¿Es posible simplificar el tratamiento antibiótico en infecciones asociadas a los cuidados de la salud?

Mesa Redonda

"Infecciones asociadas al cuidado de la salud: una puesta al día "

2017

Dra. M. Paula Della Latta

Infectóloga pediatra

Hospital de Niños R. Gutiérrez - Hospital Alemán - Centros médicos Stamboulian

Epidemiología de las IH o IACS en EEUU

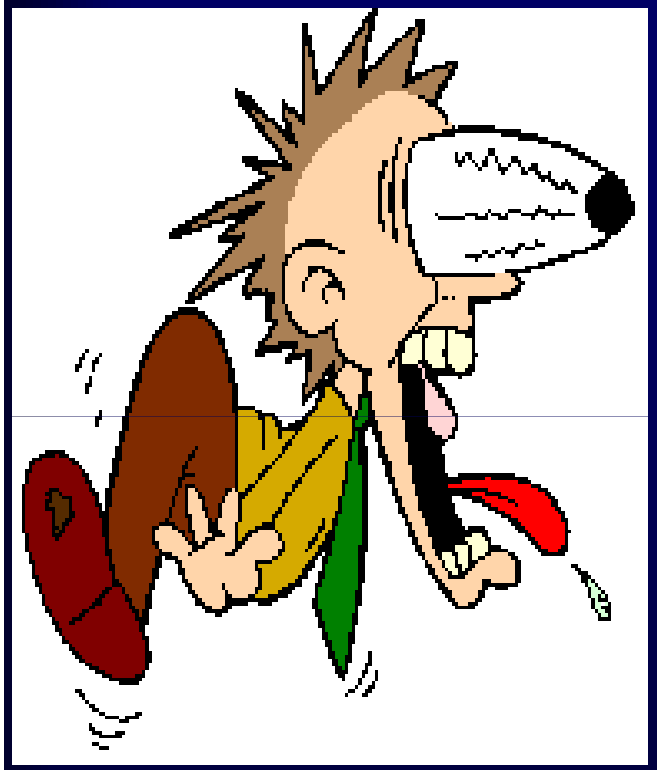
- Son frecuentes: CDC estima que se producen 2.000.000 de IH por año (5-10% de los pacientes hospitalizados)
- Equivale a: 100.000 muertes y U$ 4.5-6.5 millones de costos extra.
- La prevención de las IH es una prioridad de orden nacional EEUU (sociedades científicas, autoridades, gobierno, etc.); “Seguridad del paciente” (OMS)

Infect Control Hosp Epidemiol 2008; 29:S12-S21

¿A qué llamamos microorganismos multiresistentes? MDRO (en ingles)

- SAMR
- EVR
- Enterobacterias BLEE betalactamasas espectro extendido (*E.coli, Klebsiella p., etc.)*
- *Acinetobacter* sp.
- *Pseudomonas* sp.
- KPC (*Klebsiella pn*. y otras)
- *Stenotrophomonas* sp.
- etc (y muchos más a la espera)

Definición de BGNMR



Pandrug Resistance (PDR), Extensive Drug Resistance (XDR), and Multidrug Resistance (MDR) among Gram-Negative Bacilli: Need for International Harmonization in Terminology

Son definiciones microbiológicas que pueden resultar confusas en la práctica diaria

CID 2008:46 (1 April) • 1121

Definición de BGNMR

Pandrug Resistance (PDR), Extensive Drug Resistance (XDR), and Multidrug Resistance (MDR) among Gram-Negative Bacilli: Need for International Harmonization in Terminology

Las definiciones varían según los autores:

- "pandrug resistance"= resistencia a todos los atb (panresistente)
- "extensive drug resistance" (XDR)= resistencia a todos excepto 1 o 2 clases de atb (resistencia extendida)
- "extreme drug resistance" (?) un poco más (extremadamente resistente)
- "multidrug resistance" (MDR)= resistencia ≥ 3 clases de atb (multiresistente)

CID 2008:46; 1121 Clin Microbiol Infect 2012; 18: 268–281

Clin Microbiol Infect 2014; 20:1

Management of Multidrug-Resistant Organisms In Healthcare Sett...

ESCMID PUBLICATIONS

10.1111/1469-0691.12427

ESCMID guidelines for the management of the infection control measures to reduce transmission of multidrug-resistant Gram-negative bacteria in hospitalized patients

E. Tacconelli[1], M. A. Cataldo[2], S. J. Dancer[3], G. De Angelis[4], M. Falcone[5], U. Frank[6], G. Kahlmeter[7], A. Pan[8,9], N. Petrosillo[2], J. Rodríguez-Baño[10,11,12], N. Singh[13], M. Venditti[5], D. S. Yokoe[14] and B. Cookson[15]

...Infectious ...Healthcare Settings

Jane D. Siegel, MD; Emily Rhinehart, RN MPH CIC; Marguerite Jackson, PhD; Linda Chiarello, RN MS; the Healthcare Infection Control Practices Advisory Committee

Acknowledgement: The authors and HICPAC gratefully acknowledge Dr. Larry Strausbaugh for his many contributions and valued guidance in the preparation of this guideline.

GUÍAS PARA LAS PRECAUCIONES DE AISLAMIENTO

AÑO 2008

Sociedad ARGENTINA DE INFECTOLOGÍA

Sociedad Argentina de Terapia Intensiva

S.A.D.I.

