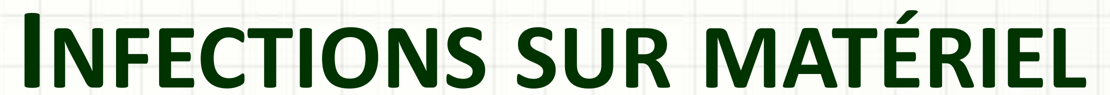


Dr Lucia Pérez, infectiologue
Journée régionale des référents en antibiothérapie
12 janvier 2017

Monsieur A.

- J7 prothèse de genou:
- 38°C et écoulement cicatriciel abondant non franchement purulent
- Que faites-vous?

  1 Hémocultures

  2 Écouvillon des sécrétions purulentes

  3 Ponction du genou (idéalement par le chirurgien)

  4 Je désinfecte bien la cicatrice et j'attends quelques jours

  5 Fucidine sur la cicatrice

  6 Je préviens son chirurgien immédiatement

Monsieur A.

- J7 prothèse de genou:
- 39°C frissons douleur genou et écoulement cicatriciel abondant non franchement purulent
- Que faites-vous?
  - 1 **Hémocultures**
  - 2 Écouvillon des sécrétions purulentes: écouvillons non indiqués (car ils prélèvent la flore cutanée)
  - 3 **Ponction** du genou (idéalement par le chirurgien): indiquée si doute diagnostique ou sepsis sévère.
  - 4 Je désinfecte bien la cicatrice et j'attends quelques jours : non: **urgence**++
  - 5 Fucidine sur la cicatrice (pas d'indication d'antibiotiques locaux)
  - 6 Je préviens son **chirurgien** immédiatement

Monsieur A.

- Les hémocultures (2/2) et la ponction du genou reviennent positives à *Staphylococcus aureus*
- Que faites-vous?
  - 1 Je commence vancomycine IV 1g/12h (poids 70kg)
  - 2 S'il a un sepsis sévère, j'ajoute gentamicine
  - 3 Je demande au chirurgien de l'opérer en urgence
  - 4 Le chirurgien prévoit une chirurgie par arthroscopie: ok
  - 5 Le chirurgien prévoit de l'opérer dans 3 semaines: ok
  - 6 Cinq prélèvements microbiologiques per-opératoires seront faits.

Monsieur A.

- Les hémocultures (2/2) et la ponction du genou reviennent positives à *Staphylococcus aureus*
- Que faites-vous?

1 Je commence vancomycine IV 1g/12h (poids 70kg)

2 S'il a un sepsis sévère, j'ajoute gentamicine

3 Je demande au chirurgien de l'opérer en urgence: oui: synovectomie par arthrotomie reprenant au minimum la voie d'abord initiale et emportant tous les tissus macroscopiquement infectés.

4 Le chirurgien prévoit une chirurgie par **arthroscopie**: ok. Non c'est une arthrotomie.

5 Le chirurgien prévoit de l'opérer **dans 3 semaines**: ok. Non: c'est urgent.

6 Cinq prélèvements microbiologiques per-opératoires seront faits.

Monsieur A.

- Le *Staphylococcus aureus est sensible à la méticilline*
- Que faites-vous?
  1 J'arrête la vanco
  2 Je mets oxacilline ou cefazoline IV
  3 Je mets cloxacilline per os
  4 Je prévois un relais par pyostacine
  5 Je garde l'antibiothérapie IV 6 semaines
  6 Je prévois un relais per os par Ofloxacine Rifampicine à partir de J5 si tout va bien

Monsieur A.

- Le *Staphylococcus aureus est sensible à la méticilline*
- Que faites-vous?

