Dr. Anna Lisa Garlaschelli

San Paolo Savona
UO Malattie Infettive
Savona

Infezioni da batteri multiresistenti nel paziente ematologico

Problematica globale

WHO priority pathogens list for R&D of new antibiotics

Priority 1: CRITICAL

- Acinetobacter baumannii, carbapenem-resistant
- Pseudomonas aeruginosa, carbapenem-resistant
- Enterobacteriaceae, carbapenem-resistant, ESBL-producing

Priority 2: HIGH

- Enterococcus faecium, vancomycin-resistant
- Staphylococcus aureus, methicillin-resistant, vancomycin-intermediate and resistant
- Helicobacter pylori, clarithromycin-resistant
- Campylobacter spp., fluoroquinolone-resistant
- Salmonellae, fluoroquinolone-resistant
- Neisseria gonorrhoeae, cephalosporin-resistant, fluoroquinolone-resistant

Priority 3: MEDIUM....

Definizione Sepsi sec SSC

- Condizione potenzialmente mortale data da un'alterata risposta all'infezione con conseguente disfunzione d' organo

Può evolvere rapidamente in

- Shock settico

Ovvero una condizione di ipotensione refrattaria al ripristino volemico e con necessità di supporto aminico, ne consegue ipossia tissutale con disfunzioni d'organo e lattati elevati (lattati>2 e necessità amine per MAP>65mmHg)

Necessità di individuare e trattare rapidamente

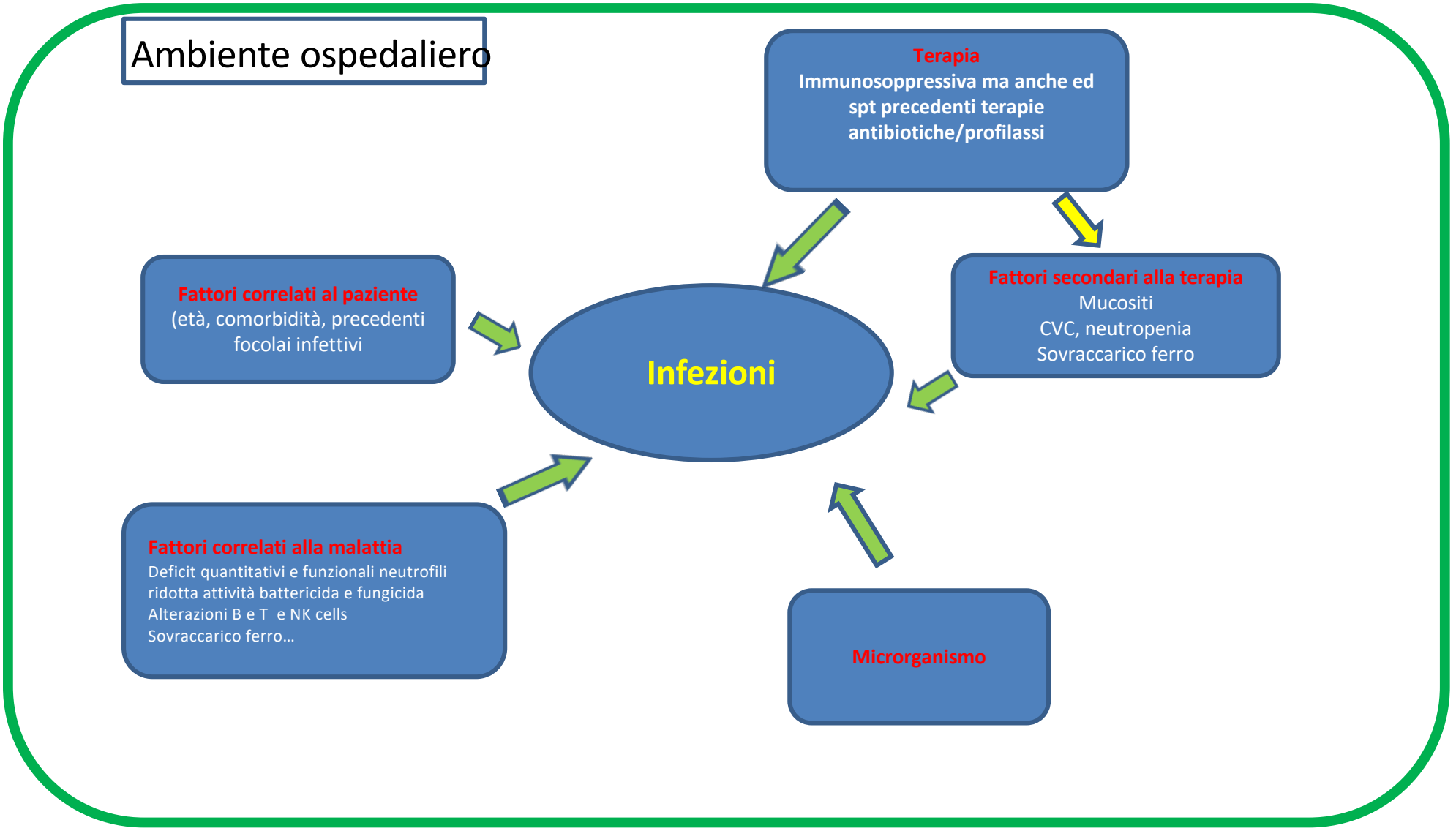
Considerazioni

- Condizioni ad elevata mortalità: EMERGENZA MEDICA
- Incidenza in aumento negli ultimi decenni
- Programmi di sensibilizzazione e miglioramento performance hanno ridotto mortalità **(Surviving Sepsis Campaign ad es)**

