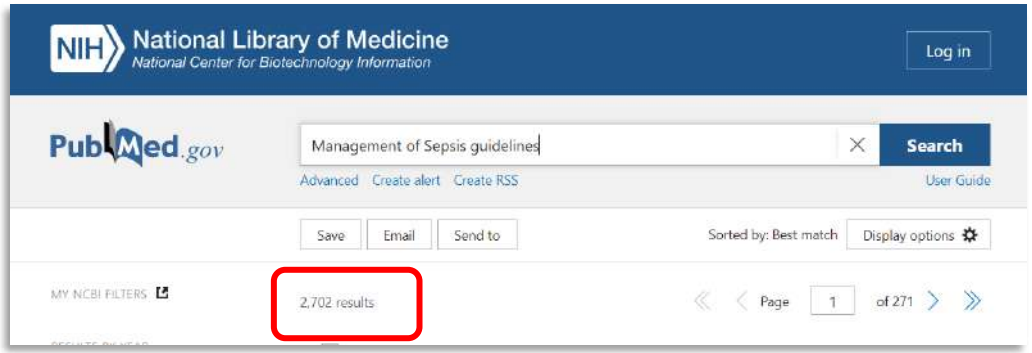
Sepsis Yönetiminde Güncel Rehberler Ne Diyor?

Dr.R.Aytaç ÇETİNKAYA


SEPSIS
time sensitivity
blood chemicals
DRG 871
death
virus
severe
bacteria
DRG 870
death
SIRS
infection
organ failure
toxic response
mortality
increased LOS
shock
death
difficult
diagnosis
severe
parasite
inflammation
reimbursement
top billed DRG


GUIDELINE


National Library of Medicine
National Center for Biotechnology Information
Log in
PubMed.gov
Management of Sepsis guidelines
Search
Advanced Create alert Create RSS
User Guide
Save Email Send to
Sorted by: Best match
Display options
MY NCBI FILTERS
2,702 results
Page 1 of 271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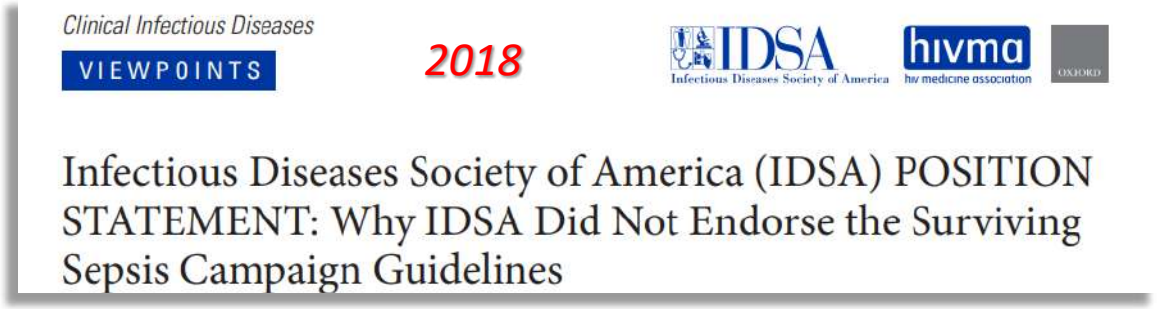
Evaluation and management of suspected sepsis and septic shock in adults
Authors: Gregory A Schmidt, MD, Jess Mandel, MD, MACP, ATSF, FRCP
Section Editors: Polly E Parsons, MD, Daniel J Sexton, MD, Korilyn S Zachrison, MD, MSc
Deputy Editor: Geraldine Finlay, MD
All topics are updated as new evidence becomes available and our peer review process is complete.
Literature review current through: Jan 2023. | This topic last updated: Feb 09, 2023.


Clinical Infectious Diseases
VIEWPOINTS
2018
IDSA
Infectious Diseases Society of America
hivma
hiv medicine association
OXFORD
Infectious Diseases Society of America (IDSA) POSITION STATEMENT: Why IDSA Did Not Endorse the Surviving Sepsis Campaign Guidelines

Society of Critical Care Medicine

The Intensive Care Professionals

Clinical Infectious Diseases

VIEWPOINTS

2018

IDSA Infectious Diseases Society of America

hivma hiv medicine association

OXFORD

Infectious Diseases Society of America (IDSA) POSITION STATEMENT: Why IDSA Did Not Endorse the Surviving Sepsis Campaign Guidelines

ESICM EUROPEAN SOCIETY OF INTENSIVE CARE MEDICINE

European Society of Intensive Care Medicine

SIRS, Sepsis, Ağır sepsis

DEPARTMENT OF HEALTH & HUMAN SERVICES · USA

CMS CENTERS FOR MEDICARE & MEDICAID SERVICES

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Evaluation and management of suspected sepsis and septic shock in adults

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Critical Care Medicine
Society of Critical Care Medicine

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ONLINE SPECIAL ARTICLE

Outline

Surviving Sepsis Campaign: International Guidelines for Management of Sepsis and Septic Shock 2021

JAMA Clinical Guidelines Synopsis

February 28, 2017

Management of Sepsis and Septic Shock

Michael D. Howell, MD, MPH[1,2]; Andrew M. Davis, MD, MPH[3]

» Author Affiliations

JAMA. 2017;317(8):847-848. doi:10.1001/jama.2017.0131

İlk Değerlendirme **İlk resüsitasyon** **İzleme**

Başlangıç tedavisi başarısız olan hastalar **Tedaviye yanıt veren hastalar**

SEPSIS™
IT'S ABOUT TIME

1. ACİL DEĞERLENDİRME VE YÖNETİM

- ✓ Solunumu stabilize edin

SaO2:%90-96

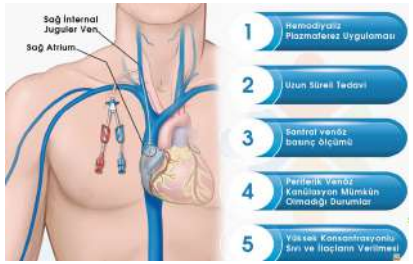
Ensefalopati konfüzon

- ✓ Venöz erişim sağlayın
- ✓ İlk incelemeler

1. ACİL DEĞERLENDİRME VE YÖNETİM

- ✓ Solunumu stabilize edin
- ✓ Venöz erişim sağlayın
- ✓ İlk incelemeler

SaO2:%90-96



Ensefalopati konfüzon

İlk resüsitasyon ??