  1 J'arrête la vanco

  2 Je mets oxacilline ou cefazoline IV

  3 Je mets cloxacilline per os: mal absorbé

  4 Je prévois un relais par pyostacine: non indiqué (échecs dans les infections profondes)

  5 Je garde l'antibiothérapie IV 6 semaines: possibilité de relais per os à partir de J5, en fonction de la bactérie

  6 Je prévois un relais per os par Ofloxacine Rifampicine à partir de J5 si tout va bien

HAUTE AUTORITÉ DE SANTÉ

RECOMMANDATION DE BONNE PRATIQUE

Prothèse de hanche ou de genou : diagnostic et prise en charge de l'infection dans le mois suivant l'implantation

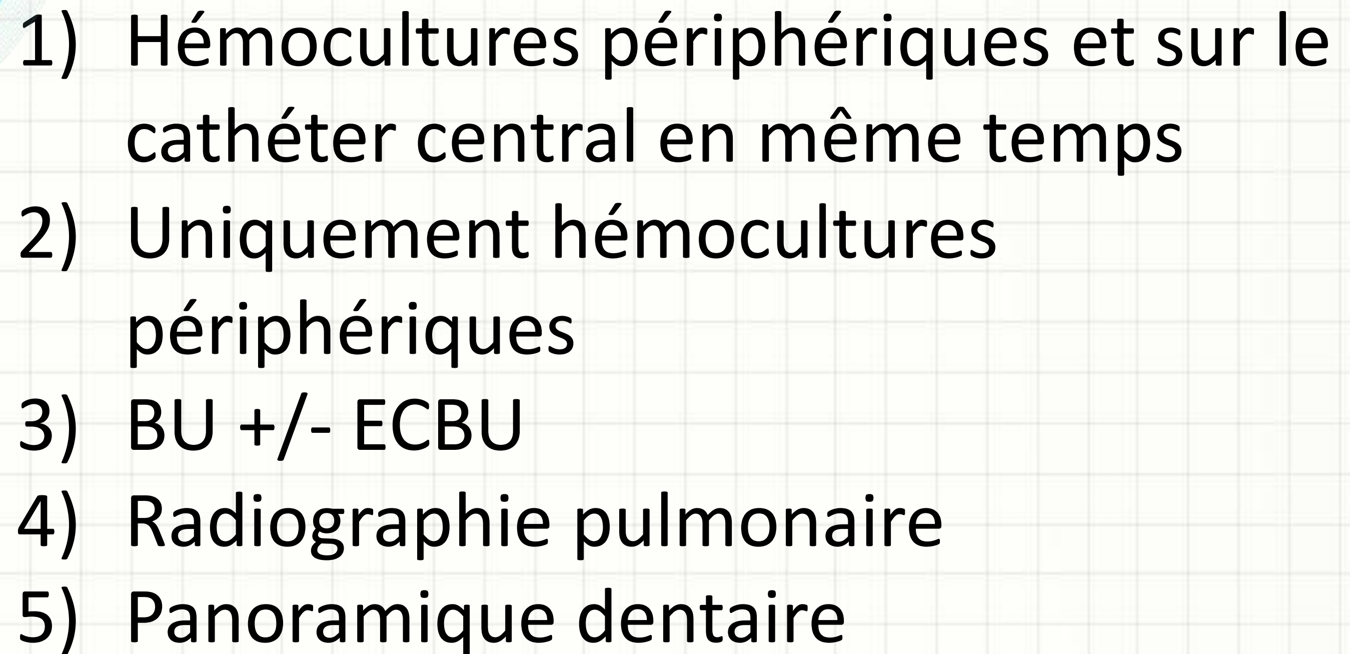
Méthode Recommandations pour la pratique clinique