ADECI
Asociación Argentina de Enfermeros en Control de Infecciones

Guidance for Control of Carbapenem-resistant Enterobacteriaceae (CRE)

2012 CRE Toolkit

...tional Center for Emerging and Zoonotic Infectious Diseases
...sion of Healthcare Quality Promotion

CDC

CDC Home | Search | Health Topics A-Z

MMWR Weekly

March 20, 2009 / 58(10);256-260

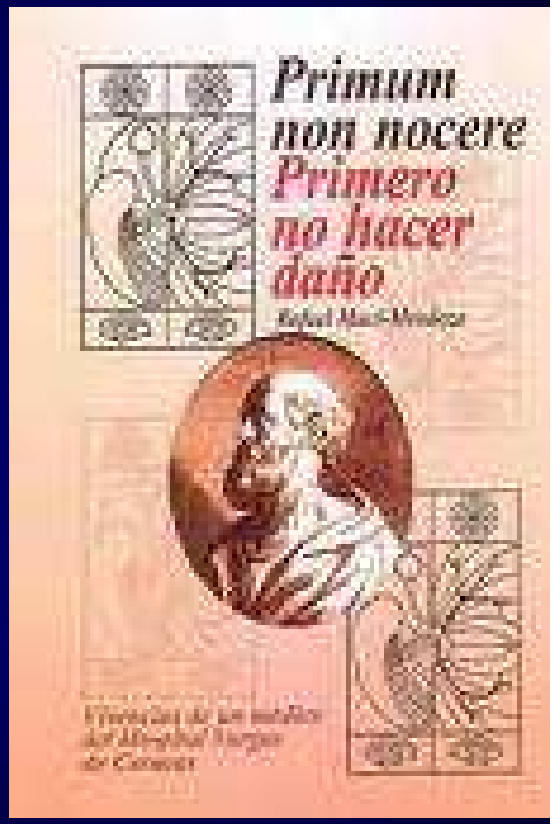
Guidance for Control of Infections with Carbapenem-Resistant or Carbapenemase-Producing *Enterobacteriaceae* in Acute Care Facilities

Infection with carbapenem-resistant *Enterobacteriaceae* (CRE) or carbapenemase-producing *Enterobacteriaceae* is emerging as an important challenge in health-care settings (*1*). Currently, carbapenem-resistant *Klebsiella pneumoniae* (CRKP) is the species of CRE most commonly encountered in the United States. CRKP is resistant to almost all available antimicrobial agents, and infections with CRKP have been associated with high rates of morbidity and mortality, particularly among persons with prolonged hospitalization and those who are critically ill and exposed to invasive devices (e.g., ventilators or central venous catheters). This

Toda prescripción de antimicrobianos tiene consecuencias….

- Sobre el paciente
- Sobre el resto de los pacientes
- Sobre la familia
- Sobre los costos hospitalarios
- Sobre la sociedad

Las IACS rompen con el principio básico de la medicina



Combinación problemática

IACS

+

BGNMR/SAMR/EVR

+

uso racional de atb

¿Cómo disminuir el impacto?

Selección óptima de la terapia antimicrobiana

- Paso 1: Predecir el microrganismo infectante
- Paso 2: Considerar tipo de huésped
- Paso 3: Considerar edad
- Paso 4: Realizar pruebas diagnósticas
- Paso 5: Considerar sensibilidad probable del patógeno
- Paso 6: Considerar farmacocinética/farmacodinamia
- Paso 7: Considerar el objetivo de curación (%)
- Paso 8: Rotar empírico por definitivo
- Paso 9: Consideraciones especiales

Pickering L., et al. Principles and Practice in PID 3erd ed. 2009

Bacteriemias por Bacilos Gram- negativos: Tratamiento empírico

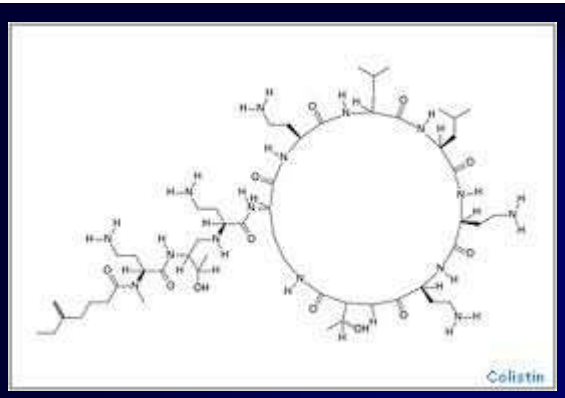
- Lugar de adquisición (intra- extrahospitalaria)
- Huésped (edad, enfermedad de base, foco clínico, tratamiento previo, shok séptico)
- Valorar factores de riesgo de mortalidad

Tratamiento

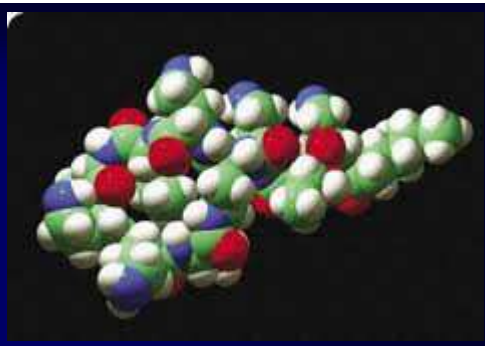
Combinado	**Monoterapia**
Neutropénicos	No neutropénicos
Inmunocomprometidos	No HIC
Shock séptico	
BGN MR	Ausencia shock séptico
Foco abdominal	Foco Urinario
Intrahospitalario	Comunidad

AG (amikacina/gentamicina): indicaciones mas frecuentes

- Monoterapia: en infecciones urinarias causadas por BGN sensibles.
- Terapia combinada en infecciones graves por BGN MR o en huéspedes inmunocomprometidos. En endocarditis por *Enterococo (ampicilina o vancomicina + gentamicina), por Streptococcus viridans (penicilina + gentamicina) por Staphylococcus aureus* de válvula protésica, etc.
- Tratamiento empírico en: sepsis neonatal, neutropenia febril (alto riesgo).

