

DIU « Infection ostéoarticulaire » - Séminaire de Lyon

du mardi 6 et mercredi 7 décembre 2022

Traitement médical des ostéites/ostéomyélites (Antibiothérapie locale et générale)

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Président du Comité Scientifique des CRIOAc 2017-2022



Question avec ou sans réponse :

Pensez-vous que l'on peut (pourra) réduire la durée de l'antibiothérapie à 6 semaines de toutes les IOA ?

OUI ?

NON ?

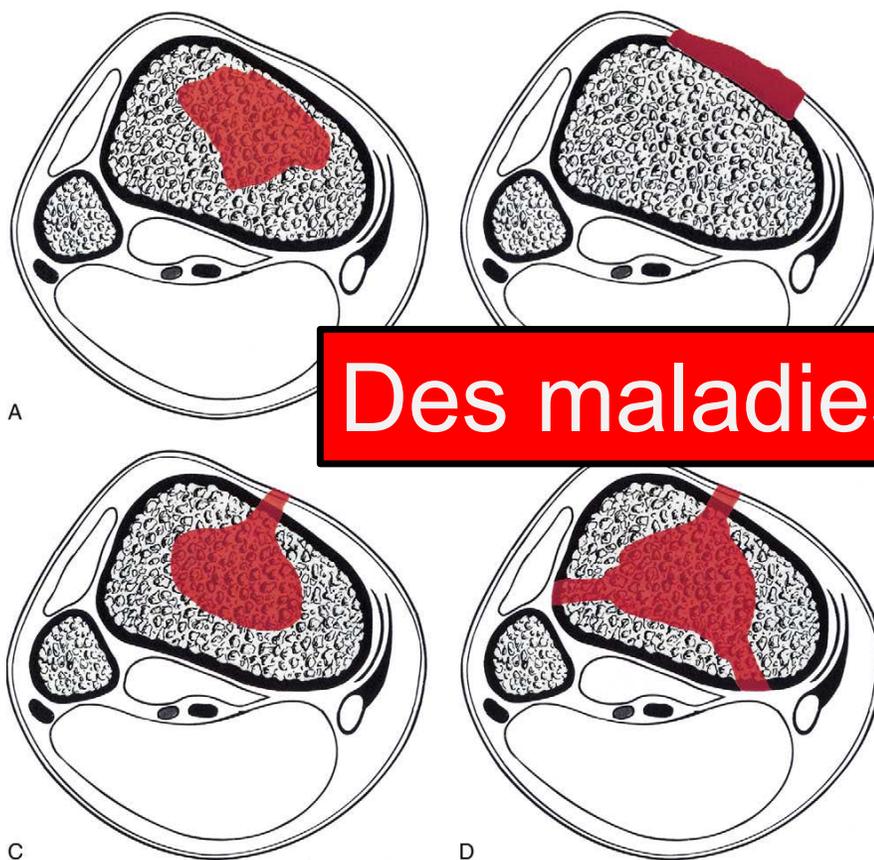
NSP ?

THE CLASSIC

Clinical Orthopaedics and Related Research
2003

A Clinical Staging System for Adult Osteomyelitis

George Cierny III, MD; Jon T. Mader, MD;
and Johan J. Penninck, MD



Des maladies différentes.....

THE NEW ENGLAND JOURNAL OF MEDICINE

Jan.