RECOMMANDATIONS

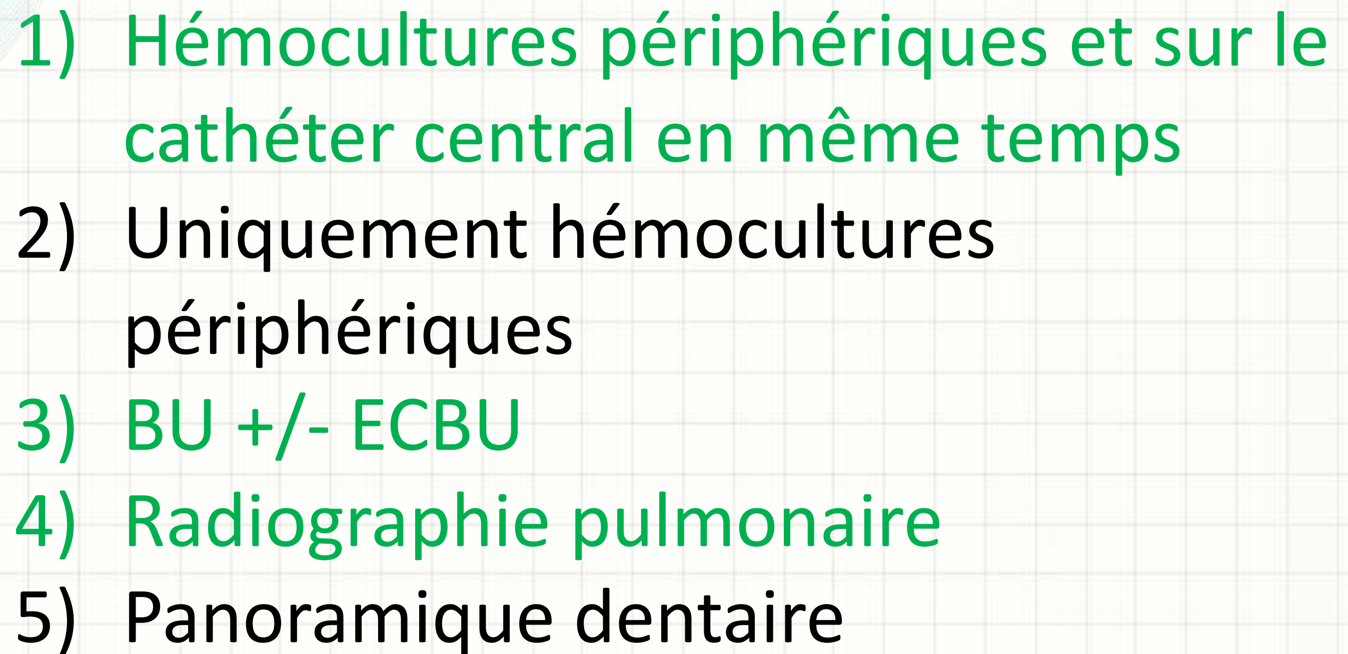
Mars 2014

- Fièvre 39°C, frissons, sans point d'appel.
- Vient de finir sa chimio sur cathéter veineux profond (chambre implantable) pour néoplasie mammaire
- N'est pas neutropénique.

Quels examens complémentaires?



1) Hémocultures périphériques et sur le cathéter central en même temps
2) Uniquement hémocultures périphériques
3) BU +/- ECBU
4) Radiographie pulmonaire
5) Panoramique dentaire



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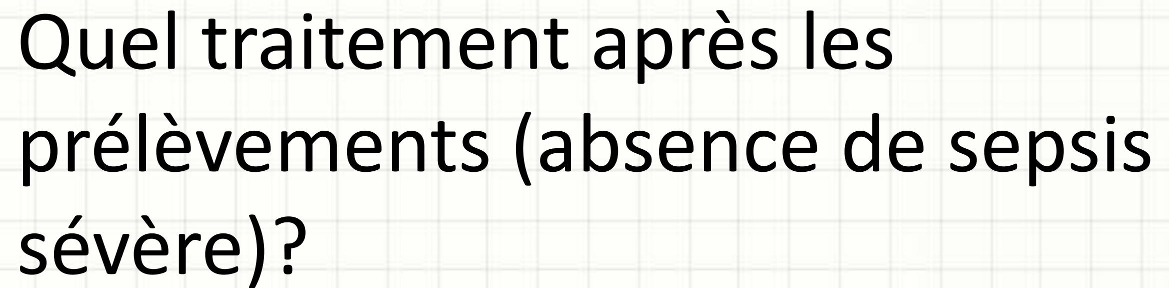
3) BU +/- ECBU
4) Radiographie pulmonaire
5) Panoramique dentaire



Quel traitement après les prélèvements (absence de sepsis sévère)?