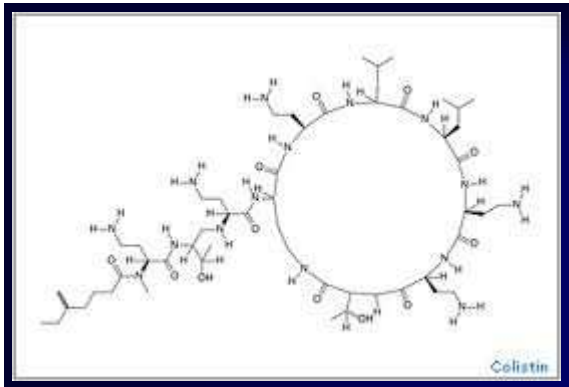


Colistín: cuándo usarlo?

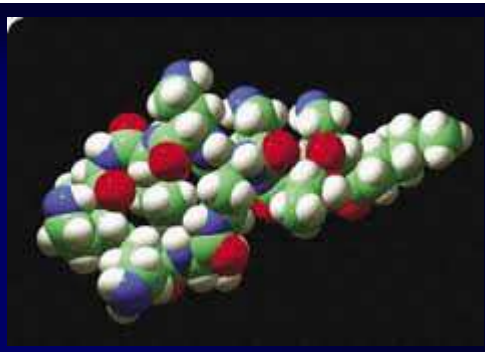


Indicaciones:

- ✓ Tratamiento empírico inicial (TEI) en infecciones graves hospitalarias, de acuerdo a la epidemiología de cada centro.
- ✓ TEI en infecciones graves extrahospitalarias en pacientes colonizados por BGN MR (*PAE, KPC, Acinetobacter*)
- ✓ Infecciones graves (sepsis, neumonía, intrabdominales, meningitis, etc.) por BGN MR, inclusive en período neonatal.
- ✓ Infecciones en pacientes quemados por BGN MR.



Colistín: terapia combinada?



- Colistin + piperacilina, aztreonam, ceftazidima, imipenem, o ciprofloxacina: IRAB por *PAE* multiR en FQP (*Thorax **1997**; 52:987*).
- Sinergia *in vitro* colistin + ceftazidima en *PAE* multiR (*Antimicrob Agents Chemother **2003**; 47:905*).
- Sinergia colistin + rifampicina en neumonía y sepsis por *PAE* (*J Chemother **2004**; 16:282*).
- Sinergia colistin + meropenem (entre otros) en infecciones por KPC *(Clinical Infectious Diseases **2010**; 50:364)*

Cuándo combinar antibióticos??

Consideraciones generales en terapia antimicrobiana combinada

- **La ventaja de la terapia antibiótica combinada sobre la monoterapia se demostró solamente en situaciones puntuales:**

✓ En infecciones por *Enterococo* la gentamicina, la estreptomicina y la tobramicina son sinérgicas junto a antibióticos que actúan sobre la pared bacteriana (β lactámicos).

✓ La combinación de piperacilina con gentamicina, tobramicina o amikacina, exhibe sinergia in vitro contra cepas de *Pseudomonas*.

✓ La sinergia entre ciprofloxacina y AG o imipenem, se demostró para *Pseudomonas*, no así para otras enterobacterias.

✓ Los esquemas combinados (AG/ β lactámicos) para bacteriemias por otros BGN, demostraron superioridad clínica en ensayos clínicos de pacientes neutropénicos.

Pickering L., et al. Principles and Practice in PID 3erd ed. 2009

Consideraciones generales en terapia antimicrobiana combinada

- **Precauciones:** La combinación de algunos antibióticos puede resultar en un efecto antagónico!

✓ La combinación de agentes bacteriostáticos puede antagonizar la actividad bactericida de un β lactámico sobre el Neumococo, ya sea inhibiendo la producción de autolisinas (tetraciclinas) o la replicación bacteriana (cloranfenicol).