1. ACİL DEĞERLENDİRME VE YÖNETİM

Solunumu stabilize edin

Venöz erişim sağlayın

İlk incelemeler

Şüpheli site	Semptomlar/belirtiler*	İlk mikrobiyolojik değerlendirme ¶
Üst solunum yolları	Faringeal inflamasyon artı eksüda ± şişlik ve lenfadenopati	Aerobik kültür için boğaz sürüntüsü
Alt solunum yolu	Prodüktif öksürük, plöretik göğüs ağrısı, pekiştirici oskültasyon bulguları	İyi kalitede balgam, hızlı influenza testi, idrar antijen testi (örn. pnömokok, *lejyonella* ; çocuklarda önerilmez), korumalı fırça veya bronkoalveoler lavajdan kantitatif kültür
İdrar yolu	Aciliyet, dizüri, bel veya sırt ağrısı	Piyüri gösteren idrar kültürü ve mikroskopisi
Vasküler kateterler: arteriyel, merkezi venöz	Giriş yerinde kızarıklık veya akıntı Δ	Kan kültürü (kateterden ve periferik bir bölgeden), kültür kateter ucu (çıkarılmışsa)
Kalıcı plevral kateter	Giriş yerinde kızarıklık veya akıntı Δ	Plevral sıvı kültürü (kateter yoluyla)
Yara veya yanık	Enflamasyon, ödem, eritem, irin akıntısı	Gram boyama ve irin akan kültür, yara kültürü güvenilir değil
Deri/yumuşak doku	Eritem, ödem, lenfanjit	Kültür kabarcık sıvısı veya irin akması; doku aspiratlarının rolü kanıtlanmamıştır
Merkezi sinir sistemi	Meningeal tahriş belirtileri	BOS hücre sayısı, protein, glikoz, Gram boyama ve kültür ◇
gastrointestinal	Karın ağrısı, şişkinlik, ishal ve kusma	*Salmonella* , *Shigella* veya *Campylobacter* için dışkı kültürü ;

1. ACİL DEĞERLENDİRME VE YÖNETİM

Solunumu stabilize edin

Venöz erişim sağlayın

İlk incelemeler

Antibiyotik !!!!

Perifer

En az 2 bölge

Aerop ve anaerop

Port? Kolonizasyon?

SVK?

Kan kültürü tekrarı 4 saat sonra

1. ACİL DEĞERLENDİRME VE YÖNETİM

Solunumu stabilize edin

Venöz erişim sağlayın

İlk incelemeler

- ✓ Rutin biyokimya, D-dimer, PTZ, Tam kan sayımı
- ✓ Serum laktat >2 mmol/L
- ✓ Arteriyel kan gazı = hipoksemi, asidoz, hiperkapni
- ✓ Prokalsitonin **!!??**
  - ✓ Sepsis tanı?
  - ✓ Antibiyotik tedavi süresi ☺

1. Acil Değerlendirme ve Yönetim

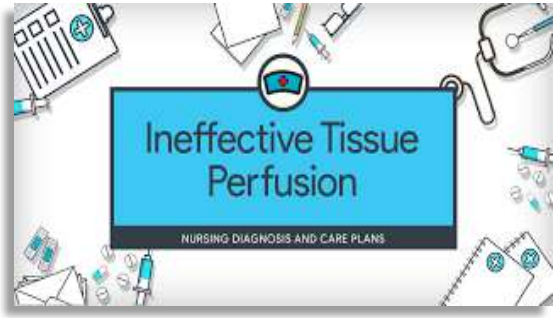
2. Başlangıç Resüsitatif Tedavi

2. BAŞLANGIÇ RESÜSİTATİF TEDAVİ

- ✓ Dengeli kristaloid / normal salin
- ✓ 30 mL/kg IV
- ✓ Başlama 1 saat ☺
- ✓ Bitiş 3 saat **!!!**

- ✓ Şüpheli organizma(lar)
- ✓ Enfeksiyon bölgesi(ler)
- ✓ Başlama 1 saat **!!!**

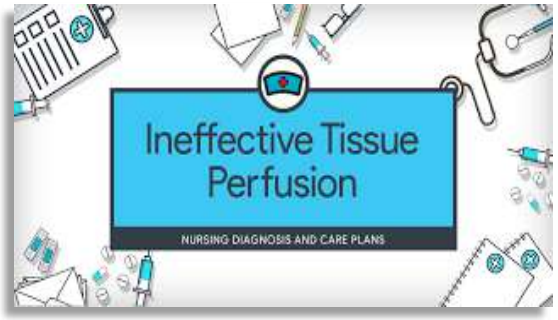
2. BAŞLANGIÇ RESÜSİTATİF TEDAVİ



- ✓ Dengeli kristaloid / normal salin
- ✓ 30 mL/kg IV
- ✓ Başlama 1 saat ☺
- ✓ Bitiş 3 saat **!!!**

- ✓ Santral venöz oksihemoglobin satürasyonu (ScvO2) ≥ yüzde 70
- ✓ Santral venöz basınç (CVP) 8 - 12 mmHg
- ✓ Ortalama arter basıncı (OAB) ≥65 mmHg
- ✓ İdrar çıkışı ≥0,5 mL/kg/saat

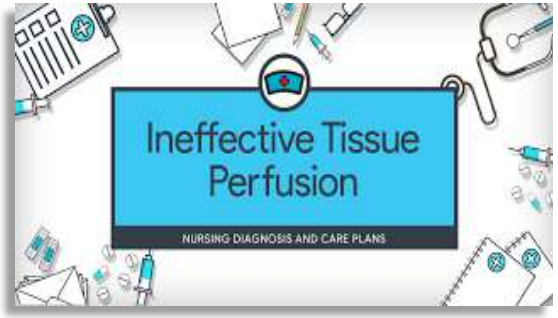
2. BAŞLANGIÇ RESÜSİTATİF TEDAVİ



HACİM

- ✓ Kanıtlanmış / inandırıcı Pulmoner ödem
- ✓ 30 mL/kg IV
- ✓ Başlama 1 saat ☺
- ✓ Bitiş 3 saat **!!!**
- ✓ **Her 500 mL bolustan önce ve sonrasında**
  - **Klinik**
  - **Hemodinami**
  - **Pulmoner ödem ?**

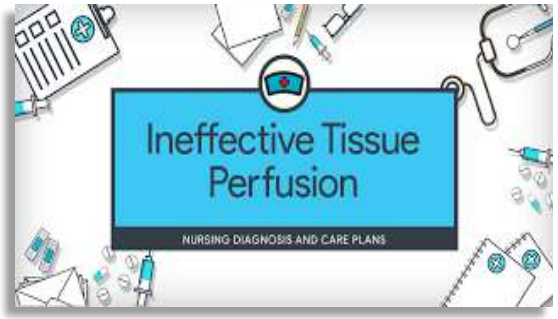
2. BAŞLANGIÇ RESÜSİTATİF TEDAVİ



SIVI SEÇİMİ

Dengeli Kristalloid ? Normal salin ? Hipertonik salin ? Albumin ?

