Pour ou contre la rifampicine dans les infections sévères à Staphylocoques?

Pour!

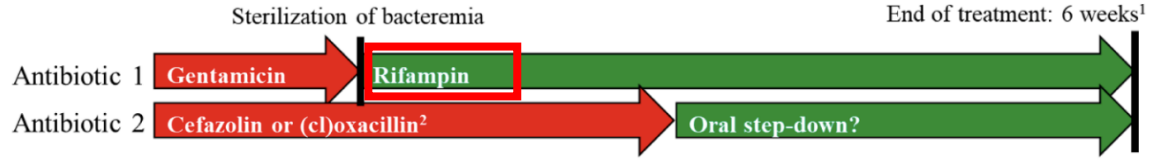
Recommandations : PVE à staphylocoques

Endocarditis Involving a Prosthetic Valve or Other Prosthetic Material Caused by Staphylococci (Table view)

Regimen	Dose* and Route	Duration, wk	Strength of Recommendation	Comments
Oxacillin-susceptible strains				
Nafcillin or oxacillin	12 g/24 h IV in 6 equally divided doses	≥6	*Class I; Level of Evidence B*	Vancomycin should be used in patients with immediate-type hypersensitivity reactions to β-lactam antibiotics (see Table 5 for dosing guidelines); cefazolin may be substituted for nafcillin or oxacillin in patients with non–immediate-type hypersensitivity reactions to penicillins.
Plus				
Rifampin	900 mg per 24 h IV or orally in 3 equally divided doses	≥6		
Plus				
Gentamicin†	3 mg/kg per 24 h IV or IM in 2 or 3 equally divided doses	2		

In patients with PVE due to methicillin-susceptible staphylococci, (flu)cloxacillin or cefazolin with rifampin for at least 6 weeks and gentamicin for 2 weeks is recommended using the following doses:[264,314,316–318,320]			
Adult antibiotic dosage and route			
(Flu)cloxacillin[c]	12 g/day i.v. in 4–6 doses	I	B
Cefazolin	6 g/day i.v. in 3 doses		
Rifampin	900 mg/day i.v. or orally in 3 equally divided doses		
Gentamicin[d]	3 mg/kg/day i.v. or i.m. in 1 (preferred) or 2 doses		

Treatment of methicillin-susceptible staphylococcal prosthetic valve endocarditis



[1]6 weeks after the first day of effective therapy: negative blood culture in the case of initial positive blood culture or day of surgery if valve cultures are positive.
[2]The choice of cefazolin *vs* (cl)oxacillin should follow the same rules than for NVE

Baddour Circulation 2015, Delgado Eur Heart J 2023, Le Moing ID now 2025

Recommandations : IOA à staphylocoques

V. What is the medical treatment for a patient with PJI following 1-stage exchange?

Recommendations

Staphylococcal PJI

31. Two to 6 weeks of pathogen-specific intravenous antimicrobial therapy in combination with rifampin 300–450 mg orally twice daily followed by rifampin plus a companion oral drug for a total of 3 months is recommended (Table 2; **C-III**).

III. What is the medical treatment for a patient with PJI following debridement and retention of the prosthesis?

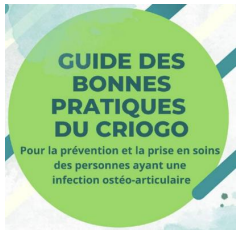
Recommendations

Staphylococcal PJI

23. Two to 6 weeks of a pathogen-specific intravenous antimicrobial therapy (Table 2) in combination with rifampin 300–450 mg orally twice daily followed by rifampin plus a companion oral drug for a total of 3 months for a THA infec-

Tableau 2. Proposition de traitement antibiotique selon le micro-organisme retrouvé

	Traitement initial	Relais oral exclusif[1]
Staphylocoques multisensibles[2]		
Poids ≤ 70 kg	Oxacilline ou cloxacilline[3] IV 1,5 g/4 h **OU** Cefazoline[4] 1 g/6 h IV	Ofloxacine[5,6,7] à la dose de 200 mg 2x/j **ET** rifampicine[8,9] 600 mg 1x/j