1) Ceftazidime + amiklin
2) Vancomycine
3) Vancomycine + gentamicine
4) Piperacilline tazobactam

1) Ceftazidime + amiklin (non neutropénique)
2) Vancomycine
3) Vancomycine + gentamicine (pas de sepsis sévère)
4) Piperacilline tazobactam (il ne s’agit pas d’un cathéter fémoral)

Clinical Practice Guidelines for the Diagnosis and Management of Intravascular Catheter-Related Infection: 2009 Update by the Infectious Diseases Society of America

Leonard A. Mermel,[1] Michael Allon,[2] Emilio Bouza,[9] Donald E. Craven,[3] Patricia Flynn,[4] Naomi P. O'Grady,[5] Issam I. Raad,[6] Bart J. A. Rijnders,[10] Robert J. Sherertz,[7] and David K. Warren[8]

[1]Division of Infectious Diseases, Warren Alpert Medical School of Brown University, Providence, Rhode Island; [2]University of Alabama-Birmingham Hospital, Birmingham, Alabama; [3]Tufts University School of Medicine, Lahey Clinic Medical Center, Burlington, Massachusetts; [4]St. Jude Children's Research Hospital, Children's Infection Defense Center, Memphis, Tennessee; [5]National Institutes of Health, Critical Care Medicine Department, Bethesda, Maryland; [6]Section of Infectious Diseases, University of Texas-Cancer Center, Houston; [7]Section of Infectious Diseases, Wake Forest University School of Medicine, Winston-Salem, North Carolina; [8]Division of Infectious Diseases, Washington University School of Medicine, St Louis, Missouri; [9]Servicio de Microbiología Clínica y E. Infecciosas Hospital General "Gregorio Marañón," Madrid, Spain; and [10]Internal Medicine and Infectious Diseases, Erasmus University Medical Center, Rotterdam, the Netherlands

These updated guidelines replace the previous management guidelines published in 2001. The guidelines are intended for use by health care providers who care for patients who either have these infections or may be at risk for them.

EXECUTIVE SUMMARY

Diagnosis: Intravenous Catheter Cultures

General

1. Catheter cultures should be performed when a catheter is removed for suspected catheter-related bloodstream infection (CRBSI); catheter cultures should not be obtained routinely (A-II).
2. Qualitative broth culture of catheter tips is not recommended (A-II).
3. For central venous catheters (CVCs), the catheter tip should be cultured, rather than the subcutaneous segment (B-III).
4. For cultures of an anti-infective catheter tip, use specific inhibitors in the culture media (A-II).
5. Growth of >15 colony-forming units (cfu) from a 5-cm segment of the catheter tip by semiquantitative (roll-plate) culture or growth of $>10^{2}$ cfu from a catheter by quantitative (sonication) broth culture reflects catheter colonization (A-I).
6. When catheter infection is suspected and there is a catheter exit site exudate, swab the drainage to collect specimens for culture and Gram staining (B-III).

Short-term catheters, including arterial catheters.

7. For short-term catheter tip cultures, the roll plate technique is recommended for routine clinical microbiological analysis (A-II).
8. For suspected pulmonary artery catheter infection, culture the introducer tip (A-II).

Long-term catheters

9. Semiquantitative growth of <15 cfu/plate of the same microbe from both the insertion site culture and

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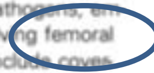
How should ca[illegible]elated infections generally be managed?

No.	Recommendation	Grade	References
22.	When denoting duration of antimicrobial therapy, day 1 is the first day on which negative blood culture results are obtained	C-III	[184]
[illegible]	Vancomycin is recommended for empirical therapy in heath care settings with an elevated prevalence of methicillin-resistant *Staphylococcus aureus* (MRSA); for institutions in which the preponderance of MRSA isolates have vancomycin minimum inhibitory concentration (MIC) values >2 μg/mL, alternative agents, such as daptomycin, should be used	A-II	[55, 56]
24.	Linezolid should not be used for empirical therapy (i.e., for patients suspected but not proven to have CRBSI)	A-I	[52]
25.	Empirical coverage for gram-negative bacilli should be based on local antimicrobial susceptibility data and the severity of disease (e.g., a fourth-generation cephalosporin, carbapenem, or β-lactam/β-lactamase combination, with or without an aminoglycoside)	A-II	
26.	Empirical combination antibiotic coverage for multidrug-resistant (MDR) gram-negative bacilli, such as *Pseudomonas aeruginosa*, should be used when CRBSI is suspected in neutropenic patients, severely ill patients with sepsis, or patients known to be colonized with such pathogens, until the culture and susceptibility data are available and de-escalation of the antibiotic regimen can be done	A-II	[13, 258, 259]
27.	In addition to coverage for gram-positive pathogens, empirical therapy for suspected CRBSI involving femoral catheters in critically ill patients should include coverage for gram-negative bacilli and *Candida* species	A-II	[178]
28.	Empirical therapy for suspected catheter-related candidemia should be used for septic patients with any of the following risk factors: total parenteral nutrition, prolonged use of broad-spectrum antibiotics, hematologic malignancy, receipt of bone marrow or solid-organ transplant, femoral catheterization, or colonization due to *Candida* species at multiple sites	B-II	[178, 200]