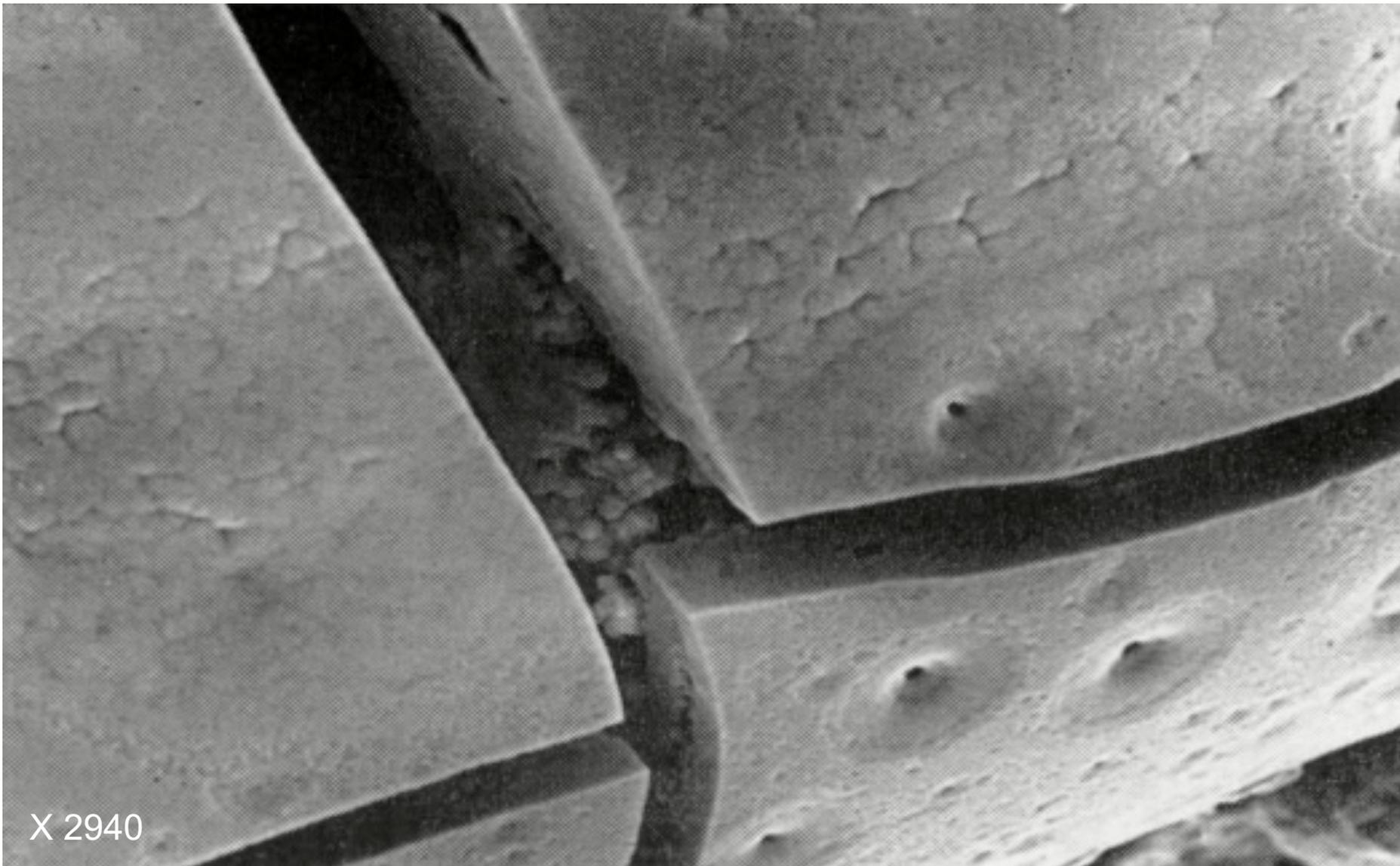
MEDICAL PROGRESS

OSTEOMYELITIS: A REVIEW OF CLINICAL FEATURES, THERAPEUTIC CONSIDERATIONS AND UNUSUAL ASPECTS (First of Three Parts)*

FRANCIS A. WALDVOGEL, M.D., GERALD MEDOFF, M.D., AND MORTON N. SWARTZ, M.D.

Characteristics	
<i>Mechanism of bone infection</i>	
Hematogenous	Secondary to bacterial transport through the blood. Majority of infections in children
Contiguous	Bacterial inoculation from an adjacent focus. E.g.: Post-traumatic Osteomyelitis, infections related to prosthetic devices
Associated with	Infections affecting the feet in patients with diabetes mellitus, tuberculosis or peripheral vascular disease
<i>Duration of infection</i>	
Acute	Initial episodes of osteomyelitis. Edema, formation of pus, vascular congestion, thrombosis of the small vessels
Chronic	Recurrence of acute cases. Large areas of ischemia, necrosis and bone sequestra

Waldvogel et al. *New Engl J Med* 1970



Biofilm et séquestre osseux
Evans et al. *Clin Orthop* 1998: 243-249

Plusieurs situations cliniques

- Ostéite chronique
- Ostéomyélite chronique
- Pseudarthrose septique

≠

Physiopathologie
Infections chroniques
Mécanismes de
persistance bactérien

≠

Dans la prise
en charge
chirurgicale

≠

Dans le
pronostic

Antibiotics for treating chronic osteomyelitis in adults (Review)

Conterno LO, Turchi MD

Authors' conclusions

Limited and low quality evidence suggests that the route of antibiotic administration (oral versus parenteral) does not affect the rate of disease remission if the bacteria are susceptible to the antibiotic used. However, this and the lack of statistically significant differences in adverse effects need confirmation. No or insufficient evidence exists for other aspects of antibiotic therapy for chronic osteomyelitis.