NB SSC inzia nei primi anni 2000; iniziativa sostenuta da varie società sc (SPT ICU) volta a ridurre mortalità sepsi e shock settico ultimo aggiornamento 2021

Trattare rapidamente ed efficacemente

NB non solo terapia antibiotica ma anche di supporto (riempimento volemico, utilizzo precoce amine, ebpm, prevenzione ulcera da stress, ruolo steroide etc)


Ambiente ospedaliero
Terapia
Immunosoppressiva ma anche ed spt precedenti terapie antibiotiche/profilassi
Fattori correlati al paziente
(età, comorbidità, precedenti focolai infettivi
Infezioni
Fattori secondari alla terapia
Mucositi
CVC, neutropenia
Sovraccarico ferro
Fattori correlati alla malattia
Deficit quantitativi e funzionali neutrofili
ridotta attività battericida e fungicida
Alterazioni B e T e NK cells
Sovraccarico ferro…
Microrganismo

Un po’di numeri..

Italia (AR-ISS sorveglianza nazionale antibiotico-.resistenza, 2023 (aggiornati al 2022)

- KpMDR circa 30% (KPC circa 25%); Kp R a cefalo 3°gcirca 53%; chinolonici 48%
- E coli: R a cefalo 3° intorno a 25% (lieve riduzione d 2019); chinolonici 31%; E coli MDR 9%
- Pseudomonas aeruginosa mdr 16% (R a chinoilonici 18.5%, carba 16%, pip tazo 24%, ceftazidime 19%, aminoglico 4%
- Acinetobacter MDR 88%

Clinical Predictive Model of Multidrug Resistance in Neutropenic Cancer Patients with Bloodstream Infection Due to *Pseudomonas aeruginosa*

C. Gudiol,[a,b,nn] A. Albasanz-Puig,[a,nn] J. Laporte-Amargós,[a] N. Pallarès,[c] A. Mussetti,[d] I. Ruiz-Camps,[e,nn] P. Puerta-Alcalde,[f,nn] E. Abdala,[g] C. Oltolini,[h] M. Akova,[i] M. Montejo,[j,nn] M. Mikulska,[k] P. Martín-Dávila,[l,nn] F. Herrera,[m] O. Gasch,[n,nn] L. Drgona,[o] H. Paz Morales,[p] A.-S. Brunel,[q] E. García,[r] B. Isler,[s] W. V. Kern,[t] I. Morales,[u,nn] G. Maestro-de la Calle,[v] M. Montero,[w,nn] S. S. Kanj,[x] O. R. Sipahi,[y] S. Calik,[z] I. Márquez-Gómez,[aa] J. I. Marin,[bb,cc] M. Z. R. Gomes,[dd] P. Hemmatti,[ee] R. Araos,[ff,gg] M. Peghin,[hh] J. L. del Pozo,[ii] L. Yáñez,[jj] R. Tilley,[kk] A. Manzur,[ll] A. Novo,[mm] J. Carratalà,[a,nn] for the IRONIC Study Group

..di 1,217 episodi di BSI da to P. aeruginosa, 309 (25.4%) erano causate da ceppi MDR
(studio su 34 centri in 12 paesi diversi) Tra i fattori predittivi di sepsi da Pseudomonas MDR precedenti terapie con pip tazo o carbapenemi, catetere urinario, **malattie ematologiche e profilassi con chinolonici**

The most common isolates among GNB were P. aeruginosa and E. coli, with an increase in the percentage of P. aeruginosa in the last three time spans, comprising up to 40% of all GNB isolates. Most importantly, a significant increase occurred in both absolute numbers and percentages of MDR and XDR isolates of P. aeruginosa and ESBL-producing E. coli and K. pneumoniae in the last three time spans. This worrisome trend of increasing resistance among GNB isolates has been previously reported [23,28], and is especially pronounced for P. aeruginosa, comprising 36.1% of MDR isolates. Similar percentages of MDR P. aeruginosa have already been described in other studies involving oncohematological patients

Bloodstream infections caused by *Klebsiella pneumoniae* in onco-hematological patients: clinical impact of carbapenem resistance in a multicentre prospective survey