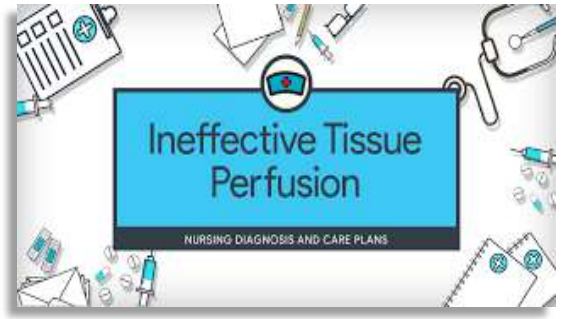
2. BAŞLANGIÇ RESÜSİTATİF TEDAVİ



SIVI SEÇİMİ

Dengeli Kristalloid **Normal salin** Hipertonik salin ? Albumin ?

2. BAŞLANGIÇ RESÜSİTATİF TEDAVİ



Kristalloide karşı albümin

PLOS ONE

RESEARCH ARTICLE

Albumin versus Other Fluids for Fluid Resuscitation in Patients with Sepsis: A Meta-Analysis

Libing Jiang, Shouyin Jiang, Mao Zhang*, Zhongjun Zheng, Yuefeng Ma*

Department of Emergency Medicine, Second Affiliated Hospital, School of Medicine & Institute of Emergency Medicine, Zhejiang University, Hangzhou, China

*mayuefengbj@163.com (YFM); zmhzjzk@163.com (MZ)

Abstract

Background: Early fluid resuscitation is vital to patients with sepsis. However, the choice of fluid has been a hot topic of discussion. The objective of this study was to evaluate whether the use of albumin-containing fluids for resuscitation in patients with sepsis was associated with a decreased mortality rate.

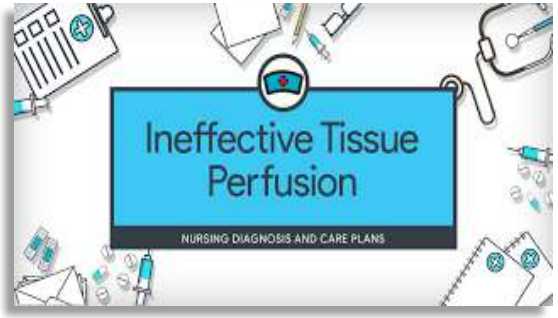
Methods: We systematically searched PubMed, EMBASE and Cochrane library for eligible randomized controlled trials (RCTs) up to March 2014. The selection of eligible studies, assessment of methodological quality, and extraction of all relevant data were conducted by two authors independently.

Results: In total, 15 RCTs were eligible for analysis. After pooling the data, we found there was no significant effect of albumin-containing fluids on mortality in patients with sepsis of any severity (RR: 0.94, 95% CI: 0.87, 1.02 and RD: −0.01,

OPEN ACCESS

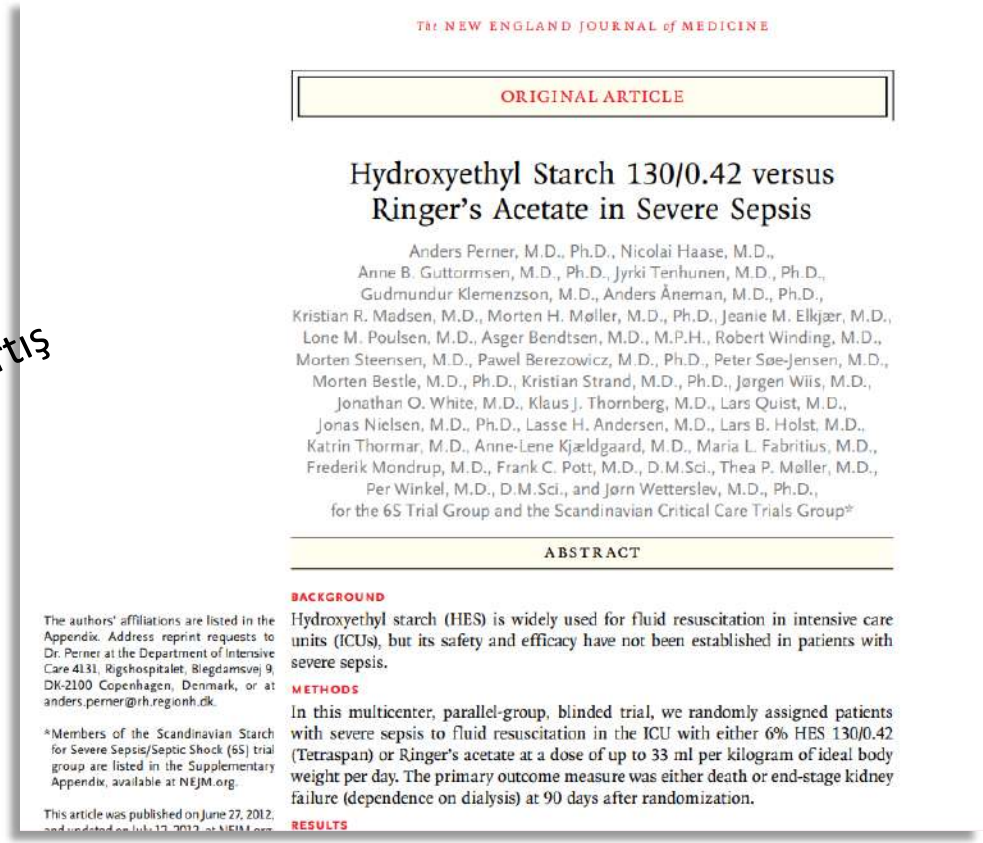
Citation: Jiang L, Jiang S, Zhang M, Zheng Z, Ma Y (2014) Albumin versus Other Fluids for Fluid Resuscitation in Patients with Sepsis: A Meta-Analysis. PLoS ONE 9(12): e114666. doi:10.1371/journal.pone.0114666