THE COCHRANE
COLLABORATION®

Oral versus Intravenous Antibiotics for Bone and Joint Infection

Ho-Kwong Li, M.R.C.P., Ines Rombach, D.Phil., Rhea Zambellas, M.Sc., A. Sarah Walker, Ph.D., Martin A. McNally, F.R.C.S. (Orth.), Bridget L. Atkins, F.R.C.P., Benjamin A. Lipsky, M.D., Harriet C. Hughes, M.A.(Cantab.), Deepa Bose, F.R.C.S., Michelle Kümin, Ph.D., Claire Scarborough, M.R.C.P., Philippa C. Matthews, D.Phil., et al., for the OVIVA Trial Collaborators*

CONCLUSIONS

Oral antibiotic therapy was noninferior to intravenous antibiotic therapy when used during the first 6 weeks for complex orthopedic infection, as assessed by treatment failure at 1 year. (Funded by the National Institute for Health Research; OVIVA Current Controlled Trials number, [ISRCTN91566927](#).)

Systemic Antibiotic Therapy for Chronic Osteomyelitis in Adults

Brad Spellberg^{1,2} and Benjamin A. Lipsky^{3,4}

¹Division of General Internal Medicine, Los Angeles Biomedical Research Institute at Harbor-UCLA, Torrance, and ²David Geffen School of Medicine at UCLA, Los Angeles, California; ³VA Puget Sound Health Care System, Seattle, Washington; ⁴University of Washington School of Medicine, Seattle, Washington

Table 5. Cure Rates in Randomized Clinical

for Chronic Osteomyelitis With or Without Infected Prosthesis in Adults

Drug			
Ceftazidime vs ticarcillin + tobramycin	Ceftazidime: 2 g/12 h intravenous; ticarcillin: 3 g/4 h intravenous; tobramycin: 1.5 mg/kg/8 h intravenous (mean, 35 d; range, 26–63 d)	2–31 mo	67 (6/9) vs 100 (9/9)
(Vancomycin or oxacillin) + (rifampin vs pyridium placebo)	Vancomycin: 1 g/12 h intravenous; oxacillin: 3 g/6 h intravenous; rifampin: 600 mg/d by mouth	?	90 (9/10) vs 62 (8/13)
Nafcillin vs (nafcillin + rifampin)	Nafcillin: 20 mg/kg/4 h intravenous; rifampin: 600 mg/12 h by mouth (mean, 6 wk)	9–36 mo	80 (8/10) vs 50 (4/8)
Linezolid vs (ampicillin-sulbactam or amoxicillin-clavulonate)	Linezolid: 600 mg twice daily, by mouth or intravenous; ampicillin-sulbactam: 1.5–3 g/6 h intravenous; amoxicillin-clavulonate: 500–875 mg by mouth 2 or 3 times daily	?	61 (27/44) vs 69 (11/16)
Ciprofloxacin + (rifampin vs placebo)	Ciprofloxacin: 750 mg by mouth twice daily; rifampin: 450 mg by mouth twice daily (3–6 mo)	Median, 3 y	100 (12/12) vs 58 (7/12)
Ciprofloxacin vs 'appropriate antimicrobial therapy'	750 mg by mouth twice daily (treatment or ≥6 wk)	?	50 (7/14) vs 69 (11/16)
Ciprofloxacin vs ceftazidime	Ciprofloxacin: 200 mg intravenous twice daily, then 500 mg by mouth twice daily; ceftazidime: 2 g/12 h intravenous	?	67 (2/3) vs 100 (3/3)
Ciprofloxacin vs (ceftazidime or nafcillin + amikacin)	Ciprofloxacin: 750 mg by mouth twice daily; other antibiotics: ? doses (mean, 8 wk)	1 y	77 (24/31) vs 79 (22/28)
Ciprofloxacin vs lomefloxacin	Ciprofloxacin: 750 mg by mouth twice daily; lomefloxacin: 800 mg by mouth twice daily	Median, 8 mo (range, 0–36 mo)	40 (2/5)
			71 (5/7)
Ofloxacin vs (ceftazidime or ceftazolin)	Ofloxacin: 400 mg by mouth twice daily (mean, 8 wk); ceftazidime: 2 g/12 h intravenous (mean, 4 wk); ceftazolin: 1 g/8 h intravenous (mean, 4 wk)	Mean, 1.5 y	74 (14/19) vs 86 (12/14)
Ofloxacin vs ampicillin-sulbactam followed by amoxicillin-clavulonate	Ofloxacin: 400 mg by mouth twice daily; ampicillin-sulbactam: 1–2 g/6 h intravenous; amoxicillin-clavulonate: 500 mg by mouth 3 times daily	3–4 wk	39 (6/16) vs 20 (1/5)
Ofloxacin vs imipenem	Ofloxacin: 400 mg by mouth twice daily; imipenem: 500 mg/6 h intravenous	?	69 (11/16) vs 50 (8/16)
Cloxacillin vs (TMP-SMX + rifampin)	Cloxacillin: 2 g/4 h intravenous; TMP: 7–8 mg/kg by mouth twice daily; rifampin: 600 mg/d by mouth (8 wk)	Mean, 10 y	90 (19/21) vs 89 (24/27)