Enrico Maria Trecarichi,[1*] Livio Pagano,[2] Bruno Martino,[3] Anna Candoni,[4] Roberta Di Blasi,[2] Gianpaolo Nadali,[5] Luana Fianchi,[2] Mario Delia,[6] Simona Sica,[2] Vincenzo Perriello,[7] Alessandro Busca,[8] Franco Aversa,[9] Rosa Fanci,[10] Lorella Melillo,[11] Federica Lessi,[12] Maria Ilaria Del Principe,[13] Chiara Cattaneo,[14] and Mario Tumbarello,[1] for the HaematologicMalignancies Associated Bloodstream Infections Surveillance (HEMABIS) registry – Sorveglianza Epidemiologica Infezioni Funginein Emopatie Maligne(SEIFEM) group, Italy

A total of 278 episodes of KP BSI were included in the study between January 2010 and June 2014. We found that 161 (57.9%) KP isolates were carbapenem resistant (CRKP). (13 centri Italiani, da 2010 al 2014)

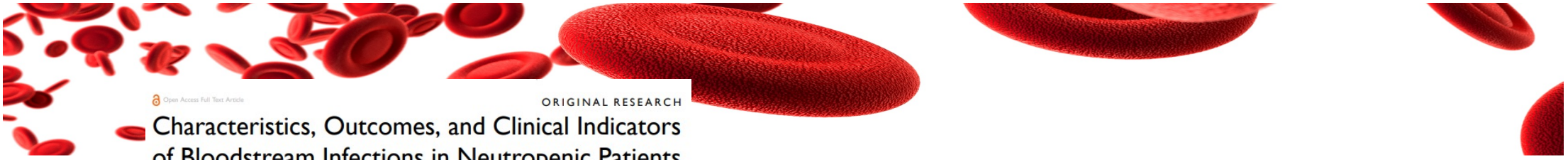
The most common isolates among GNB were P. aeruginosa and E. coli, with an increase in
the percentage of P. aeruginosa in the last three time spans, comprising up to 40% of all GNB
isolates. Most importantly, a significant increase occurred in both absolute numbers and percentages of MDR and XDR isolates of P. aeruginosa and ESBL-producing E. coli and K. pneumoniae in the last three time spans. This worrisome trend of increasing resistance among GNB
isolates has been previously reported [23,28], and is especially pronounced for P. aeruginosa,
comprising 36.1% of MDR isolates. Similar percentages of MDR P. aeruginosa have already
been described in other studies involving oncohematological patients [23,29,30].

RESEARCH ARTICLE

Changing epidemiology of catheter-related bloodstream infections in neutropenic oncohematological patients

Dajana Lendak[1,2]*, Pedro Puerta-Alcalde[3]*, Estela Moreno-García[3], Mariana Chumbita[3], Nicole Garcia-Pouton[3], Celia Cardozo[3], Laura Morata[3], Maria Suárez-Lledó[4], Marta Hernández-Meneses[3], Lucio Ghiglione[5], Francesc Marco[6,7], Jose Antonio Martinez[3,8], Josep Mensa[3], Ivana Urošević[1,9], Alex Soriano[3,8], Carolina Garcia-Vidal[3,8]

1 Faculty of Medicine, University of Novi Sad, Novi Sad, Serbia, **2** Clinical Centre of Vojvodina, Clinic for Infectious Diseases, Novi Sad, Serbia, **3** Infectious Diseases Department, Hospital Clínic-IDIBAPS, Barcelona, Spain, **4** Hematology Department, Hospital Clínic, Barcelona, Spain, **5** Oncology Department, Hospital Clínic, Barcelona, Spain, **6** Microbiology Department, Centre Diagnòstic Biomèdic, Hospital Clínic, Barcelona, Spain, **7** ISGlobal, Hospital Clínic—Universitat de Barcelona, Barcelona, Spain, **8** University of Barcelona, Barcelona, Spain, **9** Clinical centre of Vojvodina, Clinic for Haematology, Novi Sad, Serbia



Open Access Full Text Article

ORIGINAL RESEARCH

Characteristics, Outcomes, and Clinical Indicators of Bloodstream Infections in Neutropenic Patients with Hematological Malignancies: A 7-Year Retrospective Study

Shuyun Wang[1], Yan Song[1], Nan Shi[1,2], Donghong Yin[1], Jianbang Kang[1], Wanni Cai[2], Jinju Duan[1]

[1]Department of Pharmacy, Second Hospital of Shanxi Medical University, Taiyuan, Shanxi, People's Republic of China; [2]Department of Pharmacy, School of Pharmacy, Shanxi Medical University, Taiyuan, Shanxi, People's Republic of China

Correspondence: Jinju Duan, Department of Pharmacy, Second Hospital of Shanxi Medical University, Wuyi Road, Xinghualing District, Taiyuan, Shanxi, People's Republic of China, Tel +86 13834653172, Email duanjinju@163.com