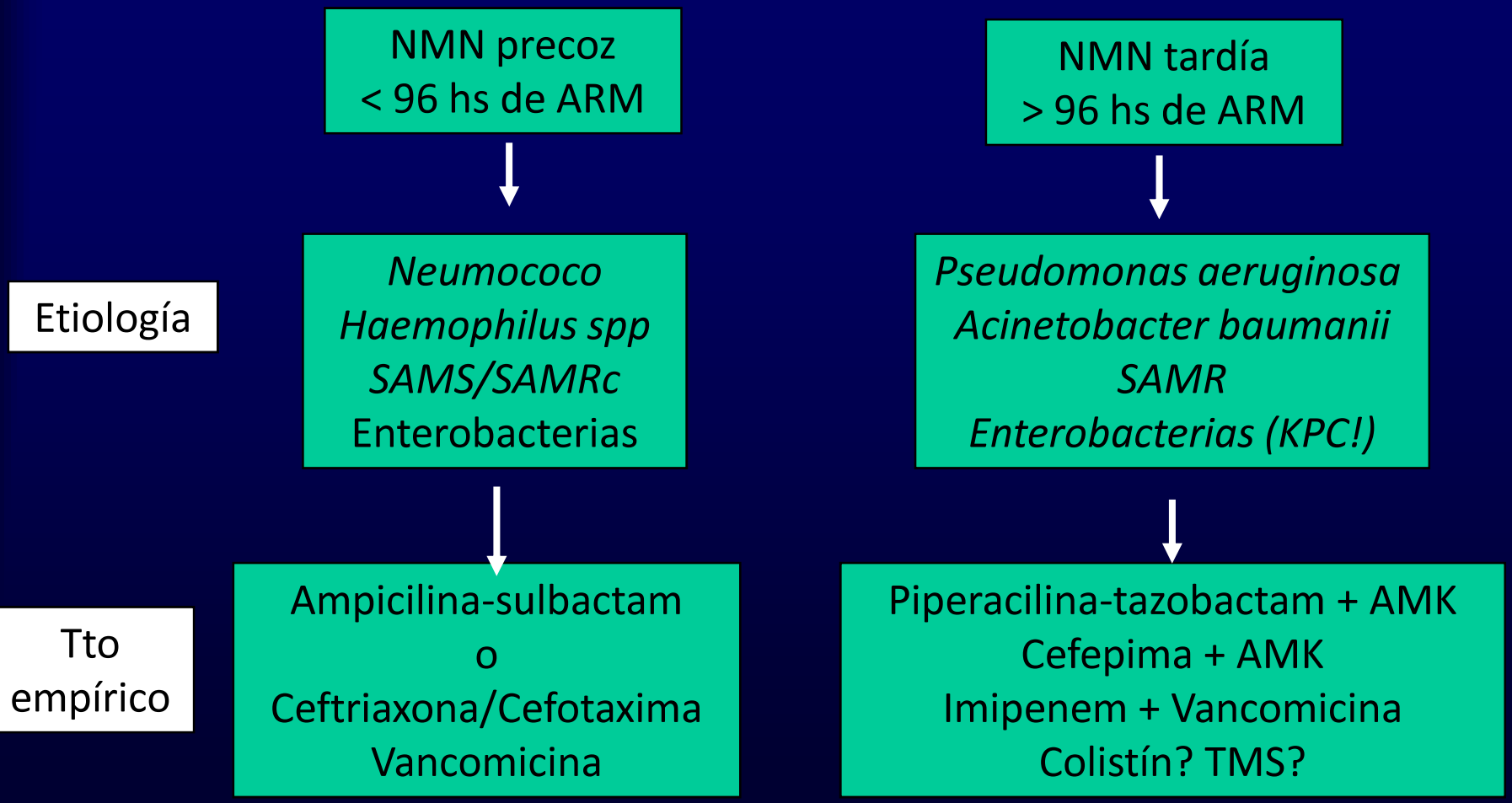
✓ La combinación de cloranfenicol + tetraciclinas o Aminoglucósidos son antagonistas para BGN.

✓ La combinación de agentes que actúan sobre el mismo sitio de unión bacteriana con el ribosoma (clindamicina, eritromicina, espiramicina, estreptograminas) puede generar competencia por el sitio de unión.

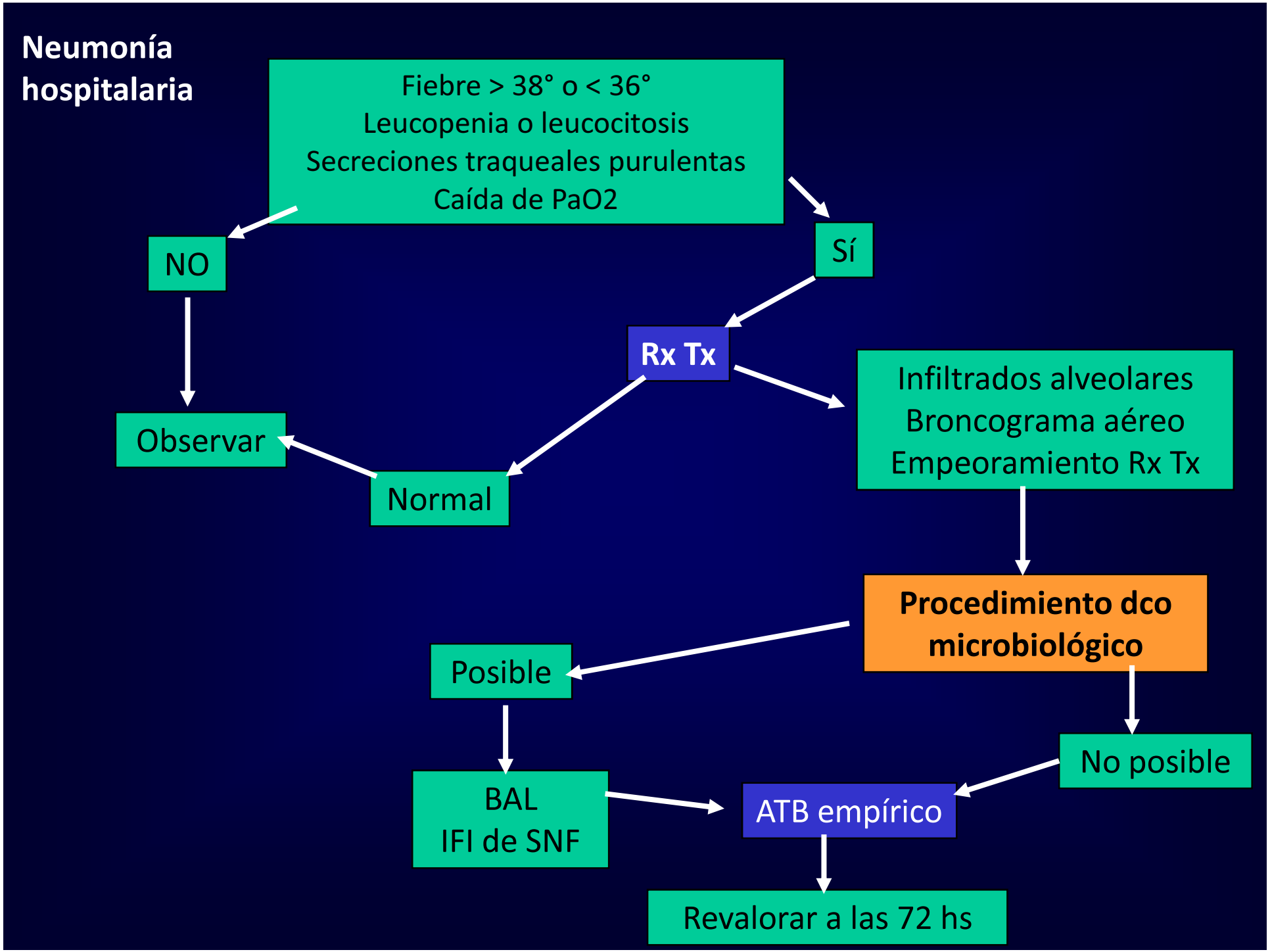
✓ La combinación de β lactámicos contra BGN también exhibe antagonismo.