6 semaines

3 à 6 mois

≥ 6 semaines

8 semaines

Infections of the musculoskeletal system

Basic principles, prevention, diagnosis and treatment

Excerpt

Published by Swiss Orthopaedics and the Swiss Society for Infectious Diseases expert group "Infections of the musculoskeletal system"

1st English edition 2014

L'infection sur matériel d'ostéo-synthèse, la pseudarthrose septique et l'ostéomyélite chronique

Peter E. Ochsner, Werner Zimmerli

« Le traitement curatif des infections post-traumatiques dure en général **six semaines**. Il est **probablement souhaitable de le prolonger en cas d'ostéomyélite persistant depuis plusieurs décennies.** »

Antimicrobial-Related Severe Adverse Events during Treatment of Bone and Joint Infection Due to Methicillin-Susceptible *Staphylococcus aureus*

Florent Valour,^{a,b} Judith Karsenty,^a Anissa Bouaziz,^a Florence Ader,^{a,b} Michel Tod,^c Sébastien Lustig,^d Frédéric Laurent,^{b,e,f} René Ecochard,^g Christian Chidiac,^{a,b} Tristan Ferry,^{a,b} on behalf of the Lyon BJI Study Group

Service des Maladies Infectieuses et Tropicales, Hospices Civils de Lyon, Lyon, France^a; Université Claude Bernard Lyon 1, INSERM U1111, International Center for Research in Infectious Diseases, Lyon, France^b; Pharmacie Hospitalière et Pharmacovigilance, Groupement Hospitalier Nord, Hospices Civils de Lyon, Lyon, France^c; Chirurgie Orthopédique, Groupement Hospitalier Nord, Hospices Civils de Lyon, Lyon, France^d; Laboratoire de Bactériologie, Groupement Hospitalier Nord, Hospices Civils de Lyon, Lyon, France^e; Centre National de Référence des Staphylocoques, Hospices Civils de Lyon, Lyon, France^f; Service de Biostatistiques, Hospices Civils de Lyon, Lyon, France^g

**Thirty-eight SAE occurred in 30 patients (15%)
in a delay 34 days (IQR 14.75-60.5)**

- 10 hematologic reactions,
- 9 cutaneo-mucosal reactions,
- 6 acute renal injuries
- 4 hypokalaemia,
- 4 cholestatic hepatitis.

The most frequently implicated antimicrobials were anti-staphylococcal penicillins

Mr. V, 48 ans, AVP il y a 10 ans avec fracture malléole interne droite. Ecoulement chronique depuis 2 ans.

- Mauvais état cutané sur le pourtour de la plaie
- Pas d'ostéolyse
- Pas de prise de contraste à l'IRM



- Curetage cortical
- Lambeau de rotation

6 semaines d'ATB ?

OUI !