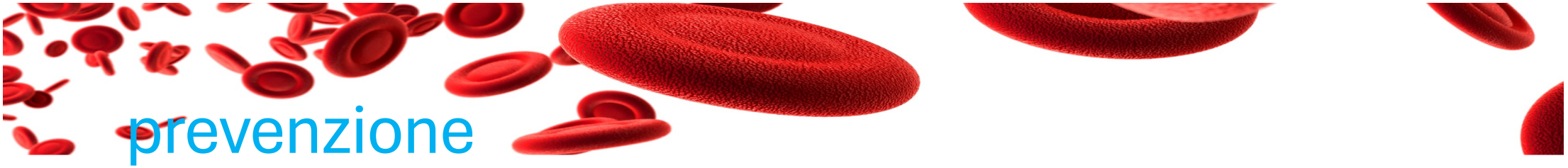
Patients and Methods: We conducted a retrospective study from January 2015 to December 2021, which included adult neutropenic oncohematological patients with confirmed BSIs. We used univariable and multivariable analyses to analyze the risk factors. Each index's reliability for bacterial BSI diagnosis was assessed using the receiver-operating characteristic curve and area under the curve.

Results: A total of 514 isolates were obtained from the 452 patients. The average mortality was 17.71%. Gram-negative organisms were the predominant causes of BSI. *Escherichia coli* was the most common microorganism (49.90%). The overall variation trend of the isolation rate of MDR and carbapenem-resistant gram-negative bacteria increased. Multivariate analysis indicated that: 1) neutropenia that lasted for more than 7 days, patients ≥ 60 years of age, septic shock, hospitalization for >20 days, BSI with a carbapenem-resistant strain, and treatment with linezolid or vancomycin in infections lasting less than 30 days were independent mortality risk factors; 2) severe neutropenia exceeding 7 days, unreasonable empirical therapy, and receipt of aminoglycosides or 3rd or 4th generation cephalosporins in infections lasting less than 30 days were independent risk factors of MDR gram-negative bacteria.

Cosa possiamo fare?

- Prevenzione
- Sorveglianza
- Terapia adeguata (empirica e poi, se possibile mirata)
- Esami colturali pre terapia
- Metodi di identificazione rapida

Pncar, Piano Nazionale di contrasto Antibioitico Resistenza 2022-25 (3 pilastri: sorveglianza e monitoraggio, prevenzione, uso appropriato antibiotici e quattro aree di supporto cioè formazione, informazione, comunicazione e trasparenza, ricerca innovazione e bioetica)

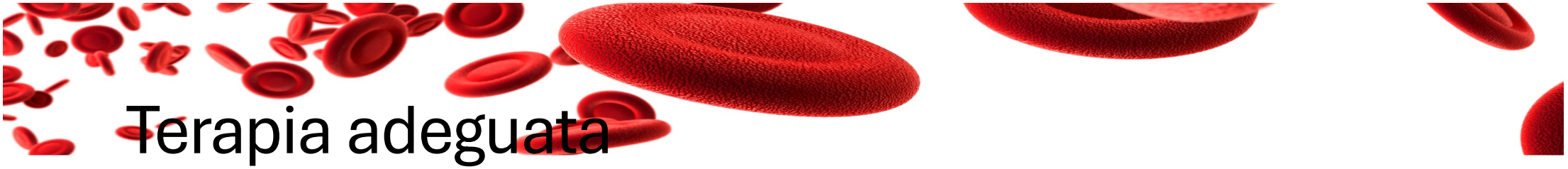


prevenzione

- Igiene mani
- Pulizia ambientale e decontaminazione adeguata
- Isolamento da contatto in caso di ospedalizzazione pz colonizzati da MDR
- Stanza singola in paziente ad alto rischio
- Antibiotic stewartship (terapia antibiotica ad ampio spettro FDR indipendente per infezioni da GNMDR)

Sorveglianza

- screening con Tamponi rettali (J antimicrobial res 2024, mar; Siyu Gao et al) (predictive valu of survelliance cultures for bacteriemia caused by ESBL producing bacteria amog patient with hematoilogical disease. Infection 2022jun, Takuya Hattori et al) valore predittivo positivo tamponi rettali sorveglianza
- Diffusione e conoscenza epidemiologia nazionale (dati AR ISS, osservatorio Epicentro)
- Epidemiologia locale (collaborazione Lab micro, diffusione dati locali)



Terapia adeguata

- Nuovi farmaci
- Quali usare
- Come usarli

Nuovi farmaci (e anche non nuovissimi) anti GN

farmaco	Efficacia su R	note
Ceftazidime avibactam 2.5 gr x 3	ESBL, AmpC, KPC, oxa	Attivo su pseudomonas mdr
Ceftolozane tazobactam 1.5 gr x3; su polmone 3 gr x 3	ESBL ampC	Attivo su pseudomonas MDR
Meropenem vaborbactam 2/1 gr x 3	ESBL ampC KPC	Attività su pseudomonas come per meropenem
Imipenem relebactam 1250 x 3	ESBL ampC KPC	Attività su Pseudomonas >rispetto ad IMI
Cefiderocol 2gr x 3	ESBL KPC ampC oXA, MBL	Attività su acineto, pesuodmonas, stenotropho

Nello shock utilizzare i beta lattamici in infusione prolungata/continua in base a stabilità previa dose carico; valutazione dosaggio con funzione renale, NB R di sottodosare in caso do IRA e shock settico in base a clearance su creatininemia

Prossimamente..