Q11 : La rifampicine est la molécule de choix dans le traitement des IOA à staphylocoques sensibles sur matériel étranger. (10)

Osmon CID 2013, HAS 2014, CRIOGO 2023

Recommandations : IOA à staphylocoques

V. What is the medical treatment for a patient with PJI following 1-stage exchange?

Recommendations

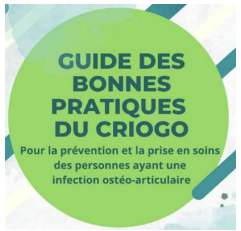
Staphylococcal PJI

31. Two to 6 weeks of
microbial ther
oral
drug

III. Wh
followin **prosthesis?**
Recomm
Staphyloc *PJI*

23. Two to 6 weeks of a pathogen-specific intravenous antimicrobial therapy (Table 2) in combination with rifampin 300–450 mg orally twice daily followed by rifampin plus a companion oral drug for a total of 3 months for a THA infec-

	Ofloxacine[5,6,7] à la dose de 200 mg 2x/j
oline[4] 1 g/6 h IV	ET rifampicine[8,9] 00 mg 1x/j

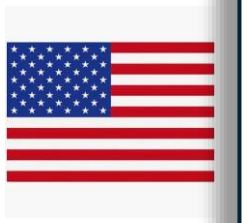


Q11 : La rifampicine est la molécule de choix dans le traitement des IOA à staphylocoques sensibles sur matériel étranger. (10)

Vieux et dépassé?

Osmon CID 2013, HAS 2014, CRIOGO 2023

Reco



V. What is the me
following 1-stage
Recommendatio
Staphylococcal PJ
31. Two to 6
microbial the
oral
drug

III. Wh
followi
Recomm
Staphyloc
23. Two to 6 w
microbial therapy (Table 2) in combination with rifampin 300–450 mg orally twice daily followed by rifampin plus a companion oral drug for a total of 3 months for a THA infec-

Debridement, antimicrobial therapy, and implant retention (DAIR) as curative strategy for acute periprosthetic hip and knee infections: a position paper of the European Bone & Joint Infection Society (EBJIS)

Irene K. Sigmund[1], Tristan Ferry[2], Ricardo Sousa[3], Alex Soriano[4,5,6], Willem-Jan Metsemakers[7,8],

Recommendation

A total antibiotic duration of 12 weeks after DAIR including an induction period of 1 week of intravenous (IV) treatment can be recommended. For staphylococci, a combination of a fluoroquinolone with rifampicin is recommended and for Gram-negative fluoroquinolones.

J. Bone Joint Infect., 10, 101–138, 2025

sensibles sur matériel étranger. (10)

Osmon CID 2013, HAS 2014, CRIOGO 2023

Etudes in vitro

Comparative Activities of Daptomycin, Linezolid, and Tigecycline against Catheter-Related Methicillin-Resistant *Staphylococcus* Bacteremic Isolates Embedded in Biofilm

Issam Raad[1], Hend Hanna[1], Ying Jiang[1], Tanya Dvorak[1], Ruth Reitzel[1], Gassan Chaiban[1], Robert Sherertz[2], Ray Hachem[1,*]

[1] Department of Infectious Diseases, Infection Control and Employee Health, University of Texas M. D. Anderson Cancer Center, Houston, Texas

[2] Division of Infectious Diseases, Bowman Gray School of Medicine, Winston-Salem, North Carolina