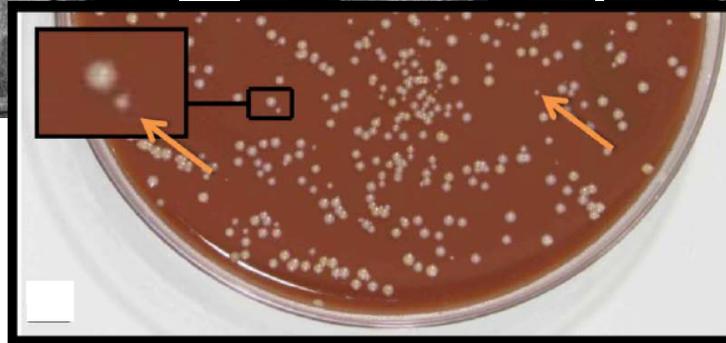
Mr. S, 22 ans, douleurs 15 ans après une ostéomyélite aiguë.



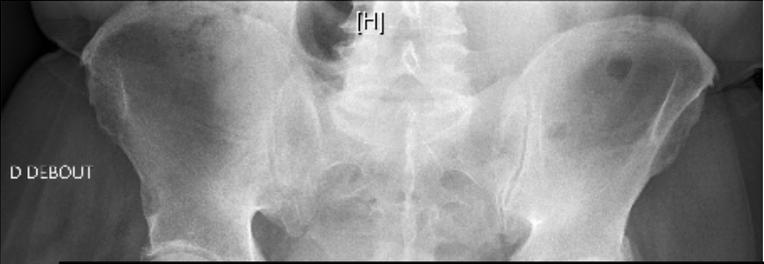
6 semaines d'ATB ?

NSP !

M+3

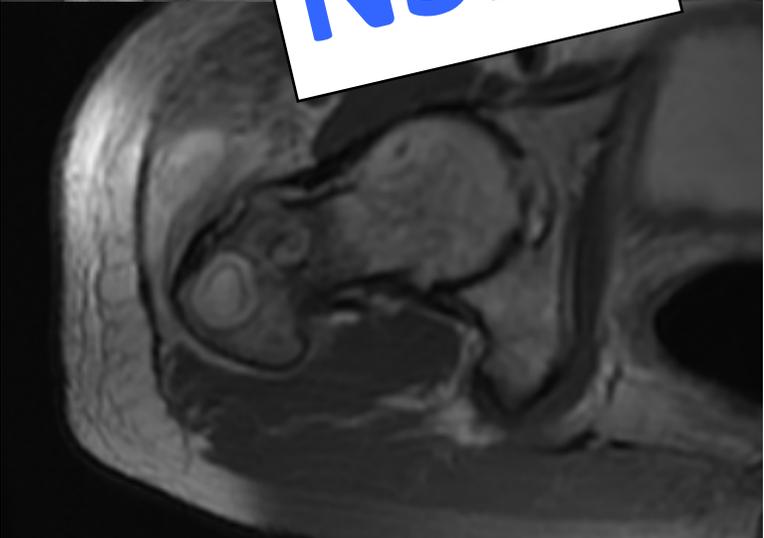


Mr. R, 68 ans, AVP en 1969 avec fracture ouverte fémur droit, en échec d'une ostéomyélite récidivante curetée à 2 reprises à *S. aureus*. Fistule actuellement avec nouvelle abcédation.



6 semaines d'ATB ?

NSP !