2. BAŞLANGIÇ RESÜSİTATİF TEDAVİ



Kristalloide karşı hidroksietil nişasta (HES)

Kristalloid > HES
HES 90 günlük mortalite artış
Renal yan etki



The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Hydroxyethyl Starch 130/0.42 versus Ringer's Acetate in Severe Sepsis

Anders Perner, M.D., Ph.D., Nicolai Haase, M.D., Anne B. Guttormsen, M.D., Ph.D., Jyrki Tenhunen, M.D., Ph.D., Guðmundur Klemenzson, M.D., Anders Åneman, M.D., Ph.D., Kristian R. Madsen, M.D., Morten H. Møller, M.D., Ph.D., Jeanie M. Elkjær, M.D., Lone M. Poulsen, M.D., Asger Bendtsen, M.D., M.P.H., Robert Winding, M.D., Morten Steensen, M.D., Paweł Berezowicz, M.D., Ph.D., Peter Søe-Jensen, M.D., Morten Bestle, M.D., Ph.D., Kristian Strand, M.D., Ph.D., Jørgen Wiis, M.D., Jonathan O. White, M.D., Klaus J. Thornberg, M.D., Lars Quist, M.D., Jonas Nielsen, M.D., Ph.D., Lasse H. Andersen, M.D., Lars B. Holst, M.D., Katrin Thormar, M.D., Anne-Lene Kjældgaard, M.D., Maria L. Fabritius, M.D., Frederik Mondrup, M.D., Frank C. Pott, M.D., D.M.Sci., Thea P. Møller, M.D., Per Winkel, M.D., D.M.Sci., and Jørn Wetterslev, M.D., Ph.D., for the 6S Trial Group and the Scandinavian Critical Care Trials Group*

ABSTRACT

BACKGROUND

Hydroxyethyl starch (HES) is widely used for fluid resuscitation in intensive care units (ICUs), but its safety and efficacy have not been established in patients with severe sepsis.

METHODS

In this multicenter, parallel-group, blinded trial, we randomly assigned patients with severe sepsis to fluid resuscitation in the ICU with either 6% HES 130/0.42 (Tetraspan) or Ringer's acetate at a dose of up to 33 ml per kilogram of ideal body weight per day. The primary outcome measure was either death or end-stage kidney failure (dependence on dialysis) at 90 days after randomization.

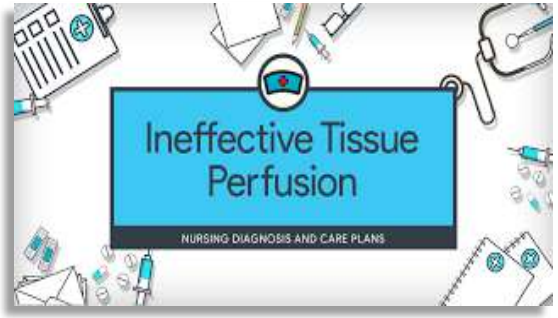
RESULTS

The authors' affiliations are listed in the Appendix. Address reprint requests to Dr. Perner at the Department of Intensive Care 4131, Rigshospitalet, Blegdamsvej 9, DK-2100 Copenhagen, Denmark, or at anders.perner@rh.regionh.dk.

*Members of the Scandinavian Starch for Severe Sepsis/Septic Shock (6S) trial group are listed in the Supplementary Appendix, available at NEJM.org.

This article was published on June 27, 2012, and updated on July 12, 2012, at NEJM.org.

2. BAŞLANGIÇ RESÜSİTATİF TEDAVİ



Kristalloide karşı pentastarch

Kristalloid > Pentastarch

Pentastarch alan hastalarda 90 günlük mortalitede artış eğilimi

Randomized Controlled Trial > N Engl J Med. 2008 Jan 10;358(2):125-39.
doi: 10.1056/NEJMoa070716.

Intensive insulin therapy and pentastarch resuscitation in severe sepsis

Frank M Brunkhorst [1], Christoph Engel, Frank Bloos, Andreas Meier-Hellmann, Max Ragaller, Norbert Weiler, Onnen Moerer, Matthias Gruendling, Michael Oppert, Stefan Grond, Derk Olthoff, Ulrich Jaschinski, Stefan John, Rolf Rossaint, Tobias Welte, Martin Schaefer, Peter Kern, Evelyn Kuhnt, Michael Kiehntopf, Christiane Hartog, Charles Natanson, Markus Loeffler, Konrad Reinhart; German Competence Network Sepsis (SepNet)

Affiliations + expand

PMID: 18184958 DOI: 10.1056/NEJMoa070716

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2. BAŞLANGIÇ RESÜSİTATİF TEDAVİ

Muhtemel enfeksiyon kaynağının belirlenmesi

+

- ✓ Şüpheli organizma(lar)
- ✓ Enfeksiyon bölgesi(ler)
- ✓ Başlama 1 saat **!!!**

kapalı alan enfeksiyonları (apse, ampiyem) direne edilmeli

2. BAŞLANGIÇ RESÜSİTATİF TEDAVİ

Antibiyotik zamanlama

Kültü
1 saa

ORIGINAL ARTICLE

The Timing of Early Antibiotics and Hospital Mortality in Sepsis

Vincent X. Liu[1], Vikram Fielding-Singh[2], John D. Greene[1], Jennifer M. Baker[1], Theodore J. Iwashyna[3,4], Jay Bhattacharya[5], and Gabriel J. Escobar[1]

[1]Kaiser Permanente Division of Research, Oakland, California; [2]Department of Anesthesia and Perioperative Care, University of California San Francisco, San Francisco, California; [3]Center for Clinical Management Research, VA Ann Arbor Health System, Ann Arbor, Michigan; [4]Division of Pulmonary and Critical Care, Department of Internal Medicine, University of Michigan, Ann Arbor, Michigan; and [5]Primary Care and Outcomes Research, Stanford University, Stanford, California

Sepsis %0.3, ağır sepsis %0.4 ve septik şok %1.8

Abstract

Rationale: Prior sepsis studies evaluating antibiotic timing have shown mixed results.

Objectives: To evaluate the association between antibiotic timing and mortality among patients with sepsis receiving antibiotics within 6 hours of emergency department registration.