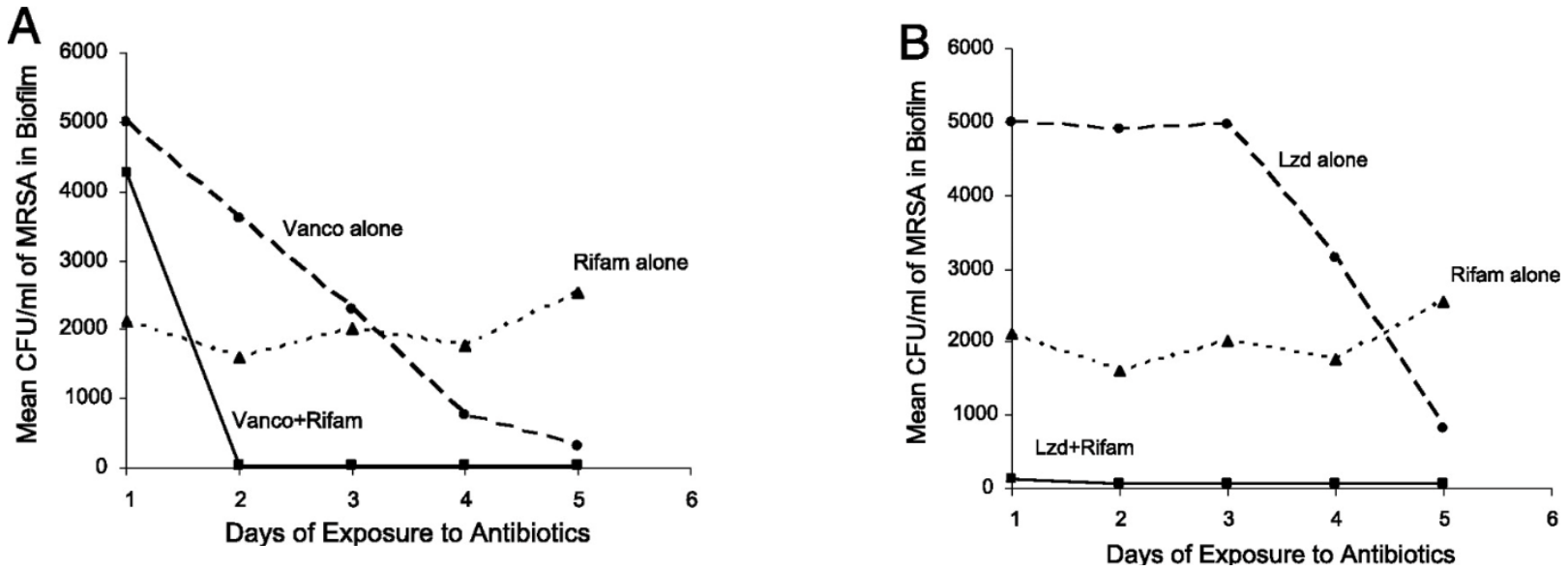


FIG. 3. Time-kill activities of rifampin (Rifam) in combination with either vancomycin (Vanco) (A) or linezolid (Lzd) (B) against 10 strains of MRSA embedded in biofilm after 4-hour daily exposures over 5 days.

Etudes in vitro

Perspective

Controversy about the Role of Rifampin in Biofilm Infections: Is It Justified?

Nora Renz [1,2], Andrej Trampuz [1,*] and Werner Zimmerli [3]

Table 1. Cure rate in the guinea pig tissue cage infection model (copyright© American Society for Microbiology, Antimicrob Agents Chemother 63(2), e01746-18, 2019 [6]).

Microorganism	Antibiotic Regime	Cure Rate	p [a]	Reference
S. epidermidis B3972 (clinical strain)	Ciprofloxacin	0%	<0.01	Widmer et al. 1990 [16]
	Ciprofloxacin + Rifampin	100%		
S. aureus ATCC 29,213 (MSSA)	Vancomycin	0%	<0.01	Zimmerli et al. 1994 [25]
	Vancomycin + Rifampin	75%		
	Ciprofloxacin	17%	<0.001	
	Ciprofloxacin + Rifampin	92%		
S. aureus ATCC 29,213 (MSSA)	Levofloxacin	0%	<0.001	Trampuz et al. 2007 [26]
	Levofloxacin + Rifampin	88%		
	Levofloxacin + ABI-0043 [b]	92%		
S. aureus ATCC 43,300 (MRSA)	Linezolid	0%	<0.001	Baldoni et al. 2009 [27]
	Linezolid + Rifampin	60%		
	Levofloxacin + Rifampin	91%		
S. aureus ATCC 43,300 (MRSA)	Daptomycin	0%	<0.001	John et al. 2009 [28]
	Daptomycin + Rifampin	67%		
S. aureus ATCC 43,300 (MRSA)	Dalbavancin	0%	<0.001	Baldoni et al. 2013 [29]
	Dalbavancin + Rifampin	36%		
S. aureus ATCC 43,300 (MRSA)	Fosfomycin	0%	<0.001	Mihailescu et al. 2014 [30]
	Fosfomycin + Rifampin	83%		

