	0.07	
N. meningitidis	0.1		0.2	29	0.1	
Group B *Streptococcus*	0.2	51	0.02	23	0.1	18

Abbreviations: AR, attack rate per 100,000; CFR, case fatality rate (percent).
Source: From Wenger et al. (2)—incomplete data on CFRs for all organisms, Schlech et al. (3), and Schuchat et al. (4)—incomplete data on CFRs for all organisms.

Schuchat , A. , Robinson , K. , Wenger , J.D. , et al. (1997) . Bacterial meningitis in the United States in 1995 . *New England Journal of Medicine , 337 , 970 – 976 .*
Wenger , J.D. , Hightower , A.W. , Facklam , P.R. , et al. (1990) . Bacterial meningitis in the United States, 1986: report of a multistate surveillance study . *Journal of Infectious Diseases* ,162 , 1316 – 1323 .
Schlech , W.F. III ., Ward , J.I. , Band , J.D. , et al. (1985) . Bacterial meningitis in the United States, 1978 through 1981: the national bacterial meningitis surveillance study . *Journal of the American Medical Association , 253 , 1749 – 1754*
In: YOSHIKAWA T. Infeccious diseases in Aging. 2Ed. 2009.

Streptococus Pneumoniae

- 70% das meningites em idosos
- 25 a 35% nos EUA resistentes à penicilina
- 10 a 15% multiresistentes
- Todos sensíveis à vancomicina

- Diapositivos intracocleares→ Risco de meningite→ Nova indicação para o uso de

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Meningite em Idosos

- Lysteria Monocytogenes
- Responsável por 22% meningites idosos
- Ocorre em imunocomprometidos
- Causador de hemólise
- **Neisseria Men.→ 5% em idosos**

- **Sintomas cardinais:**
- **Febre**
- **Rigidez de nuca**
- **Alteração do sensório**

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Diagnóstico da Meningite

- Alto valor preditivo negativo para os 3 sinais cardinais, porém o exame físico é inespecífico.
- Rigidez de nuca em 50 % dos casos de inflamação meníngea moderada.
- Punção lombar de acordo com a probabilidade pre teste.
- Exame fundo de olho normal→ baixo risco
- Em idosos geralmente tomografia prévia
- Gram do liquor geralmente + para streptococus
- Excepcionalmente teste látex ou PCR antígeno

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Table 1. Clinical Features at Admission in 696 Episodes of Community-Acquired Bacterial Meningitis: Comparison of Patients Aged 60 and Older with Patients Aged 17 to 59

Clinical Feature	≥60 (n = 257)	17–59 (n = 439)	*P*-value*
Age, mean ± standard deviation	71 ± 7.5	38 ± 14	<.001
Male, n (%)	107 (42)	238 (54)	.001
Duration of symptoms <24 hours, n/N (%)	117/239 (49)	200/422 (47)	.75
Treated with antibiotics before admission, n/N (%)	32/254 (13)	32/438 (7)	.03
Predisposing conditions, n (%)			
Otitis/sinusitis	75 (29)	101 (23)	.70
Pneumonia	38 (15)	45 (10)	.09
Immunocompromise†	63 (25)	51 (12)	<.001
Symptoms and signs on presentation, n/N (%)			
Rash	28/253 (11)	148/430 (34)	<.001
Seizures	13/239 (5)	19/427 (4)	.57
Headache	165/214 (77)	379/412 (92)	<.001
Neck stiffness	198/253 (78)	371/432 (86)	.01
Heart rate >120 beats/min	38/248 (15)	39/404 (10)	.03
Body temperature ≥38°C	215/256 (84)	305/422 (72)	<.001
Diastolic blood pressure <60 mmHg	17/251 (7)	44/419 (11)	.10
Papilledema	5/132 (4)	8/254 (3)	.77
Glasgow Coma Scale score			
<14 (altered mental status)	216/256 (84)	261/438 (60)	<.001
<8 (coma)	47/256 (18)	49/438 (11)	.01
Focal cerebral deficits, n (%)‡	83 (32)	74 (17)	<.001
Cranial nerve palsies, n (%)	36 (14)	53 (12)	.46
Triad of fever, neck stiffness, and change in mental status	149/257 (58)	156/439 (36)	<.001

* Chi-square test or Mann-Whitney U test as appropriate.
† Defined as the use of immunosuppressive drugs, a history of splenectomy, the presence of diabetes mellitus, alcoholism, or infection with the human immunodeficiency virus.
‡ Defined as aphasia or mono- or hemiparesis.
n/N = number/number evaluated.