Pickering L., et al. Principles and Practice in PID 3erd ed. 2009

Neumonía asociada a respirador o ARM (NAR)



Inf Dis Clin N Am 17 (2003) 727 modificado


Neumonía hospitalaria
Fiebre > 38° o < 36°
Leucopenia o leucocitosis
Secreciones traqueales purulentas
Caída de PaO2
NO
Sí
Rx Tx
Observar
Normal
Infiltrados alveolares
Broncograma aéreo
Empeoramiento Rx Tx
Procedimiento dco microbiológico
Posible
No posible
BAL
IFI de SNF
ATB empírico
Revalorar a las 72 hs

Tratamiento empírico inicial NAR

Infectious Diseases Society of America and the Society for Healthcare Epidemiology of America Guidelines for Developing an Institutional Program to Enhance Antimicrobial Stewardship

[79]. A prospective before-and-after study of a clinical guideline for the management of VAP incorporated broad empirical therapy based on local microbiology with culture-driven de-escalation and a standard 7-day course of therapy. Implementation of the protocol led to increased initial administration of adequate antimicrobial therapy (94% vs. 48%), decreased duration of therapy (8.6 vs. 14.8 days), and decreased VAP recurrence (8% vs. 24%), without affecting patient mortality [80]. The

Recomendaciones:

1°TEI: de amplio espectro (acorde a la microbiología local)

2° "De-escalation" = descalamiento de atb, basado en resultado de cultivos

Dellit et al CID 2007:44:159

Ventilator-associated pneumonia: Breaking the vicious circle of antibiotic overuse*

Marc Leone, MD; Frédéric Garcin, MD; Julien Bouvenot, MD, MPH; Ioanna Boyadjev, MD; Pierre Visintini, MD; Jacques Albanèse, MD, PhD; Claude Martin, MD, FCCM

LEARNING OBJECTIVES

On completion of this article, the reader should be able to:

1. Explain the usefulness of a protocol for empiric antimicrobial therapy for ventilator-associated pneumonia (VAP).
2. Identify the bacteria responsible for VAP.
3. Use this information in a clinical setting.

All authors have disclosed that they have no financial relationships with or interests in any commercial companies pertaining to this educational activity.

Lippincott CME Institute, Inc., has identified and resolved all faculty conflicts of interest regarding this educational activity.

Visit the *Critical Care Medicine* Web site (www.ccmjournal.org) for information on obtaining continuing medical education credit.

Objective: To assess the rate of appropriateness of empirical antimicrobial therapy for ventilator-associated pneumonia, to evaluate de-escalation in patients with ventilator-associated pneumonia treated according to local pathway, and to identify the bacteria responsible for recurrence of ventilator-associated pneumonia.

Design: Prospective observational study during a 36-month period.

Setting: Medical-surgical intensive care unit of a university hospital.

Patients: One hundred and fifteen patients hospitalized in an intensive care unit developing ventilator-associated pneumonia with positive cultures. The patients with ventilator-associated pneumonia were treated with limited-spectrum antibiotics (i.e., without activity against *Pseudomonas aeruginosa*) if they had no prior hospitalization (within 21 days) or prior administration of antibiotics (within 10 days). Quantitative cultures obtained by bronchoscopy or tracheal aspiration were used to reassess empirical therapy.

Interventions: None.

Measurements and Main Results: A limited-spectrum therapy was used in 79 patients (69%). Empirical antimicrobial therapy was appropriate in 100 patients (85%). The mortality rate was significantly higher in the patients in whom empirical therapy was inappropriate than in those in whom treatment was appropriate (47 vs. 20%, $p = .04$). De-escalation was done in respectively 26% and 72% of patients with early- and late-onset ventilator-associated pneumonia, whereas treatment was escalated in 27 patients (23%). Ventilator-associated pneumonia episodes were recurrent in 22 cases, including eight episodes due to high-risk bacteria.