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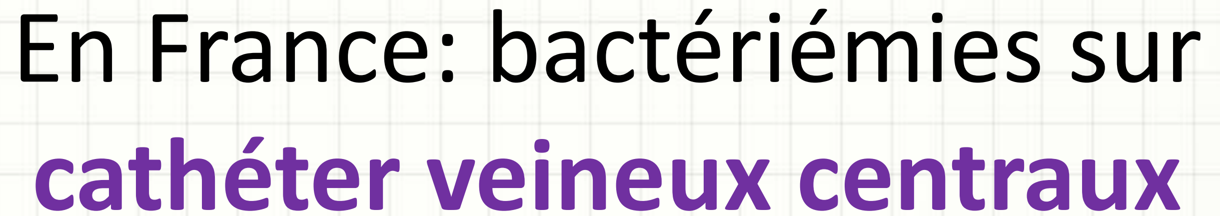


en réanimation

(réseau réa-Raisin 2012):

26% Staph coag neg

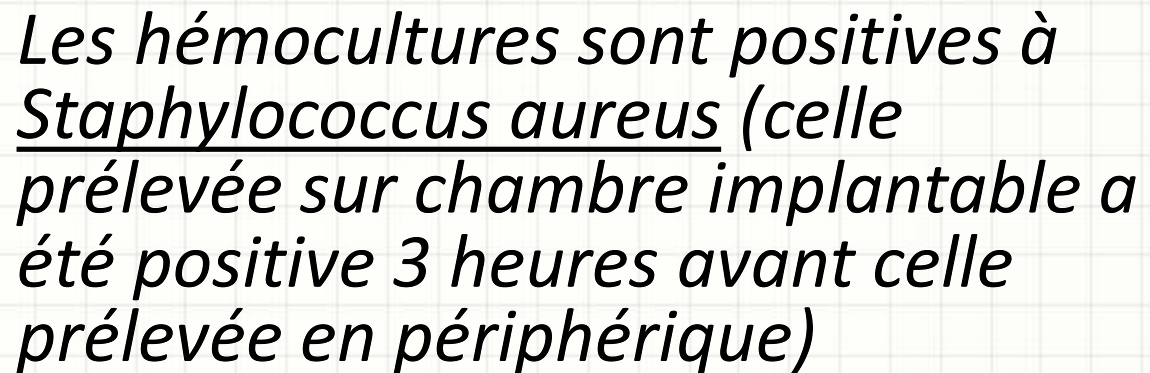
24% *Staph aureus**

23% entérobactéries

14% champignons

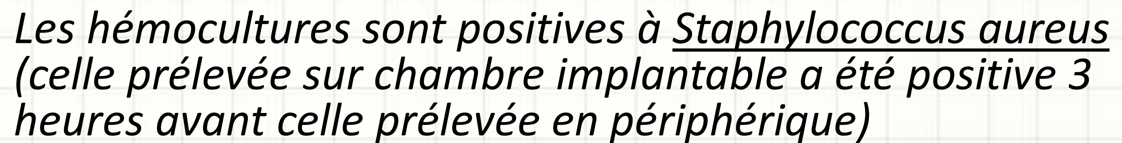
9% *Pseudomonas aeruginosa*

* Résistance à la méticilline 25% globalement en réa



Que fait-on?