[a] Fisher's exact test for categorical variables, statistical significance is defined as $p < 0.05$. [b] ABI-0043 is a derivative of Rifalazil, which is a rifamycin derivative.

Etudes in vitro

Perspective

Controversy about the Role of Rifampin in Biofilm Infections: Is It Justified?

Nora Renz [1,2], Andrej Trampuz [1,*] and Werner Zimmerli [3]

6. Conclusions

Taken together, the controversy about the role of rifampin in biofilm infections is not justified. There is abundant data from in-vitro and animal experiments, as well as clinical studies confirming its antibiofilm effect in patients with staphylococcal orthopedic implant-associated infections undergoing DAIR. Thus, one study with multiple weaknesses should not unsettle clinicians. An RCT with appropriate sample size, optimal choice of antimicrobials, standardized surgical interventions and accurate definition of treatment failure would be desirable. However, given the existing strong evidence demonstrating the benefit of rifampin, the conduction of such a clinical study would not comply with ethical standards and would probably not be approved by ethics committees.

Table 1. Cure rate in the guinea pig tissue cage infection model (copyright© American Society for Microbiology, Antimicrob Agents Chemother 63(2), e01746-18, 2019 [6])

Microorganism				
S. epidermidis B3[illegible] (clinical strain				
S. aureus ATC[illegible] 29,213 (MSSA				
S. aureus ATC[illegible] 29,213 (MSSA				
S. aureus ATC[illegible] 43,300 (MRSA)	Levofloxacin + Rifampin	91%		
S. aureus ATCC 43,300 (MRSA)	Daptomycin Daptomycin + Rifampin	0% 67%	<0.001	John et al. 2009 [28]
S. aureus ATCC 43,300 (MRSA)	Dalbavancin Dalbavancin + Rifampin	0% 36%	<0.001	Baldoni et al. 2013 [29]
S. aureus ATCC 43,300 (MRSA)	Fosfomycin Fosfomycin + Rifampin	0% 83%	<0.001	Mihailescu et al. 2014 [30]

[a] Fisher's exact test for categorical variables, statistical significance is defined as $p < 0.05$. [b] ABI-0043 is a derivative of Rifalazil, which is a rifamycin derivative.

Fin de l’histoire?

Original article

International experts' practice in the antibiotic therapy of infective endocarditis is not following the guidelines

CMI CLINICAL MICROBIOLOGY AND INFECTION
ESCMID

- 13 centres
- Canada, Espagne, France, Israël, Pays-bas, USA, Suède
- Traitement conforme aux recommandations ESC AHA dans 58% des cas (54 à 62% pour les EI à staphylocoque)
- Janvier 2016