Conclusions: A rational empirical antimicrobial therapy for ventilator-associated pneumonia using limited-spectrum antibiotics is possible if local ecology and patient medical history and clinical status are considered. In addition, de-escalation is feasible in 42% of patients. This integrative approach may reduce the emergence of resistant bacteria, which in turns reduces the need for broad-spectrum antibiotics, breaking the vicious circle of antibiotic overuse. (Crit Care Med 2007; 35:379–385)

KEY WORDS: ventilator-associated pneumonia; spectrum; de-escalation; therapy; antibiotic; intensive care unit

Tratamiento empírico inicial NAR adultos en UCIs con MOMR

Clinical Infectious Diseases

IDSA GUIDELINE

Management of Adults With Hospital-acquired and Ventilator-associated Pneumonia: 2016 Clinical Practice Guidelines by the Infectious Diseases Society of America and the American Thoracic Society

Table 3. Suggested Empiric Treatment Options for Clinically Suspected Ventilator-Associated Pneumonia in Units Where Empiric Methicillin-Resistant *Staphylococcus aureus* Coverage and Double Antipseudomonal/Gram-Negative Coverage Are Appropriate

A. Gram-Positive Antibiotics With MRSA Activity	B. Gram-Negative Antibiotics With Antipseudomonal Activity: β-Lactam–Based Agents	C. Gram-Negative Antibiotics With Antipseudomonal Activity: Non-β-Lactam–Based Agents
Glycopeptides[a] Vancomycin 15 mg/kg IV q8–12h (consider a loading dose of 25–30 mg/kg × 1 for severe illness)	Antipseudomonal penicillins[b] Piperacillin-tazobactam 4.5 g IV q6h[b]	Fluoroquinolones Ciprofloxacin 400 mg IV q8h Levofloxacin 750 mg IV q24h
OR	OR	OR
Oxazolidinones Linezolid 600 mg IV q12h	Cephalosporins[b] Cefepime 2 g IV q8h Ceftazidime 2 g IV q8h	Aminoglycosides[a,c] Amikacin 15–20 mg/kg IV q24h Gentamicin 5–7 mg/kg IV q24h Tobramycin 5–7 mg/kg IV q24h
	OR	OR
	Carbapenems[b] Imipenem 500 mg IV q6h[d] Meropenem 1 g IV q8h	Polymyxins[a,e] Colistin 5 mg/kg IV × 1 (loading dose) followed by 2.5 mg × (1.5 × CrCl + 30) IV q12h (maintenance dose) [135] Polymyxin B 2.5–3.0 mg/kg/d divided in 2 daily IV doses
	OR	
	Monobactams[f] Aztreonam 2 g IV q8h	

Impacto del retraso del tratamiento antibiótico adecuado en UCI

Display Settings: Abstract

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Scand J Infect Dis. 2002;34(11):831-5.

ICU-acquired nosocomial infection: impact of delay of adequate antibiotic treatment.

Mathevon T, Souweine B, Traoré O, Aublet B, Caillaud D.

Department of Nephrology and Medical Intensive Care, UHC, G Montpied Hospital, Clermont Ferrand, France. tmathevon@chu-clermontferrand.fr

Abstract

In order to measure the impact on survival of the early introduction of adequate antibiotic treatment for nosocomial bacteremia and pneumonia, a retrospective, cohort study was carried out over a period of 17 months in a 6-bed respiratory ICU. All patients presenting with a first episode of ICU-acquired nosocomial bacteremic infection (Centers for Disease Control criteria) or pneumonia [BAL culture > or = 10(4) colony-forming units (CFU)/ml or protected specimen brush culture > or = 10(3) CFU/ml] were included. The organ failure score (Fagon criteria) was recorded on the day of diagnosis. Adequate antibiotic treatment was defined by the sensitivity of each etiologic organism to at least 1 prescribed antibiotic. A total of 25 patients (Simplified Acute Physiology Score II = 44) were included in the study with pneumonia (n = 17) or bacteremia (n = 8), on average 6.5 +/- 4.6 d after admission. At the time of diagnosis, 23 patients were receiving mechanical ventilation. The overall mortality rate was 48% and was significantly associated with the length of time without adequate antibiotic treatment ($p = 0.011$) and the number of organ failures on the day of diagnosis ($p = 0.017$). Adequate antibiotic treatment only had an impact on survival if it was started within the first 24 h after sampling ($p < 0.02$ on Day 0 and < 0.04 on Day 1). On the day of diagnosis, a failure score > 2 was associated with increased mortality ($p = 0.009$). After adjusting for the number of organ failures, the length of time without adequate antibiotic treatment remained associated with mortality (< or = 2 organ failures, $p < 0.02$; > 2 organ failures, $p = 0.05$). This study suggests that, during the course of nosocomial pneumonia and bacteremia, the time at which adequate antibiotic treatment is started is a key factor influencing survival.