Weisfelt M. et al. Community-Acquired Bacterial Meningitis in Older People J Am Geriatr Soc, 2006. 54:1500–1507

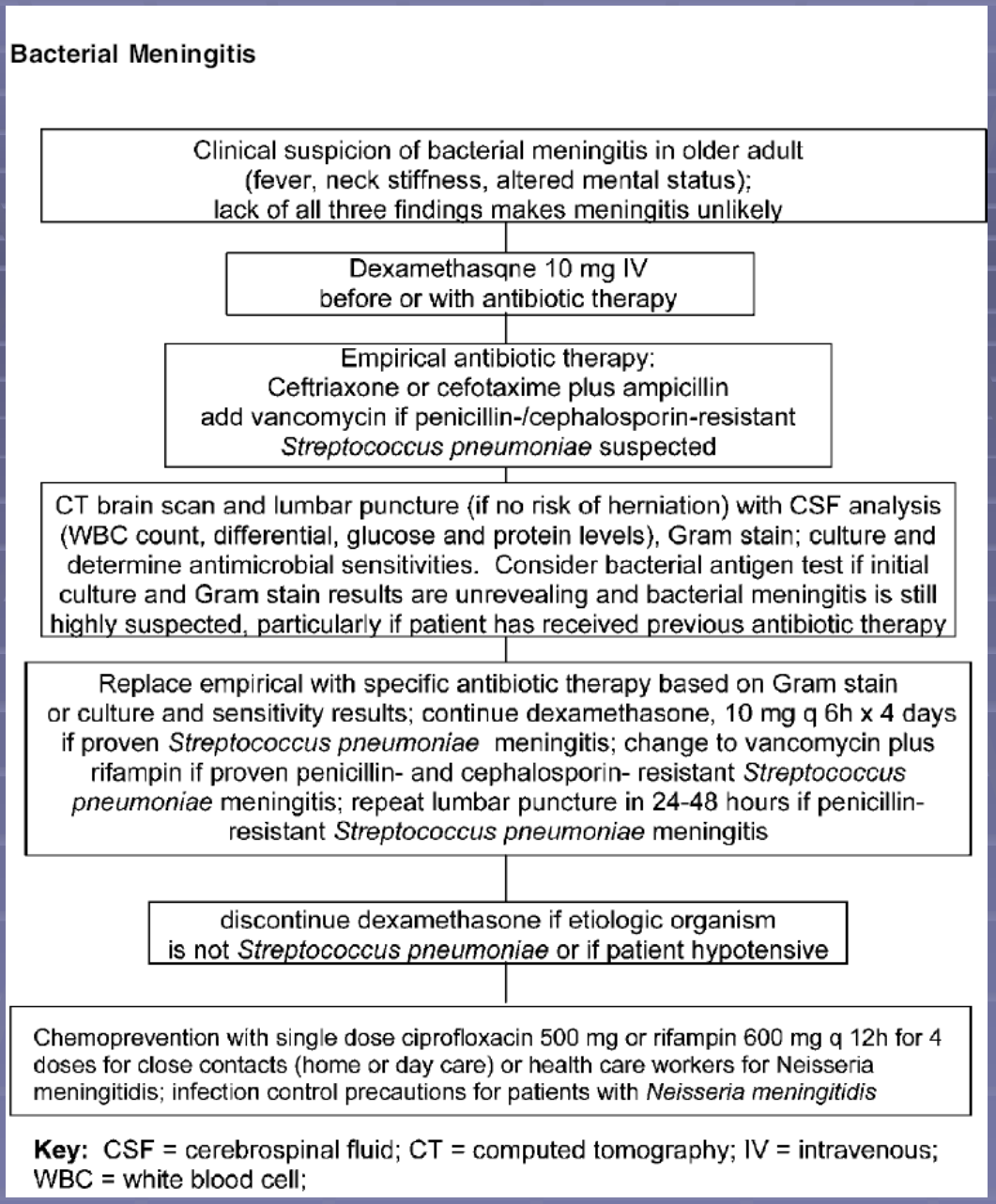
Exame do Liquor e etiologia

	Normal	*Meningite bacteriana*	*Meningites virais*	*Tuberculosa*
Celularidade (cels/mm^3)	0 a 4	>500	<500	<500
Polimorfonucleares	0	>66 a 70%	<34%	<34%
Linfo-mononucleares	100%	<34%	>66%	>66%*
Proteínas (mg%)	40	>40	20-80	>100
Glicose (mg%)	> 40	<40	normal	<40
Bacterioscopia	Negativa	Positiva	Negativa	Negativa ou Positiva
Cultura	Negativa	Positiva	Negativa	Negativa ou Positiva

* Nas fases iniciais pode haver predomínio de PMN. A punção lombar deve ser repetida 12 horas após, quando haverá uma mudança na celularidade para mononucleares.