1) Je prévois d’enlever la chambre implantable
2) Il va mieux sous vanco: j’attends de voir l’évolution sous vanco seule
3) Il va mieux: je fais vanco + verrou antibiotique pour tenter de conserver la chambre implantable
4) Je prévois une échographie cardiaque après J5 de la fièvre
5) Je prévois un écho-doppler veineux à la recherche d’une thrombophlébite septique



Que fait-on?

1) Je prévois d'enlever la chambre implantable
2) Il va mieux sous vanco: j'attends de voir l'évolution sous vanco seule: non: indication à enlever le cathéter profond
3) Il va mieux: je fais vanco + verrou antibiotique pour tenter de conserver la chambre implantable: non: pas pour les *Staphylococcus aureus*
4) Je prévois une échographie cardiaque après J5 de la fièvre
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7. For short-term catheter tip cultures, the roll plate technique is recommended for routine clinical microbiological analysis (A-II).
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9. Semiquantitative growth of <15 cfu/plate of the same microbe from both the insertion site culture and

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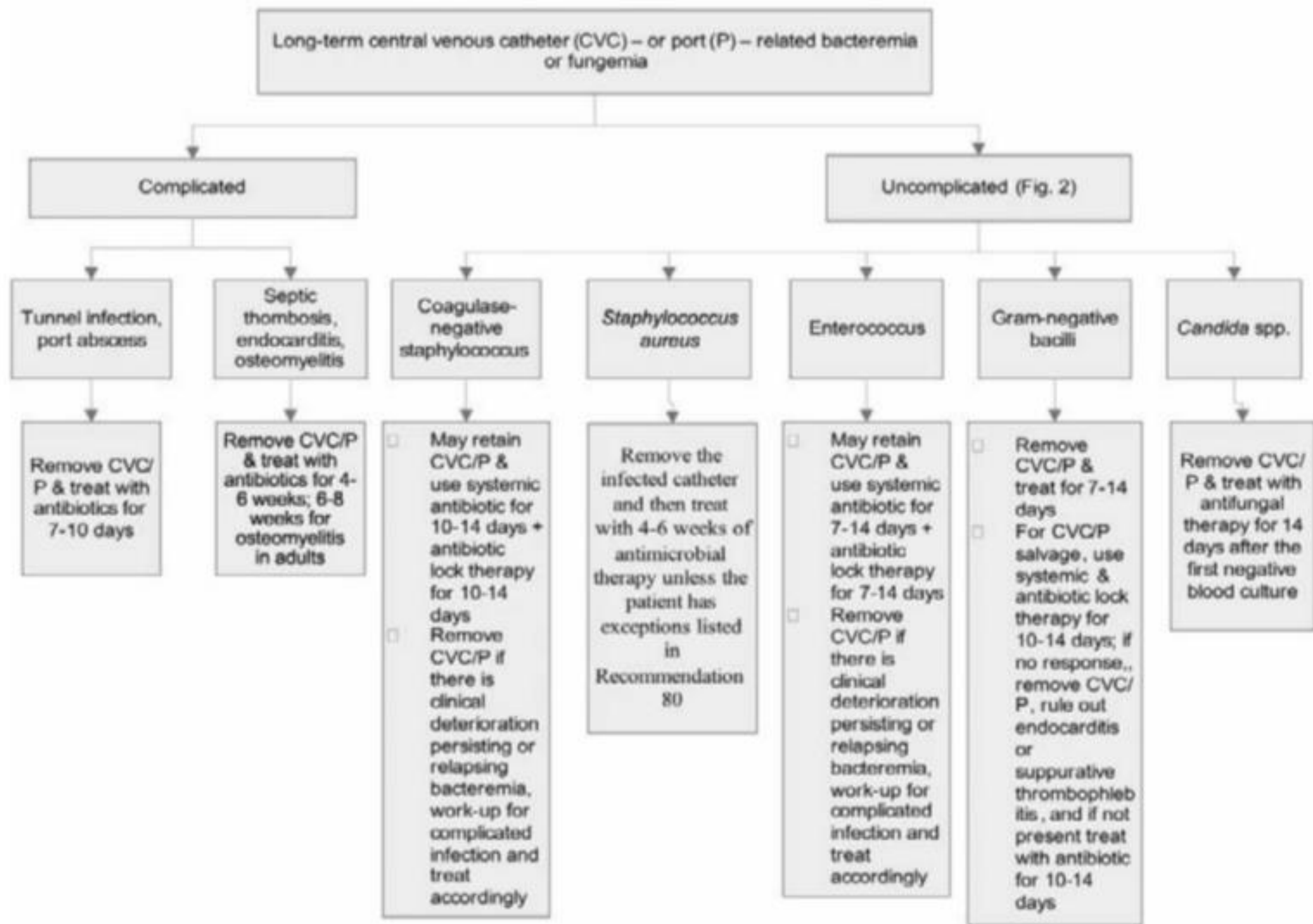
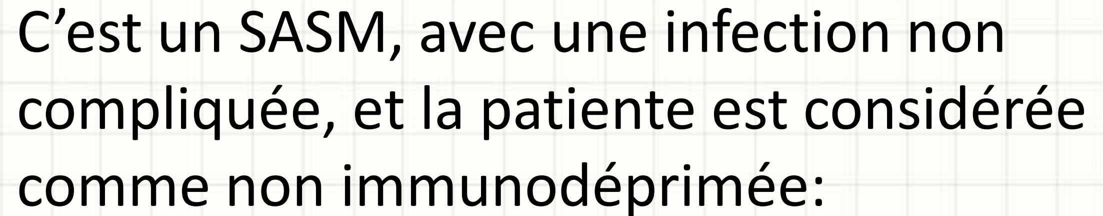