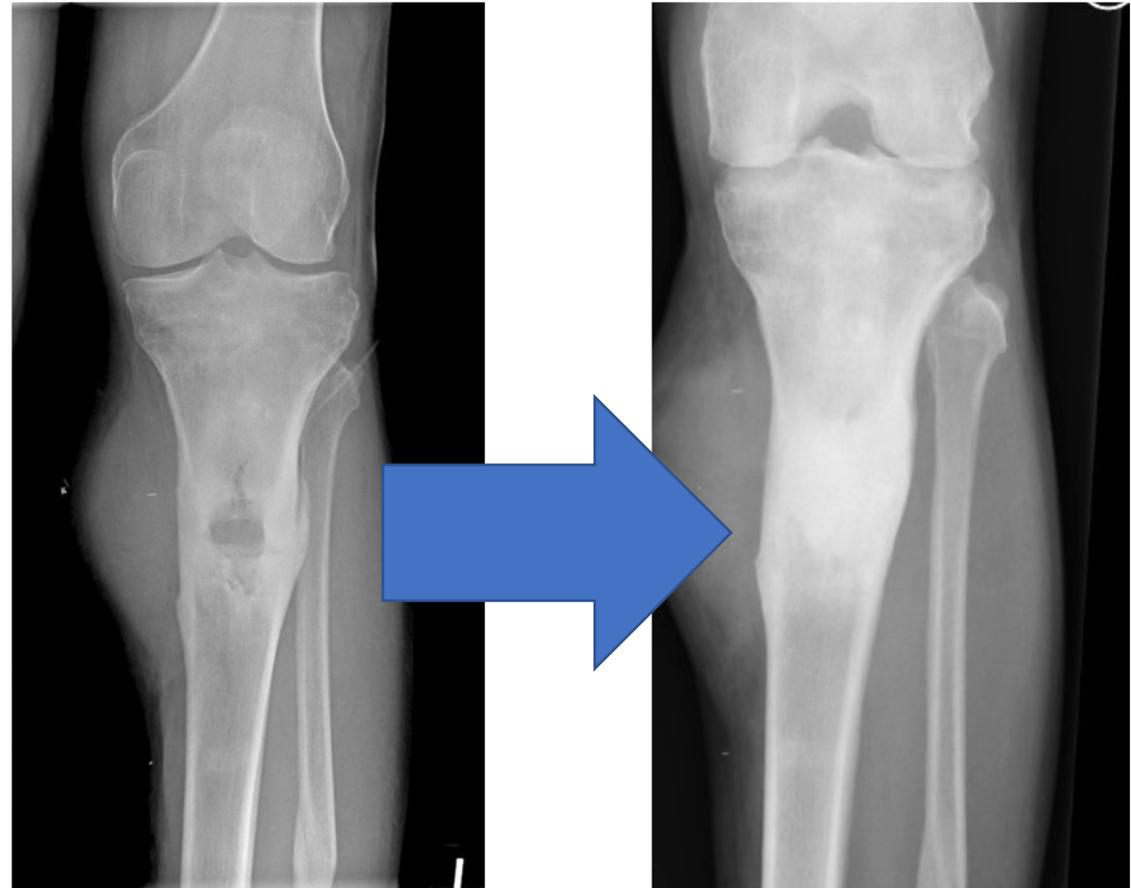


M+3

Evaluation d'un substitut osseux à la gentamicine (CERAMENT-G™) dans le traitement de l'ostéomyélite chronique des os longs



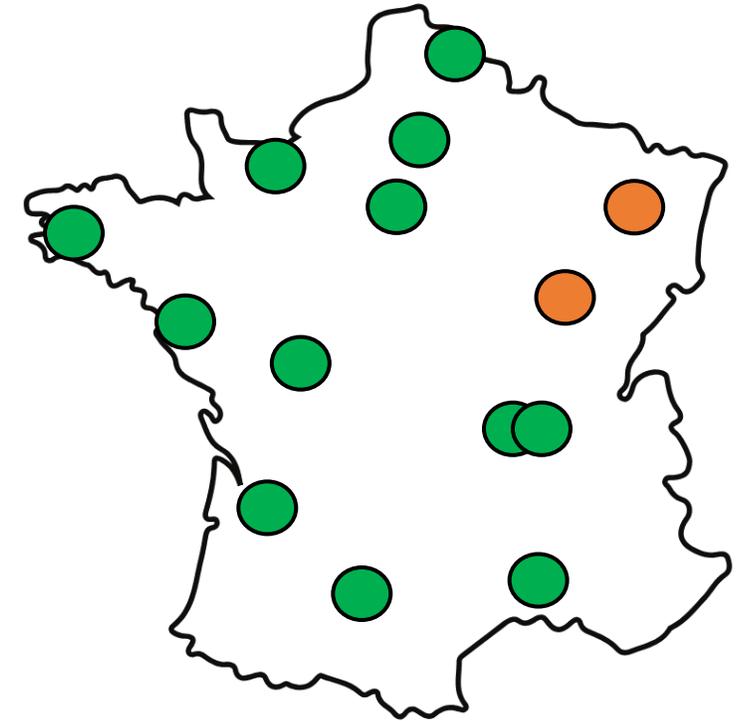
DIRECTION
GÉNÉRALE
DE L'OFFRE
DE SOINS



CENTRES PARTICIPANTS

- 14 CHU appartenant au réseau CRIOAc :