54 à 62% d'adhésion pour EI à staphylocoqu

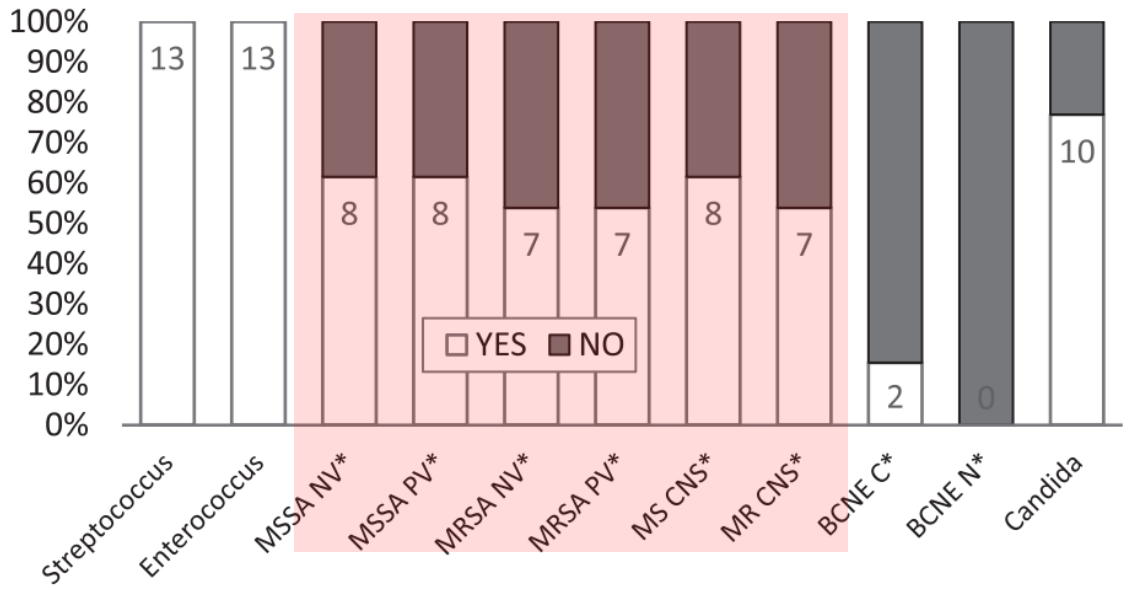


Fig. 1. Adherence to recommendations by microorganism/ conditions (figures in the bars indicate the number of centres adhering to the guidelines). Abbreviations: MSSA NV, methicillin susceptible *Staphylococcus aureus*—native valve; MSSA PV, MSSA—prosthetic valve; MRSA NV, methicillin-resistant *S. aureus*—native valve; MRSA PV, MRSA—prosthetic valve; MS CNS, methicillin-susceptible, coagulase-negative *Staphylococcus*; MR CNS, methicillin-resistant, coagulase-negative *Staphylococcus*; BCNE C, blood-culture-negative endocarditis—community-acquired; BCNE N, blood-culture-negative endocarditis—nosocomial.

Tissot-Dupont *et al.* Clin microbiol infect 2017

Original article

International experts' practice in the antibiotic therapy of infective endocarditis is not following the guidelines

CMI CLINICAL MICROBIOLOGY AND INFECTION
ESCMID

- 13 centres
- Canada, Espagne, France, Israël, Pays-bas, USA, Suède
- Traitement conforme aux recommandations ESC AHA dans 58% des cas (54 à 62% pour les EI à staphylocoque)
- Janvier 2016