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Bacterial Meningitis



Key: CSF = cerebrospinal fluid; CT = computed tomography; IV = intravenous; WBC = white blood cell;

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Antibióticos e BHE

Table 3 Antibiotic Penetration of CSF

Excellent	Good (with inflammation)	Poor or negligible
Rifampin	Penicillins	Most first- and second-generation cephalosporins
TMP–SMZ	Third-generation cephalosporins	Aminoglycosides: tobramycin, and gentamicin
Chloramphenicol	Cefuroxime	
Metronidazole	Vancomycin (variable), erythromycin (variable), and tetracyclines (variable)	

Note: Excellent, >15–20% penetration; good, 5–20% penetration; poor or negligible, <1–5% penetration.
Abbreviations: TMP-SMZ, trimethoprim-sulfamethoxazole.
Source: Adapted from Refs. 23,26,29,31.

Tratamento da Meningite

Organism	Antibiotic	Total daily dose
Empirical treatment for bacterial meningitis[a]	Ceftriaxone plus Ampicillin[b]	4 g 12 g
S. pneumoniae (penicillin sensitive)	Penicillin G	20–24 million units
S. pneumoniae[c] (penicillin or cephlosporin resistant)	Vancomycin plus Ceftriaxone	2 g 4 g
L. monocytogenes	Ampicillin plus an aminoglycoside: gentamicin and tobramycin	12 g 3–6 mg/kg
N. meningitidis	Penicillin G or Ampicillin	20–24 million units 12 g
H. influenzae	Ceftriaxone	4 g
Enterobacteriaceae (gram-negative bacilli)	Ceftriaxone[d]	4 g
Staphylococcus aureus (methicillin sensitive)	Nafcillin or oxacillin	8–12 g
S. aureus (methicillin resistant)	Vancomycin	2 g

[a] Add vancomycin if highly penicillin-resistant *S. pneumoniae* suspected.

[b] If patient is penicillin allergic, consider use of vancomycin plus TMP—SMZ (15–20 mg/kg/day divided into doses every 6–8 hr) with or without aztreonam 8 g/day (divided into doses every 6 hr); add rifampin (600 mg/day) if dexamethasone utilized.

Tratamento e prevençao

- S. agalactiae→ ampicilina + aminoglic.
- Duração: Strepto Pneum.→10-14 dias
- H influenz. E Neisseria→7 dias
- L. Monocyt. e Strepto.agalact.→ 14-21dias
- Gran - → 21 dias
- Pneumovax(vacina)
- Previne pneumon. pneumoc. Bacterêmica
- CDC→60%idosos-90% institucionalizados
- Profilaxia Neisseria→Rifampicina (600 mg 2x por 2 dias ou cipro em dose única
- Ausência estudos envovendo idosos com diabetes,insuf.renal ou hepática ou câncer.

Tratamento

- O tratamento deve ser precoce|
- Penic. E cefalo cruzam a BHE apenas em situação de inflamação x sulfa+ trim., metronidazole, cloranfenicol e rifampicina
- Usar ceftriaxone ou cefotaxime :
- S. Pneum., Neisseria,H.Influenza e Gran-
- Usar ampicilina+aminoglic.→ L. Monocytogenes
- Adicionar vancomicina para Strepto resist.
- Intolerância ou alergia→ Vanco+Rifamp.
- Não se sabe da utilidade do corticóide quando há a necessidade de adicionar vancomicina.

Puntos Claves

The antibiotic treatment of bacterial meningitis in older adults is complicated by the greater range of etiologies and the increasing antibiotic resistance of some meningopathogens.

The empirical treatment of bacterial meningitis in older adults should include ceftriaxone or cefotaxime plus ampicillin. Vancomycin should be added when *Streptococcus pneumoniae* resistant to third-generation cephalosporins is prevalent.

Dexamethasone should be utilized for patients with known or suspected *S. pneumoniae* meningitis.

Older adults with fever and altered mental status pose a particularly difficult clinical dilemma. Common infections such as pyelonephritis or pneumonia may lead to altered mental status in the absence of meningeal involvement or brain abscess. Most such patients will require a lumbar puncture and cerebrospinal fluid analysis to exclude bacterial meningitis.

Pneumococcal vaccination is underutilized, yet may provide significant protection against meningitis caused by this organism.

CONCLUSIONES

- Reconocer la enfermedad en los adultos mayores quienes se presentan con menos síntomas clásicos de meningitis
- Mayor número de microorganismos causales posibles
- Inicio inmediato de tratamiento adecuado contra los microorganismos, con un incremento en la resistencia antibiótica
- Prevenir esta enfermedad a través de vacunas efectivas.