Nom centre	Statut
Lyon Croix Rousse	OUVERT
Lyon CHLS	OUVERT
Lille / Tourcoing	OUVERT
AP-HP Paris	OUVERT
CHRU Nancy	-
CHU Bordeaux	OUVERT
CHU Poitiers	OUVERT
CHU Nantes	OUVERT
CHU Besançon	-
CHU Brest	OUVERT
CHU Nîmes	OUVERT
CHU Caen	OUVERT
CHU Amiens-Picardie	OUVERT
CHU Toulouse	OUVERT



Légende:

-  Centres ouverts
-  Centres non ouverts

Conclusion

- Les ostéites/ostéomyélites sont très hétérogènes
- Durée de traitement médical de **6 semaines** à **3 mois**
- Réalisation d'essai thérapeutiques dans les situations chirurgicalement homogènes
- **Essai CONVICTION** (durée figée à 3 mois)

Lyon BJI Study group



Coordinator: Tristan Ferry

Infectious Diseases Specialists – Tristan Ferry, Florent Valour, Thomas Perpoint, Florence Ader, Sandrine Roux, Agathe Becker, Claire Triffault-Fillit, Anne Conrad, Cécile Poudroux, Pierre Chauvelot, Paul Chabert, Johanna Lippman, Evelyne Braun

Surgeons – Sébastien Lustig, Elvire Servien, Cécile Batailler, Stanislas Gunst, Axel Schmidt, Elliot Sappey-Marinier, Quentin Ode, Michel-Henry Fessy, Anthony Viste, Jean-Luc Besse, Philippe Chaudier, Lucie Louboutin, Adrien Van Haecke, Marcelle Mercier, Vincent Belgaid, Aram Gazarian, Arnaud Walch, Antoine Bertani, Frédéric Rongieras, Sébastien Martres, Franck Trouillet, Cédric Barrey, Ali Mojallal, Sophie Brosset, Camille Hanriat, Hélène Person, Samuel Prive, Philippe Céruse, Carine Fuchsmann, Arnaud Gleizal;

Anesthesiologists – Frédéric Aubrun, Mikhail Dziadzko, Caroline Macabéo, Dana Patrascu;

Microbiologists – Frederic Laurent, Laetitia Beraud, Tiphaine Roussel-Gaillard, Céline Dupieux, Camille Kolenda, Jérôme Josse;

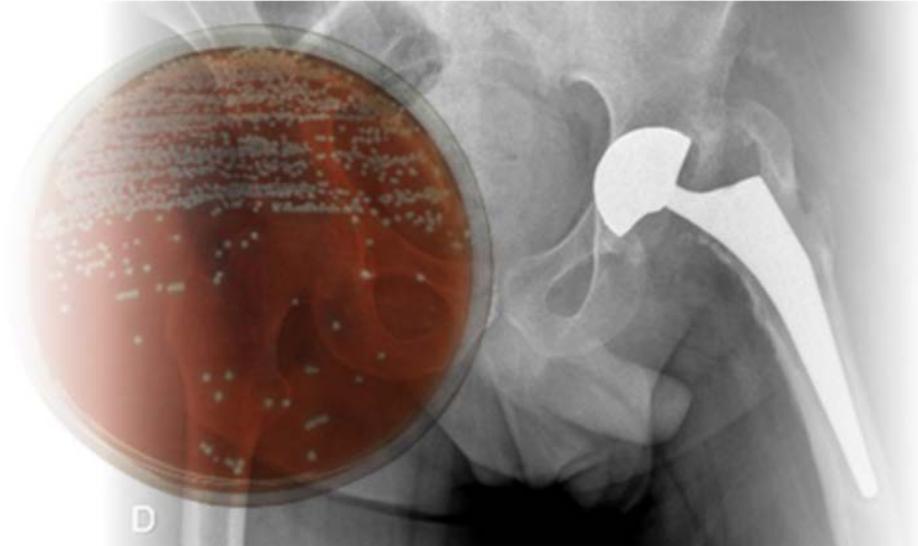
Imaging – Fabien Craighero, Loic Bousel, Jean-Baptiste Pialat, Isabelle Morelec;

PK/PD specialists – Michel Tod, Marie-Claude Gagnieu, Sylvain Goutelle;

Clinical research assistant and database manager– Eugénie Mabrut



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