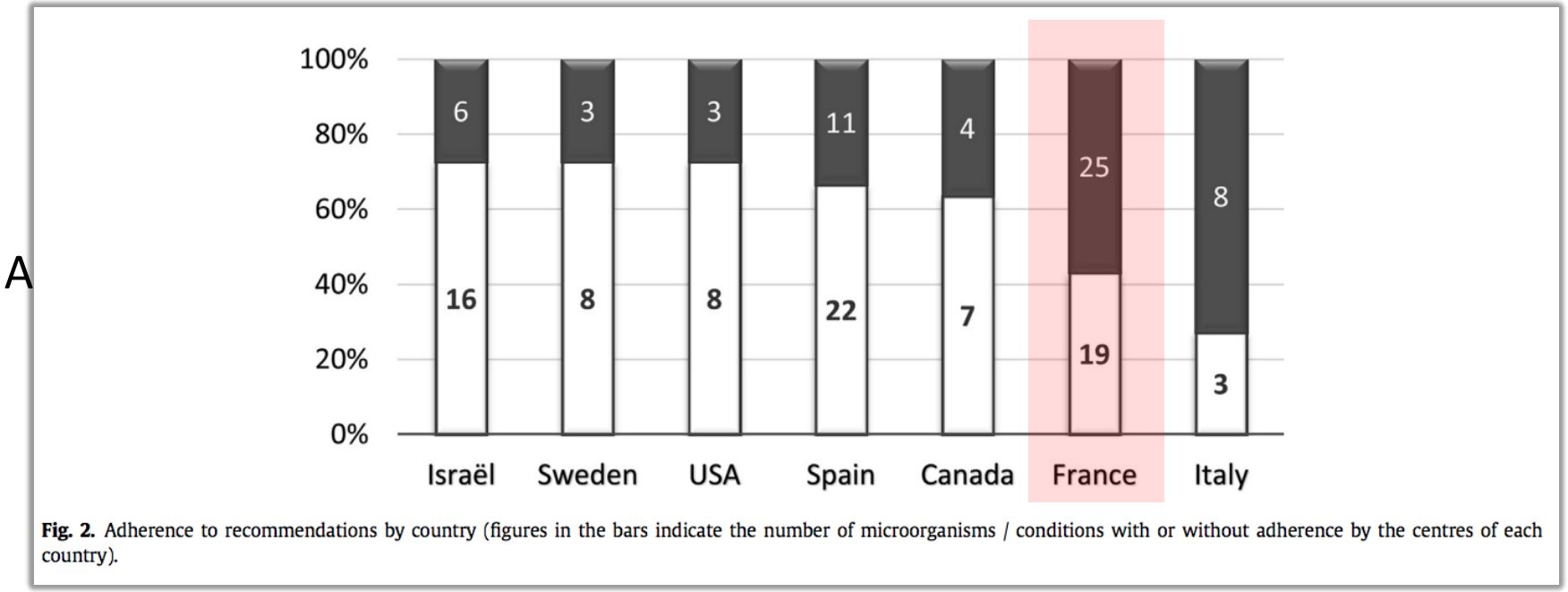
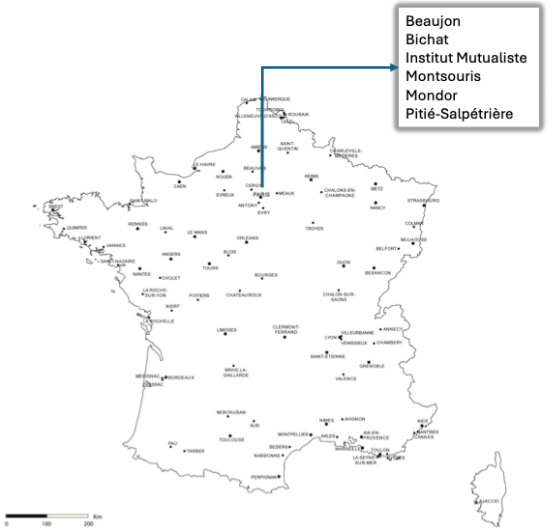