Methods: Retrospective study of 35,000 randomly selected inpatients with sepsis treated at 21 emergency departments between 2010 and 2013 in Northern California. The primary exposure was antibiotics given within 6 hours of emergency department registration. The primary outcome was adjusted in-hospital mortality. We used detailed physiologic data to quantify severity of illness within 1 hour of registration and logistic regression to estimate the odds of hospital mortality based on antibiotic timing and patient factors.

Measurements and Main Results: The median time to antibiotic administration was 2.1 hours (interquartile range, 1.4–3.1 h). The adjusted odds ratio for hospital mortality based on each hour of delay in antibiotics after registration was 1.09 (95% confidence interval [CI], 1.05–1.13) for each elapsed hour between registration and

Conclusions: In a large, contemporary, and multicenter sample of patients with sepsis in the emergency department, hourly delays in antibiotic administration were associated with increased odds of hospital mortality even among patients who received antibiotics within 6 hours. The odds increased within each sepsis severity strata, and the increased odds of mortality were greatest in septic shock.

Keywords: sepsis; septic shock; antibacterial agents

At a Glance Commentary

Scientific Knowledge on the Subject: Prior work evaluating antibiotic timing in sepsis has shown mixed results and focused on more severely ill patients, often including patients with long delays in antibiotic administration. This has resulted in clinical equipoise regarding timing thresholds for antibiotic administration in sepsis.

What This Study Adds to the Field: We evaluated 35,000 patients treated within a contemporary multicenter sepsis quality improvement program using granular data including vital signs, laboratory values, and severity of illness indices.

- ✓ Şüpheli organizma(lar)
- ✓ Enfeksiyon bölgesi(ler)
- ✓ Başlama 1 saat **!!!**

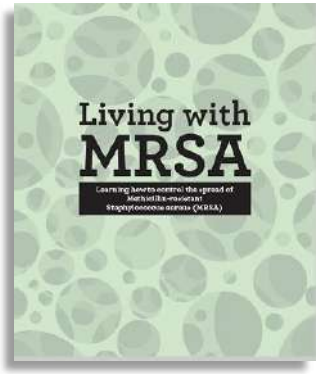
2. BAŞLANGIÇ RESÜSİTATİF TEDAVİ

Antibiyotik rejimi

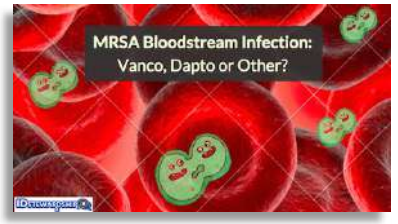
- ✓ Hastanın geçmişi (son alınan antibiyotikler, önceki üremeler ?)
- ✓ Komorbiditeleri (diyabet, organ yetmezlikleri, alerji)
- ✓ Toplum kaynaklı?, hastane kaynaklı?
- ✓ İnvaziv cihazların varlığı
- ✓ Şoksuz sepsis bir veya daha fazla antimikrobiyal
- ✓ Şok kliniği Var ise iki farklı sınıftan kombine antimikrobiyal

2. BAŞLANGIÇ RESÜSİTATİF TEDAVİ

Antibiyotik rejimi

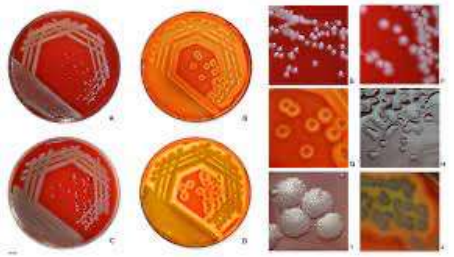


- ✓ Metisiline dirençli *S. aureus* (MRSA)
- ✓ Hastanede yatan / toplum içinde risk
- ✓ Şok tablosu olan sepsis Ampirik vankomisin önerilmekte
- ✓ Vankomisin kontrendikasyonu olan hastalarda daptomisin , linezolid, teikoplanin

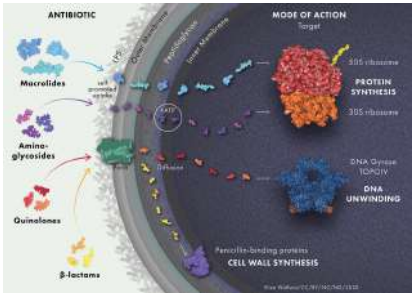


2. BAŞLANGIÇ RESÜSİTATİF TEDAVİ

Antibiyotik rejimi

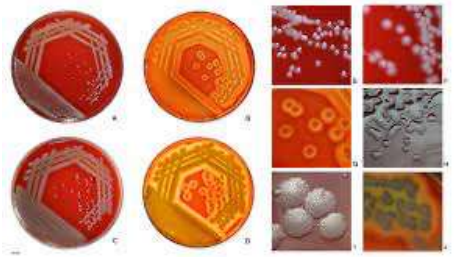


- ✓ eğer *Pseudomonas* beklenmedik bir patojen ise, Vankomisin +
- ✓ Üçüncü veya dördüncü kuşak (örn. seftriakson veya sefotaksim veya sefepim) veya
- ✓ Bir beta-laktam/beta-laktamaz inhibitörü (örn. piperasilin-tazobaktam) veya
- ✓ Bir karbapenem (örneğin, imipenem veya meropenem)

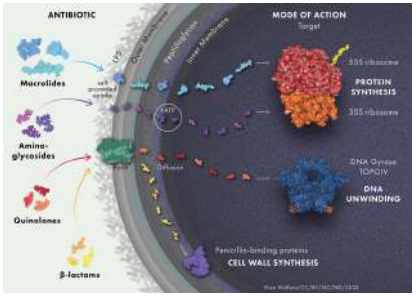


2. BAŞLANGIÇ RESÜSİTATİF TEDAVİ

Pseudomonas olası bir patojen ise, Vankomisin +



- ✓ Antipsödomonal sefalosporin (örn. seftazidim , sefepim) veya
- ✓ Antipsödomonal karbapenem (örn., imipenem , meropenem) veya
- ✓ Antipsödomonal beta-laktam/beta-laktamaz inhibitörü (örn. piperasilin-tazobaktam) veya
- ✓ İyi anti-psödomonal aktiviteye sahip florokinolon (örn. siprofloksasin) veya
- ✓ Aminoglikozit (örn. gentamisin , amikasin) veya
- ✓ Monobaktam (örneğin, aztreonam)



2. BAŞLANGIÇ RESÜSİTATİF TEDAVİ

Ampirik antif

- ✓ Nötropenik olmayan
- ✓ parenteral beslenm
- ✓ Uzun süreli antimikr
- ✓ Uzun süreli yoğun b
- ✓ Kemoterapi, transpl
- ✓ Majör abdominal ce

Randomized Controlled Trial > JAMA. 2016 Oct 18;316(15):1555-1564.
doi: 10.1001/jama.2016.14655.