Feature Articles

Duration of hypotension before initiation of effective antimicrobial therapy is the critical determinant of survival in human septic shock*

Anand Kumar, MD; Daniel Roberts, MD; Kenneth E. Wood, DO; Bruce Light, MD; Joseph E. Parrillo, MD; Satendra Sharma, MD; Robert Suppes, BSc; Daniel Feinstein, MD; Sergio Zanotti, MD; Leo Taiberg, MD; David Gurka, MD; Aseem Kumar, PhD; Mary Cheang, MSc

Objective: **To determine the prevalence and impact on mortality of delays in initiation of effective antimicrobial therapy from initial onset of recurrent/persistent hypotension of septic shock**

tension was associated with a survival rate of 79.9%. Each hour of delay in antimicrobial administration over the ensuing 6 hrs was associated with an average decrease in survival of 7.6%. By

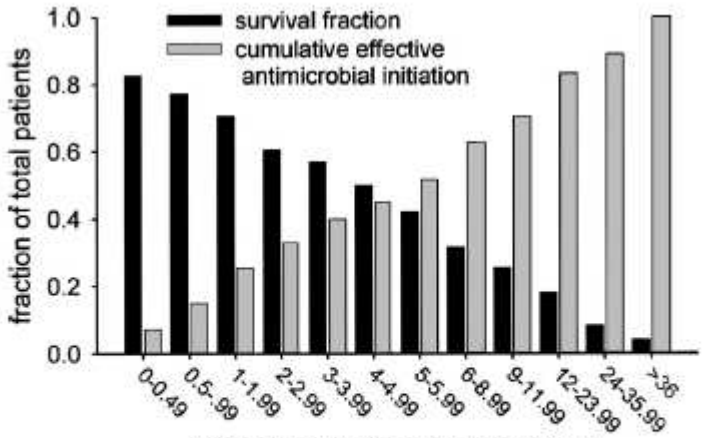

Figure 1. Cumulative effective antimicrobial initiation following onset of septic shock-associated hypotension and associated survival. The x-axis represents time (hrs) following first documentation of septic shock-associated hypotension. *Black bars* represent the fraction of patients surviving to hospital discharge for effective therapy initiated within the given time interval. The *gray bars* represent the cumulative fraction of patients having received effective antimicrobials at any given time point.

Crit Care Med 2006;34:1589

Tratamiento definitivo de infecciones por BGN MR

Novel Antibiotic Combinations against Infections with Almost Completely Resistant *Pseudomonas aeruginosa* and *Acinetobacter* Species

Clinical Infectious Diseases 2006; 43:S95–9

Table 1. Enhanced activity of antibiotic combinations against multidrug-resistant *Pseudomonas aeruginosa* and *Acinetobacter baumannii*: in vitro and clinical evidence.

Pathogen (type of evidence), antibiotic combination	Reference(s)
P. aeruginosa (in vitro)	
Ticarcillin, tobramycin, rifampin	[8]
Cephalosporins, quinolones	[21]
Ceftazidime, colistin	[22]
Macrolides, tobramycin, trimethoprim, rifampin	[20]
Polymyxin B, rifampin	[19]
Polymyxin B, imipenem	[11]
A. baumannii (in vitro)	
Polymyxin B, imipenem	[11]
Polymyxin B, rifampin	[11]
Polymyxin B, imipenem, rifampin	[16]
Polymyxin B, cecropin	[41, 42]
Polymyxin B, rifampin, ampicillin-sulbactam	[12]
Polymyxin B, rifampin, imipenem	[16]
Colistin, rifampin	[13, 15]
A. baumannii and *P. aeruginosa* (clinical)	
Cefepime, amikacin	[25]
Polymyxin B plus 1 or more of the following: a carbapenem, aminoglycoside, quinolone, or β-lactam	[26]

Surviving Sepsis Campaign

International Guidelines for Management of Severe Sepsis and Septic Shock: 2012

D. Antimicrobial Therapy

1. Administration of effective intravenous antimicrobials within the first hour of recognition of septic shock (grade 1B) and severe sepsis without septic shock (grade 1C) as the goal of therapy.

2a. Initial empiric anti-infective therapy of one or more drugs that have activity against all likely pathogens (bacterial and/or fungal or viral) and that penetrate in adequate concentrations into tissues presumed to be the source of sepsis (grade 1B).

2b. Antimicrobial regimen should be reassessed daily for potential deescalation (grade 1B).

3. Use of low procalcitonin levels or similar biomarkers to assist the clinician in the discontinuation of empiric antibiotics in patients who initially appeared septic, but have no subsequent evidence of infection (grade 2C).

4a. Combination empirical therapy for neutropenic patients with severe sepsis (grade 2B) and for patients with difficult-to-treat, multidrug-resistant bacterial pathogens such as *Acinetobacter* and *Pseudomonas* spp. (grade 2B). For patients with severe infections associated with respiratory failure and septic shock, combination therapy with an extended spectrum beta-lactam and either an aminoglycoside or a fluoroquinolone is for *P. aeruginosa* bacteremia (grade 2B). A combination of beta-lactam and macrolide for patients with septic shock from bacteremic *Streptococcus pneumoniae* infections (grade 2B).

4b. Empiric combination therapy should not be administered for more than 3–5 days. De-escalation to the most appropriate single therapy should be performed as soon as the susceptibility profile is known (grade 2B).

5. Duration of therapy typically 7–10 days; longer courses may be appropriate in patients who have a slow clinical response, undrainable foci of infection, bacteremia with *S. aureus;* some fungal and viral infections or immunologic deficiencies, including neutropenia (grade 2C).

6. Antiviral therapy initiated as early as possible in patients with severe sepsis or septic shock of viral origin (grade 2C).

7. Antimicrobial agents should not be used in patients with severe inflammatory states determined to be of noninfectious cause (UG).