In arrivo		
eravaciclina	Most mdr enterobact (no pseudomonas), MRSA, acineto	
(Delafloxacina)	MRSA, pseudomonas	
Aztreonam avibactam	ESBL MBL ampC	
Sulbactam/durlobactam	Oxa etc	acinetobacter

antibiotics

MDPI

Review

Ceftazidime/Avibactam and Ceftolozane/Tazobactam for Multidrug-Resistant Gram Negatives in Patients with Hematological Malignancies: Current Experiences

Marianna Criscuolo [1] and Enrico Maria Trecarichi [2,*]

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2 Department of Medical and Surgical Sciences, Unit of Infectious and Tropical Diseases, "*Magna Graecia*" University, 88100 Catanzaro, Italy
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Received: 9 January 2020; Accepted: 24 January 2020; Published: 3 February 2020

check for updates

Antibiotics **2020**, *9*, 58

Table 2. "Real-life" experiences reported in published studies on use of ceftolozane/tazobactam and ceftazidime/avibactam for treatment of severe infections caused by MDR Gram-negative bacteria in patients with hematological malignancies.

Antibiotic Combination	Type of Study	N of Patients Treated with C/T or C/A	Year of Interest	Isolated Species	Clinical Sample Sites	Combination Therapy	Mortality	Recurrence	Resistance
Ceftolozane/Tazobactam									
Hakki 2018 [42]	Retrospective case series	6	NA	*MDR P. aeruginosa*	Blood, BAL, soft tissue	None	30-day 0%	1 case	1 case
Fernández-Cruz 2019 [43]	Retrospective case-control	19	2016–2018	*P. aeruginosa* (MDR 51.2%)	Blood, BAL, soft tissue, urine	42.1% (amikacin, levofloxacin, colistin, fosfomycin)	30-day 5.3%	3 cases	None
Aitken 2016 [44]	Case report	1	NA	*MDR P. aeruginosa*	Blood	Tobramycin and ciprofloxacin	0	No	None
So 2019 [45]	Case report	1	NA	Ceftolozane/tazobactam *P. aeruginosa*	Blood	Tobramycin	0	No	Yes
Ceftazidime/Avibactam									
Caston 2017 [49]	Retrospective	8	2012–2016	Carbapenemase-producing *Enterobacteriaceae*	Blood	100% (aminoglycoside, carbapenems, fosfomycin, tigecycline and/or colistin)	30-day 25%	None	None
Metafuni 2019 [50]	Case series	3	2017–2018	Carbapenemase-producing *K. Pneumoniae* (2) MDR *P. aeruginosa* (1)	Blood	100% (carbapenems, tigecycline, colistin)	30-day 33.3%	None	None
Hobson 2019 [53]	Case report	1	NA	NDM-1-Producing *Morganella morganii*	Blood	Aztreonam	0	None	None

C/T, ceftolozane/tazobactam; C/A, cefzidime/avibactam; NA, not available; MDR, multidrug-resistant; BAL bronchoalveolar lavage.

Open Forum Infectious Diseases

MAJOR ARTICLE

IDSA Infectious Diseases Society of America | hivma hiv medicine association | OXFORD

A Prospective Randomized Study Comparing Ceftolozane/Tazobactam to Standard of Care in the Management of Neutropenia and Fever in Patients With Hematological Malignancies

Anne-Marie Chaftari,[1] Ray Hachem,[1] Alexandre E. Malek,[1] Victor E. Mulanovich,[1] Ariel D. Szalb,[1] Ying Jiang,[1] Ying Yuan,[2,3] Shahnoor Ali,[1] Rita Deeba,[1] Patrick Chaftari,[2] and Issam Raad[1,3]

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Clinical Infectious Diseases
IDSA GUIDELINES

Infectious Diseases Society of America 2022 Guidance on the Treatment of Extended-Spectrum β-lactamase Producing Enterobacterales (ESBL-E), Carbapenem-Resistant Enterobacterales (CRE), and *Pseudomonas aeruginosa* with Difficult-to-Treat Resistance (DTR-*P. aeruginosa*)

Pranita D. Tamma,[1] Samuel L. Aitken,[2] Robert A. Bonomo,[3] Amy J. Mathers,[4] David van Duin,[5] and Cornelius J. Clancy[6]