Figure 3. Approach to the treatment of a patient with a long-term central venous catheter (CVC) or a port (P)-related bloodstream infection.

ommendations below for S. aureus.

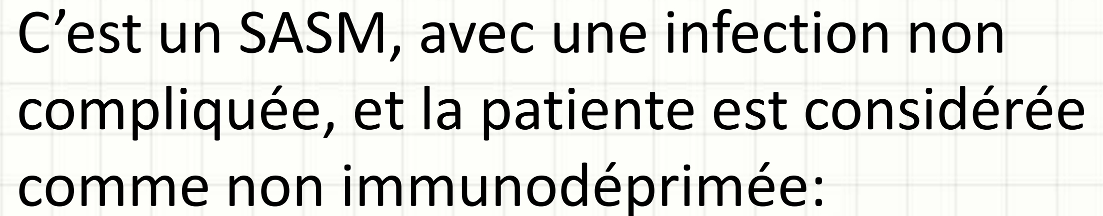
Staphylococcus aureus			
78.	Patients with *S. aureus* CRBSI should have the infected catheter removed, and they should receive 4–6 weeks of antimicrobial therapy, unless they have exceptions listed in recommendation 80	B-II	[139, 144]
79.	Patients who are being considered for a shorter duration of therapy should have a transesophageal echocardiograph (TEE) obtained	B-II	[142, 150]
80.	Patients can be considered for a shorter duration of antimicrobial therapy (i.e., a minimum of 14 days of therapy) if the patient is not diabetic; if the patient is not immunosuppressed (i.e., not receiving systemic steroids or other immunosuppressive drugs, such as those used for transplantation, and is nonneutropenic); if the infected catheter is removed; if the patient has no prosthetic intravascular device (e.g., pacemaker or recently placed vascular graft); if there is no evidence of endocarditis or suppurative thrombophlebitis on TEE and ultrasound, respectively; if fever and bacteremia resolve within 72 h after initiation of appropriate antimicrobial therapy; and if there is no evidence of metastatic infection on physical examination and sign- or symptom-directed diagnostic tests	A-II	[135]
81.	If a TEE is performed, it should be done at least 5–7 days after onset of bacteremia to minimize the possibility of false-negative results	B-II	[152]
82.	Short-term catheters should be removed immediately for patients with *S. aureus* CRBSI	A-II	[139, 144]
83.	For *S. aureus* CRBSI involving long-term catheters, the catheters should be removed unless there are major contraindications (e.g., there is no alternative venous access, the patient has significant bleeding diathesis, or quality of life issues take priority over the need for	A-II	[139, 144]



C’est un SASM, avec une infection non compliquée, et la patiente est considérée comme non immunodéprimée:

quel traitement?