MEDICINA (Buenos Aires) 2002; 62 (Supl. II): 48-51

ROL DE LA TEICOPLANINA EN EL TRATAMIENTO AMBULATORIO DE INFECCIONES CAUSADAS POR MICROORGANISMOS GRAMPOSITIVOS EN NIÑOS

ROBERTO DEBBAG, HUGO PAGANINI, SANDRA GÓMEZ, LIDIA CASIMIR, DANIEL STAMBOULIAN

Servicios de Control Epidemiológico e Infectología y Microbiología Hospital de Pediatría Profesor Dr. Juan P. Garrahan, Buenos Aires, Argentina

Fundación del Centro de Estudios Infectológicos (FUNCEI), Buenos Aires, Argentina

Resumen Las infecciones causadas por bacterias grampositivas siguen siendo una causa importante de morbilidad y mortalidad. La teicoplanina es un antibiótico glucopéptido con espectro antibacteriano similar al de la vancomicina. Su larga vida media permite la administración en una sola dosis diaria. Para evaluar la eficacia y la seguridad de la teicoplanina en el tratamiento ambulatorio de infecciones severas causadas por microorganismos grampositivos en pediatría, se realizó un estudio retrospectivo y descriptivo. El mismo se desarrolló desde enero de 1996 hasta diciembre de 2000, e incluyó 171 niños. Del total de casos 166 fueron clínicamente evaluables. Los aislamientos más frecuentes correspondieron a *Staphylococcus aureus* (72) y *Staphylococcus* coagulasa-negativo (38). La osteoartritis (35) y las infecciones relacionadas con catéteres endovasculares (31) fueron los focos clínicos predominantes. El 88% de los niños (150) curaron sus infecciones y 5% (9) mejoraron. Siete pacientes (4%) tuvieron fracaso terapéutico. La duración media del tratamiento fue de 10 ± 34.3 días (rango: 1 a 205). Once pacientes (6%) sufrieron 15 efectos adversos relacionados con la administración de la droga, todos reversibles una vez discontinuado el tratamiento. Las conclusiones del estudio indican que la teicoplanina resultó una droga eficaz y segura para el tratamiento ambulatorio de las infecciones severas causadas por bacterias grampositivas en pediatría.

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686. Impact of a Program of rational antibiotic use and new technology for early detection and treatment of gram negative bacteremia in a pediatric referral hospital

Session: Poster Abstract Session: They've Been Here a Billion Years! Pediatric Bacterial and Viral Infections
Thursday, October 27, 2016
Room: Poster Hall

Background: For the implementation of MALDI-TOF MS an intervention program for rational use of antibiotics is required
Aim: To analyze the impact of an intervention program in addition to the MALDI-TOF in pediatric inpatients with gram-negative bacteremia

Methods: Before-after intervention study. Population: Children 1 m-18 years with gram-negative bacteremia. Poly-microbial bacteremia, burn and BMT patients were excluded. Main endpoint: Delay to adequate ATB treatment. Study period: Pre-intervention (Pre-I) 2014, post-I 2015. Intervention: Implementation of MALDI-TOF and VITEK2 data were reported in real-time by whatsapp to participants from microbiology, ID and pharmacy. Statistical analyses: STATA 9.0.

Results:

: 120 episodes were included (n= 60 Pre and PostI). Univariate analysis (PreI vs Post I) no statistical difference was observed: median age 33 months vs. 41 m , underlying disease 98 %vs. 95%,final diagnosis: Primary bacteremia 22% vs 12%, CVC-related bacteremia 35% vs 47%, secondary foci 43% vs 42%. Sepsis occurred in 53% vs 45%.Empirical treatment was adequate 97%vs 96%. Microbiological isolates: enterobacteria n=58 (14% BLES +) vs. 40 (15% BLES+), *Pseudomonas aeruginosa* 1 vs 10, other non-fermented 1 vs 6. Initial antibiotic treatment was modified 55% vs 62%. Median hours to adequate antibiotic treatment were 48 (IQR 36-48 hs.) vs 24 (IQR 24-48 hs), p=0.0016. Twenty-two vs 12 p. required PICU OR 0.42 (CI 95% 0.18-0.96) p=0.03. Median LOS in PICU were 25 (IQR 6-36) vs. 20 days (IQR 6-42) p=0.7, total median LOS were 29 (IQR 14-66) vs 16 days (IQR 13-35) p=0.05; 7 vs 5 patients died. Thirty-day mortality: 17% vs. 10% p=0.28. Median hours of inadequate vancomycin use :59 (IQR 37-85.5) vs. 27(IQR 22-47) p= 0.003, colistin 48(IQR 48-96) vs 24 (IQR19-24).

Overall PICU admission risk: univariate analysis: age <1 year OR 2.5 (1.07-6.3),p=0.038, median LOS days prior to bacteremia 15.5 vs. 2,p=0.002,median LOS total days 34 vs. 17, p=0.0002, mortality 30 days 10 vs 6 patients OR 5.5 (1.8-17),intervention program OR 0.42 (0.18-0.9), p=0.03. Multivariate analysis: LOS >14 days OR3.4 (1.4-8),p=0.007, Intervention program OR 0.4(0.17-0.9),p=0.04.

Conclusion: An intervention program with rapid detection of gram negative bacteremia was effective.

Conclusiones

- Realizar tratamientos antibióticos dirigidos
- Conocer los patrones de resistencia locales
- No tratar contaminaciones ni colonizaciones

PERMITE

- Optimizar los recursos hospitalarios
- Mejorar el pronóstico de los pacientes
- Evitar la diseminación de patógenos resistentes

Derechos del niño hospitalizado

A recibir todos los cuidados y recursos terapéuticos disponibles que permitan su curación o rehabilitación

A no sufrir hospitalizaciones evitables o innecesariamente prolongadas

Muchas gracias!