Empirical Micafungin Treatment and Survival Without Invasive Fungal Infection in Adults With ICU-Acquired Sepsis, Candida Colonization, and Multiple Organ Failure: The EMPIRICUS Randomized Clinical Trial

Jean-Francois Timsit [1], Elie Azoulay [2], Carole Schwebel [3], Pierre Emmanuel Charles [4], Muriel Cornet [5], Bertrand Souweine [6], Kada Klouche [7], Samir Jaber [8], Jean-Louis Trouillet [9], Fabrice Bruneel [10], Laurent Argaud [11], Joel Cousson [12], Ferhat Meziani [13], Didier Gruson [14], Adeline Paris [15], Michael Darmon [16], Maité Garrouste-Orgeas [17], Jean-Christophe Navellou [18], Arnaud Foucrier [19], Bernard Allaouchiche [20], Vincent Das [21], Jean-Pierre Gangneux [22], Stéphane Ruckly [23], Daniele Maubon [5], Vincent Jullien [24], Michel Wolff [1]; EMPIRICUS Trial Group

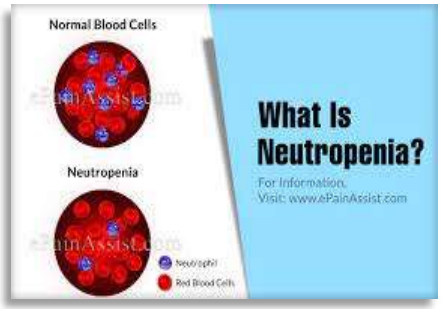
Affiliations + expand

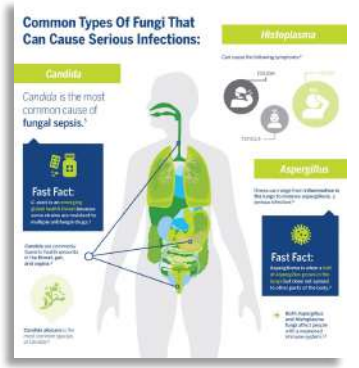
PMID: 27706483 DOI: 10.1001/jama.2016.14655

Abstract

Importance: Although frequently used in treating intensive care unit (ICU) patients with sepsis, empirical antifungal therapy, initiated for suspected fungal infection, has not been shown to improve outcome.

Objective: To determine whether empirical micafungin reduces invasive fungal infection (IFI)-free

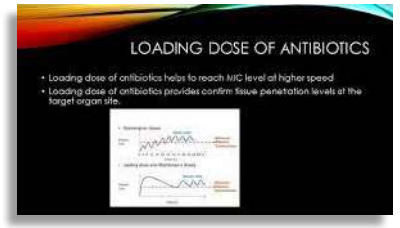


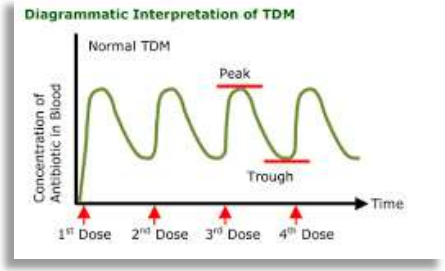


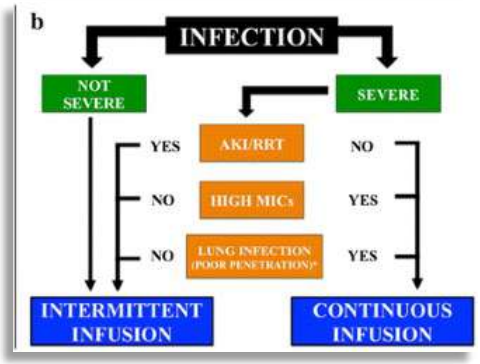
2. BAŞLANGIÇ RESÜSİTATİF TEDAVİ

İlaç dozu -süresi

- ✓ Yükleme dozu
- ✓ Kristalloid veya SF yüklemesi & antibiyotik kan konsantrasyonu
- ✓ Sürekli infüzyon, uzamış ve aralıklı infüzyon



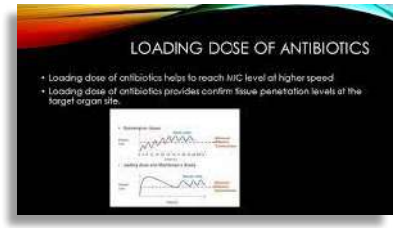


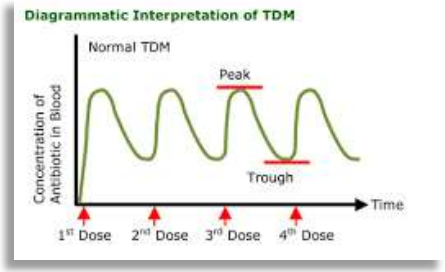


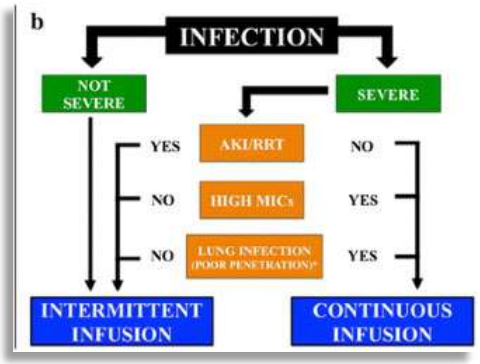
2. BAŞLANGIÇ RESÜSİTATİF TEDAVİ

Sürekli (Continue) infüzyon antibiyotikler

İlaç adı	Başlangıç dozu, süresi	İdame doz zamanı	Renal	İdame dozu, süresi
Cefepime	15 mg/kg >30 dak	Hemen	eGFR > 60	6 gr 24 saat
Ceftazidime	15 mg/kg > 30 dak	Hemen	eGFR > 50	6 gr 24 saat
Temocillin	2 gr > 30 dak	Hemen	eGFR > 50	6 gr 24 saat
Vancomycin	15-20 mg/kg, 15 mg/dak	Hemen	20-25 µg/mL	30-40 mg/kg 24 saat