1) Oxacilline 14j IV
2) Cefazoline 14j IV
3) Bactrim per os
4) Pyostacine per os
5) Augmentin per os
6) J’enlève la chambre implantable



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6) J’enlève la chambre implantable

Table 5. Intravenous antimicrobial treatment of intravenous catheter-related bloodstream infection in adults according to the specific pathogen isolated.

Pathogen	Preferred antimicrobial agent	Example, dosage[a]	Alternative antimicrobial agent	Comment
Gram-positive cocci				
Staphylococcus aureus				
Meth susceptible	Penicillinase-resistant Pen[b]	Naf or Oxa, 2 g q4h	Cfaz, 2 g q8h; or Vm, 15 mg/kg q12h	Penicillinase-resistant Pen or Csps are preferred to Vm.[c] For patients receiving hemodialysis, administer Cfaz 20 mg/kg (actual weight), round to nearest 500-mg increment, after dialysis
Meth resistant[a]	Vm	Vm, 15 mg/kg q12h	Dapto, 6–8 mg/kg per day, or linezolid; or Vm plus (Rif or Gm); or TMP-SMZ alone (if susceptible)	Strains of *S. aureus* with reduced susceptibility or resistance to Vm have been reported; strains resistant to linezolid and strains resistant to Dapto have been reported
Coagulase-negative staphylococci				
Meth susceptible	Penicillinase-resistant Pen	Naf or Oxa, 2 g q4h	First-generation Csp or Vm or TMP-SMZ (if susceptible)	Vm has dosing advantages over Naf and Oxa, but the latter are preferred because of concerns about increasing Vm resistance
Meth resistant	Vm	Vm, 15 mg/kg iv q12h	Dapto 6 mg/kg per day, linezolid, or Quin/Dalf	For adults <40 kg, linezolid dose should be 10 mg/kg; strains resistant to linezolid have been reported
Enterococcus faecalis/Enterococcus faecium				
Amp susceptible	Amp or (Amp or Pen) ± aminoglycoside	Amp, 2 g q4h or q6h; or Amp ± Gm, 1 mg/kg q8h	Vm	Vm may have dosing advantages over Amp, but there are concerns about Vm resistance
Amp resistant, Vm susceptible	Vm ± aminoglycoside	Vm, 15 mg/kg iv q12h ± Gm, 1 mg/kg q8h	Linezolid or Dapto 6 mg/kg per day	Quin/Dalf is not effective against *E. faecalis*
Amp resistant, Vm resistant	Linezolid or Dapto	Linezolid, 600 mg q12h; or Dapto 6 mg/kg per day	Quin/Dalf 7.5 mg/kg q8h	Susceptibility of Vm-resistant enterococci isolates varies; Quin/Dalf is not effective against *E. faecalis*
Gram-negative bacilli[d]				
Escherichia coli and *Klebsiella* species				
ESBL negative	Third-generation Csp	Ctri, 1–2 g per day	Cipro or Atm	Susceptibility of strains varies
ESBL positive	Carbapenem	Erta, 1 g per day; Imi, 500 mg q6h; Mero, 1 g q8h; or doripenem, 500 mg q8h	Cipro or Atm	Susceptibility of strains varies
Enterobacter species and *Serratia marcescens*	Carbapenem	Erta, 1 g per day; Imi, 500 mg q6h; Mero, 1 g q8h	Cefepime or Cipro	Susceptibility of strains varies
Acinetobacter species	Amp/Sulb or carbapenem	Amp/Sulb, 3 g q6h; or Imi, 500 mg q6h; Mero, 1 g q8h	...	Susceptibility of strains varies

Conclusion:

Infections sur matériel:

- Parfois urgentes
- s'aider des recommandations des sociétés savantes (infectiologie.com, IDSA, etc…)
- Pour l'osteo-articulaire, demander l'avis des centres CRIOGO (Angers, Nantes)

Merci pour votre attention!

Ensemble,

Préservons

l'efficacité des antibiotiques