[1]Department of Pediatrics, Johns Hopkins University School of Medicine, Baltimore, Maryland, USA; [2]Department of Pharmacy, University of Michigan Health, Ann Arbor, Michigan, USA; [3]Medical Service and Center for Antimicrobial Resistance and Epidemiology, Louis Stokes Cleveland Veterans Affairs Medical Center, University Hospitals Cleveland Medical Center and Departments of Medicine, Pharmacology, Molecular Biology, and Microbiology, Case Western Reserve University, Cleveland, Ohio, USA; [4]Departments of Medicine and Pathology, University of Virginia, Charlottesville, Virginia, USA; [5]Department of Medicine, University of North Carolina School of Medicine, Chapel Hill, North Carolina, USA; and [6]Department of Medicine, University of Pittsburgh, Pittsburgh, Pennsylvania, USA

Clinical Microbiology and Infection 28 (2022) 521–547

Contents lists available at ScienceDirect

Clinical Microbiology and Infection

journal homepage: www.clinicalmicrobiologyandinfection.com

Guidelines

European Society of Clinical Microbiology and Infectious Diseases (ESCMID) guidelines for the treatment of infections caused by multidrug-resistant Gram-negative bacilli (endorsed by European society of intensive care medicine)

Mical Paul [1, 2, §], Elena Carrara [3, §], Pilar Retamar [4, 5], Thomas Tängdén [6], Roni Bitterman [1, 2], Robert A. Bonomo [7, 8, 9], Jan de Waele [10], George L. Daikos [11], Murat Akova [12], Stephan Harbarth [13], Celine Pulcini [14, 15], José Garnacho-Montero [16], Katja Seme [17], Mario Tumbarello [18], Paul Christoffer Lindemann [19], Sumanth Gandra [20], Yunsong Yu [21, 22, 23], Matteo Bassetti [24, 25], Johan W. Mouton [26, †], Evelina Tacconelli [3, 27, 28, *, §], Jesús Rodríguez-Baño [4, 5, §]

Clinical Infectious Diseases
IDSA GUIDELINE

Infectious Diseases Society of America Guidance on the Treatment of AmpC β-Lactamase–Producing Enterobacterales, Carbapenem-Resistant *Acinetobacter baumannii*, and *Stenotrophomonas maltophilia* Infections

Pranita D. Tamma,[1] Samuel L. Aitken,[2] Robert A. Bonomo,[3] Amy J. Mathers,[4] David van Duin,[5] and Cornelius J. Clancy[6]

[1]Department of Pediatrics, Johns Hopkins University School of Medicine, Baltimore, Maryland, USA; [2]Department of Pharmacy, University of Michigan Health, Ann Arbor, Michigan, USA; [3]Medical Service, Louis Stokes Cleveland Department of Veterans Affairs Medical Center, University Hospitals Cleveland Medical Center and Departments of Medicine, Pharmacology, Molecular Biology, and Microbiology, Case Western Reserve University, Cleveland, Ohio, USA; [4]Departments of Medicine and Pathology, University of Virginia, Charlottesville, Virginia, USA; [5]Department of Medicine, University of North Carolina School of Medicine, Chapel Hill, North Carolina, USA; and [6]Department of Medicine, University of Pittsburgh, Pittsburgh, Pennsylvania, USA

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International Journal of Antimicrobial Agents xxx (xxxx) xxx

Contents lists available at ScienceDirect

International Journal of Antimicrobial Agents

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

Review

Diagnosis and management of infections caused by multidrug-resistant bacteria: guideline endorsed by the Italian Society of Infection and Tropical Diseases (SIMIT), the Italian Society of Anti-Infective Therapy (SITA), the Italian Group for Antimicrobial Stewardship (GISA), the Italian Association of Clinical Microbiologists (AMCLI) and the Italian Society of Microbiology (SIM)

Giusy Tiseo [a,1], Gioconda Brigante [b,1], Daniele Roberto Giacobbe [c,d,1], Alberto Enrico Maraolo [e,1], Floriana Gona [f,1], Marco Falcone [a], Maddalena Giannella [g,h], Paolo Grossi [i], Federico Pea [h,j], Gian Maria Rossolini [k], Maurizio Sanguinetti [l], Mario Sarti [m], Claudio Scarparo [n], Mario Tumbarello [o], Mario Venditti [p], Pierluigi Viale [g,h], Matteo Bassetti [c,d,2], Francesco Luzzaro [q,2], Francesco Menichetti [a,2,*], Stefania Stefani [r,2], Marco Tinelli [s,2]

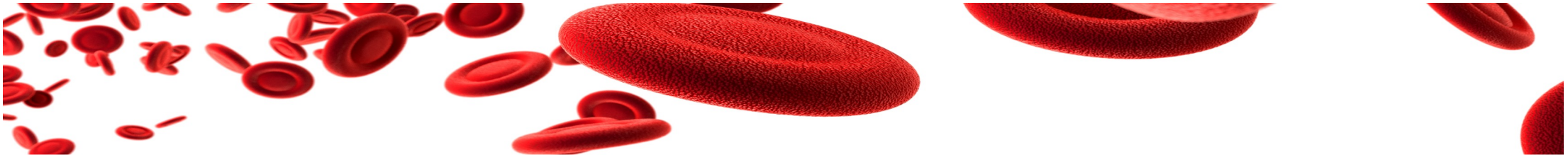
RACCOMANDAZIONI AIFA PER USO OTTIMALE ANTIBIOTICI