2. BAŞLANGIÇ RESÜSİTATİF TEDAVİ

İlaç adı	ğı
Ampisilin- sul	
Doripenem	
Meropenem	
Piperasilin-Ta	

Continuous versus Intermittent β-Lactam Infusion in Severe Sepsis

A Meta-analysis of Individual Patient Data from Randomized Trials

Jason A. Roberts[1,2,3,4], Mohd-Hafiz Abdul-Aziz[2,5], Joshua S. Davis[6,7], Joel M. Dulhunty[1,2,8], Menino O. Cotta[1,2,3,4], John Myburgh[9,10], Rinaldo Bellomo[11,12], and Jeffrey Lipman[1,2]

[1]Department of Intensive Care Medicine and [3]Pharmacy Department, Royal Brisbane and Women's Hospital, Brisbane, Australia; [2]Burns, Trauma & Critical Care Research Centre and [4]School of Pharmacy, The University of Queensland, Brisbane, Australia; [5]School of Pharmacy, International Islamic University Malaysia, Kuantan, Malaysia; [6]Menzies School of Health Research, Charles Darwin University, Darwin, Australia; [7]Department of Infectious Diseases, John Hunter Hospital, Newcastle, Australia; [8]Redcliffe Hospital, Brisbane, Australia; [9]Critical Care and Trauma Division, The George Institute for Global Health, Sydney, Australia; [10]St. George Clinical School, University of New South Wales, Sydney, Australia; [11]Department of Intensive Care, Austin Hospital, Melbourne, Australia; and [12]Australian and New Zealand Intensive Care Research Centre, Monash University, Melbourne, Australia

Abstract

Rationale: Optimization of β-lactam antibiotic dosing for critically ill patients is an intervention that may improve outcomes in severe sepsis.

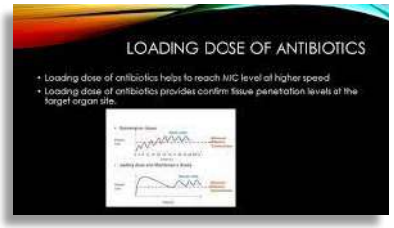
Objectives: In this individual patient data meta-analysis of critically ill patients with severe sepsis, we aimed to compare clinical outcomes of those treated with continuous versus intermittent infusion of β-lactam antibiotics.

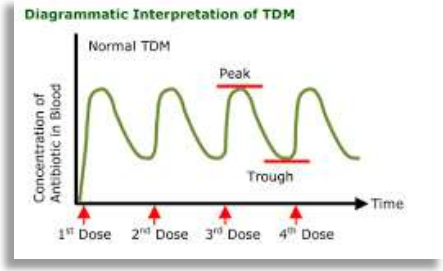
Methods: We identified relevant randomized controlled trials comparing continuous versus intermittent infusion of β-lactam antibiotics in critically ill patients with severe sepsis. We assessed the quality of the studies according to four criteria. We combined individual patient data from studies and assessed data integrity for common baseline demographics and study endpoints, including hospital mortality censored at 30 days and clinical cure. We then determined the pooled estimates of effect and investigated factors associated with hospital mortality in multivariable analysis.

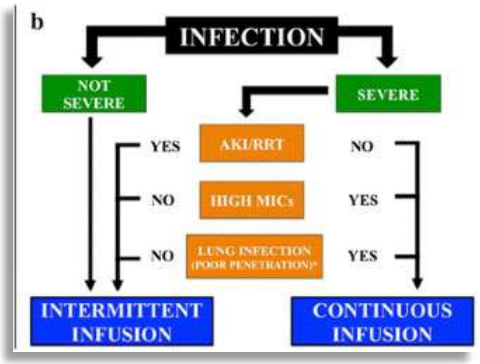
Measurements and Main Results: We identified three randomized controlled trials in which researchers recruited a total of 632 patients with severe sepsis. The two groups were well balanced in terms of age, sex, and illness severity. The rates of hospital mortality and clinical cure for the continuous versus intermittent infusion groups were 19.6% versus 26.3% (relative risk, 0.74; 95% confidence interval, 0.56–1.00; $P = 0.045$) and 55.4% versus 46.3% (relative risk, 1.20; 95% confidence interval, 1.03–1.40; $P = 0.021$), respectively. In a multivariable model, intermittent β-lactam administration, higher Acute Physiology and Chronic Health Evaluation II score, use of renal replacement therapy, and infection by nonfermenting gram-negative bacilli were significantly associated with hospital mortality. Continuous β-lactam administration was not independently associated with clinical cure.

Conclusions: Compared with intermittent dosing, administration of β-lactam antibiotics by continuous infusion in critically ill patients with severe sepsis is associated with decreased hospital mortality.

Keywords: antibiotic; meropenem; pharmacodynamics; pharmacokinetics; piperacillin-tazobactam





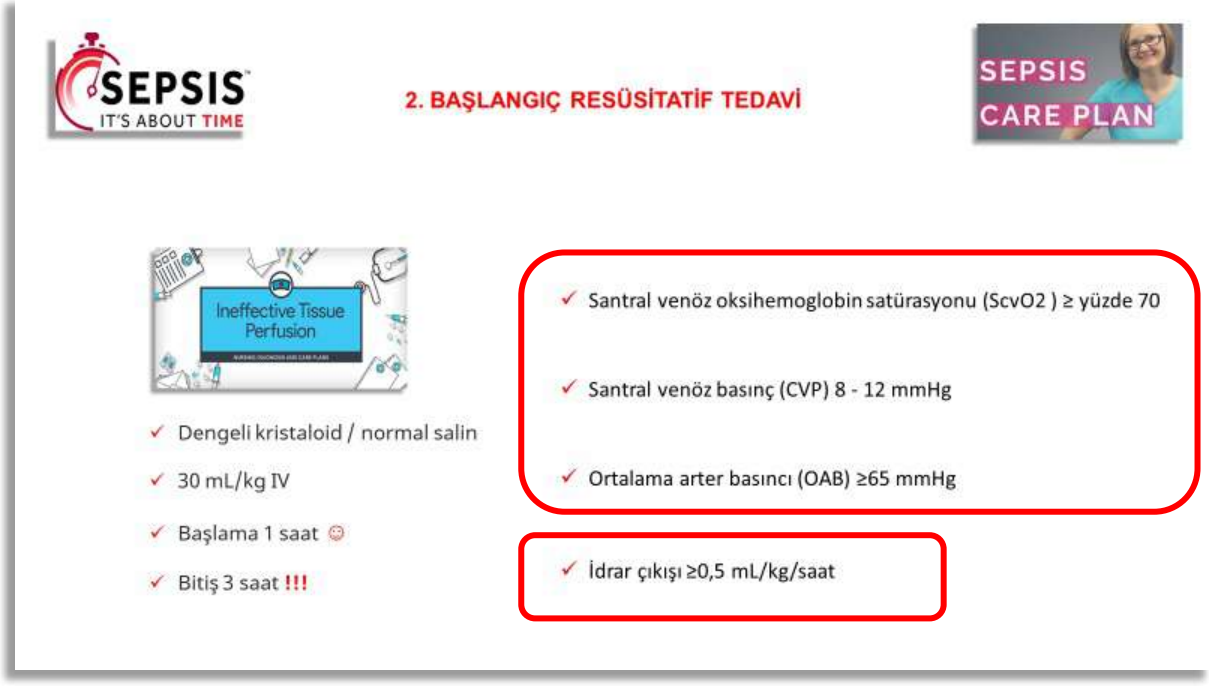


1. Acil Değerlendirme ve Yönetim

2. Başlangıç Resüsitatif Tedavi

3. İzlem-Takip

3. İZLEM-TAKİP



- ✓ Kalp hızı,
- ✓ Solunum hızı,
- ✓ Ten rengi,
- ✓ Vücut ısısı,
- ✓ Mental durum takip
- ✓ Laktat klirensi
- ✓ Hemogram, Rutin biyokimya, Procalcitonin
- ✓ Arteriyel Kan gazı

1. Acil Değerlendirme ve Yönetim → 2. Başlangıç Resüsitatif Tedavi → 3. İzlem-Takip → **4. Başarısız Başlangıç Tedavisi**

4. BAŞARISIZ BAŞLANGIÇ TEDAVİ

Vazopressör seçimi

Septik şokta vazoaktif ajanlar

İlaç	Kalp atış hızı üzerindeki etki	kontraktilite üzerindeki etkisi	Arter daralma etkileri
Dobutamin	+	+++	- (genişler)
Dopamin	++	++	++
epinefrin	+++	+++	++
norepinefrin	++	++	+++
fenilefrin	0	0	+++

?

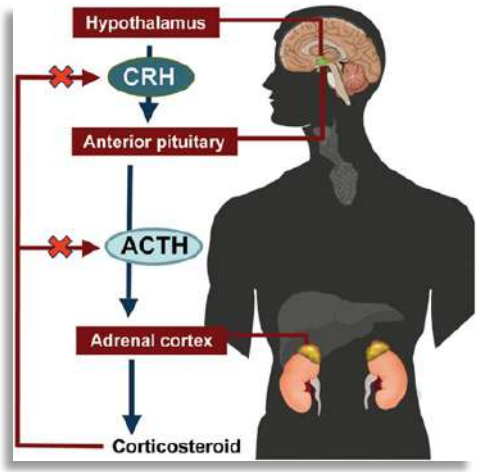
+ vazopressin / + epinefrin

4. BAŞARISIZ BAŞLANGIÇ TEDAVİ

Glukokortikoid

Rutin glukokortikoid kullanımına karşı

Yeterli sıvı resüsitasyonuna ve vazopresör yanıtsız ise



1. Acil Değerlendirme ve Yönetim → 2. Başlangıç Resüsitatif Tedavi → 3. İzlem-Takip → **4. Başarılı Tedavi**

SEPSIS
IT'S ABOUT TIME

5. BAŞARILI TEDAVİ

Efficacy and safety of procalcito
duration of antibiotic treatmen
a randomised, controlled, open-

Evelien de Jong, Jos A van Oers, Albertus Beishuizen, Piet Vos, Wytze J Vermeij
Gertrude C van Melsen, Yvette C Kluiters, Hans Kemperman, Maarten J van d
Hans Kieft, Georg H Kluge, Veerle C van Dam, Joost van Pelt, Laura Bormans,
Jos W Twisk, Ewoudt M W van de Garde, Anne Marie G A de Smet, Jozef Kesec

Summary

Background In critically ill patients, antibiotic therapy is o
associated with the development of antimicrobial resistance
therapy and reduce its duration, but data about safety of this
of procalcitonin-guided antibiotic treatment in patients in int
comparatively low use of antibiotics.

Methods We did a prospective, multicentre, randomised, cont
Netherlands. Critically ill patients aged at least 18 years, adr
antibiotics no longer than 24 h before inclusion in the stud
participate. Patients who received antibiotics for presumed in
generated list, and stratified (according to treatment centre, w
and dependent on severity of infection [ie, sepsis, severe sepsi
or standard-of-care antibiotic discontinuation. Both patients a
procalcitonin-guided group, a non-binding advice to discontinu
had decreased by 80% or more of its peak value or to 0·5 µg,
treated according to local antibiotic protocols. Primary endpo
antibiotic treatment. All analyses were done by intention to
(intention to treat) and for patients in whom antibiotics were
Safety endpoints were reinstitution of antibiotics and rec
concentrations and they were measured in the population ad

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Cochrane Database of Systematic

**Effectiveness and safety of pr
mortality in adults with sepsi
(Review)**

Andriolo BNG, Andriolo RB, Salomão R, At

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Procalcitonin use in lower respiratory tract infections

Outline

- SUMMARY AND RECOMMENDATIONS
- Introduction
- Rationale for use
- Procalcitonin biology
  - Synthesis
  - Kinetics
- Clinical use
  - Guiding antibiotic therapy
    - Community-acquired pneumonia in hospitalized patients
      - Clinically stable patients

View in language

Authors: Chanu Rhee, MD, MPH, Michael K Mansour, MD, PhD
Section Editors: Julio A Ramirez, MD, FACP; Thomas M File, Jr, MD
Deputy Editor: Sheila Bond, MD

Contributor Disclosures

All topics are updated as new evidence becomes available and our peer review process is complete.

Literature review current through: **Jan 2023.** | This topic last updated: **Nov 03, 2022.**

Please read the Disclaimer at the end of this page.

Introduction

Procalcitonin is a serum biomarker that helps distinguish bacterial infection from other causes of infection or inflammation. In patients with lower respiratory tract infections, procalcitonin can serve as a helpful adjunct to clinical judgment for guiding antibiotic therapy and resolving

Sepsis Yönetiminde Güncel Rehberler Ne Diyor?

Dr.R.Aytaç ÇETİNKAYA