Terapia mirata delle infezioni causate da batteri Gram negativi resistenti a multipli antibiotici

PAZIENTI OSPEDALIZZATI

IDSA: dec 21/ jun 22
AIFA : nov 22
ESCMID dec21
SIMIT/SITA/GISA/AMCLI/SIM jun 22

	ESCMID	SIMIT/SITA/GISA/AMCLI /SIM	IDSA
CRE (KPC)	Caz/avi, mero/vab NS: old abt	Caz/avi mer/vab@ C.a. cefide imi/rele	MER/V, CZ/AVI IMI/RELE
Oxa 48	-	Caz/avi	CZ/AVI
DTR PA	Cefto/tazo NS old abt Colistin based combo	Cefto/tazo o cefta/avi alternativ: imi rele, cefiderocol; colistin based comb	Cefto/taz, caz/avi; imi/rele; alternative cefiderocol (alternative just outside urinary tract)
MBL	CAZ/avi+AZT CA: cefi	Caz/avi+aztr Ca cefiderocol	CZ/avi + AZT CA: cefid
CRAB	NO CEFIDEROCOL 1° CHOICE Amp/s (se sens) ; combi con colistina aminoglycoside, tigecycline, (double dose) sulbactam combinations; mero solo se mic<8 ; no combi mero/coli rifa/coli	CHIEDILO ALL'INFETTIVOLOGO!	-°° 1° CHOICE Amp/s (se sens) mild 1 single act agent Mod severe: combo (no mero coli, no rifa) consider amp/S HD anche se R in comb Cefiderocol in comb
AMPc	-	-	-°°cFP (seMIC</=2) Carba NO NEW BLI/BL
ESBL	BSI and SS: mero/imi BSI no SS: erta Non severe pip tazo, amoxi clav (NO cefepime!) UTI no SS: amino o fosfo ev EARLY step down (fluorochino/bactrim etc) NO NEW BLI/BL	-	CARBA Pip tazo UTInon complic NO NEW BLI/BL
Nebulized ABT	no	no	no
Mono vs combo	Combo not in routine	Combo not in routine	Combo not in routine



Identificazione rapida..Film Array

Il FilmArray® Blood Culture è una piattaforma diagnostica integrata che utilizza un protocollo di nested multiplex PCR (nmPCR) per identificare targets batterici (a livello di genere e/o specie), lieviti e determinanti genetici di antibiotico-resistenza in un campione clinico non processato.

È una metodologia estremamente sensibile

Il test molecolare è in grado di fornire i risultati circa un'ora dopo l'avvenuta positivizzazione dell'emocoltura nell'incubatore, a differenza delle procedure tradizionali di laboratorio

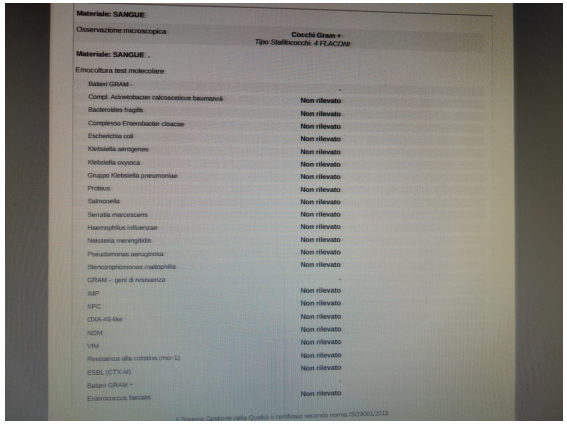
Disponibile presso Ns Lab di Micro generalmente su richiesta da parte del clinico alla comunicazione positività emocolture

Costo più elevato rispetto a procedura tradizionale e lavoro aggiuntivo per LAB

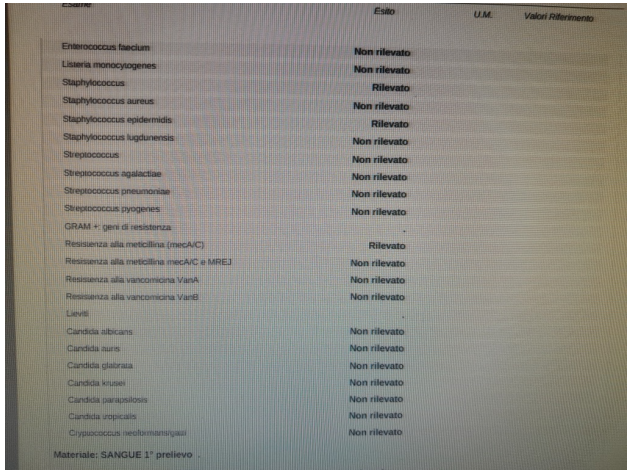
Utilizzo nel paziente critico o cmq in aggravamento/mancata risposta clinica

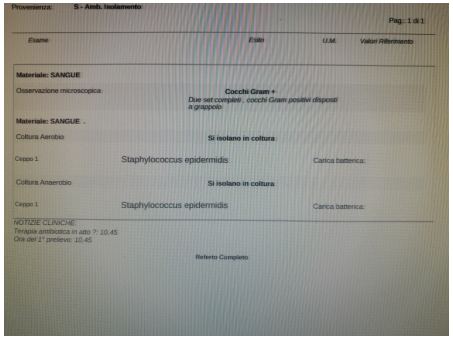
Film array 2

Chiamata LAB: 4 set emocolture positivi per cocchi gram positivi a grappolo (tipo Stafilococchi; se a catenella strepto/entero)

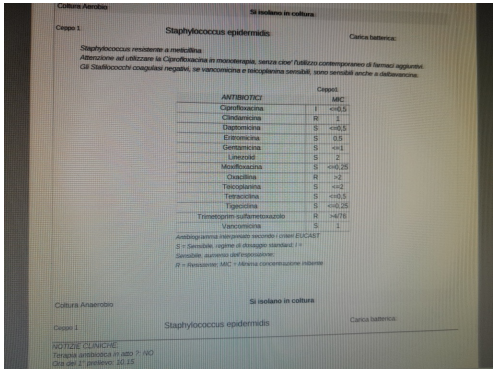


Richiedo Film array





positivo per S epidermidis con gene MEC A/C (R a meticillina)



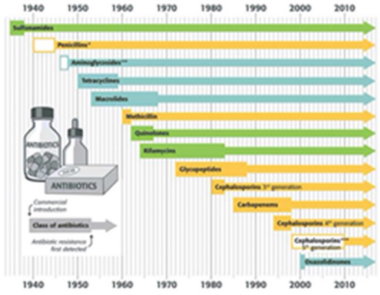
Antibiogramma fenotipico..conferma dato

Film Array…TIPS for use

- Molto utile su stafilococchi (se gene mec allora oxa R, se assente oxaS)
- Enterobatteriacee: ricerca CTX-M (ESBL più diffusa in Italia ma non l'unica
- *Acineto e Pseudomonas*: hanno molti meccanismi di R non rilevati rilevati da film array (metto terapia anti acineto o pseudomonas MDR e descalo con fenotipico)
- *Enterobacter*: frequente R ampC mediata (non identificato da film array!) cefepime o carbapenemico (NB mantengo cefepime solo se MIC non>2)

Take home messages..

Mai dimenticare..



Antimicrobial Resistance and Infection Control volume 4, Article number: 49 (2015)

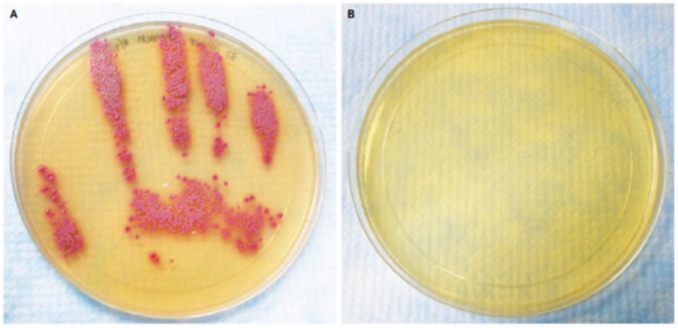
Prevenire è meglio che curare
Lavarsi le mani costa poco

non esiste l antibiotico perfetto..

The NEW ENGLAND JOURNAL of MEDICINE

IMAGES IN CLINICAL MEDICINE

The Hands Give It Away



A 24-YEAR-OLD MAN WHO HAD QUADRIPLEGIA DUE TO A TRAUMATIC SPINAL cord injury was found on routine surveillance cultures to have methicillin-resistant *Staphylococcus aureus* (MRSA) colonization of his anterior nares. He had no history of MRSA infection or colonization. To assess the potential implications of the patient's MRSA carriage for infection control, an imprint of a health care worker's ungloved hand was obtained for culture after the worker had performed an abdominal examination of the patient. The MRSA colonies grown from this handprint on the plate (CHROMagar Staph aureus), which contained 6 μg of cefoxitin per milliliter to inhibit methicillin-susceptible *S. aureus*, are pink and show the outline of the worker's fingers and thumb (Panel A). With the use of a polymerase-chain-reaction assay, the *mecA* gene, which confers methicillin resistance, was amplified from nares and imprint isolates. After the worker's hand had been cleaned with alcohol foam, another hand imprint was obtained, and the resulting culture was negative for MRSA (Panel B). These images illustrate the critical importance of hand hygiene in caring for patients, including those not known to carry antibiotic-resistant pathogens.

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la strada è ancora lunga..

Grazie per l’attenzione..