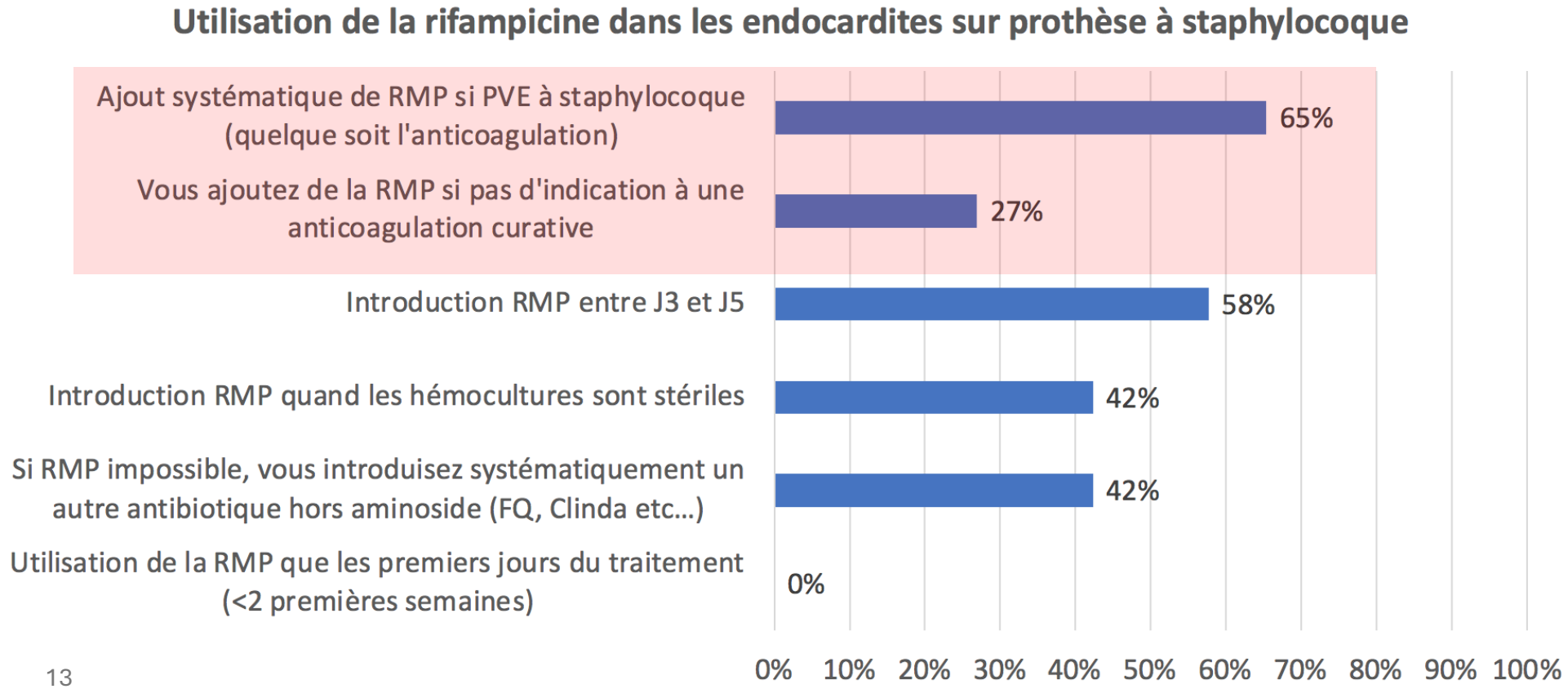
Fig. 2. Adherence to recommendations by country (figures in the bars indicate the number of microorganisms / conditions with or without adherence by the centres of each country).

Tissot-Dupont *et al.* Clin microbiol infect 2017

Comment les centres membres de l'AEPEI traitent une EI à staphylocoque ?



Enquête auprès de 26 centres AEPEI en 2022



Des données cliniques!

Outcome and Predictors of Treatment Failure in Total Hip/Knee Prosthetic Joint Infections Due to *Staphylococcus aureus*

Eric Senneville, Donatienne Joulie, Laurence Legout, Michel Valette, Hervé Dezèque, Eric Beltrand, Bernadette Roselé, Thibaud d'Escrivan, Caroline Loïez, Michèle Caillaux, Yazdan Yazdanpanah, Carlos Maynou, and Henri Migaud

Centre National de Référence des Infections Ostéo-Articulaires Nord-Ouest, Roger Salengro Faculty Hospital of Lille, Lille, France

- Rétrospectif
- 98 patients

Variable
Debridement-retention (n = 41)
One-stage replacement (n = 14)
Two-stage replacement (n = 26)
Arthroplastic resection (n = 9)
Arthrodesis (n = 8)
Total

Table 2. Characteristics of Surgical Procedures and Antibiotic Therapy in 98 Patients With Total Hip or Knee Prosthesis Infection Due to *Staphylococcus aureus* According to Outcome

Characteristic	Remission (n = 77)	Treatment failure (n = 21)	P
Delay from onset of infection to revision, mean days ± SD	119.4 ± 238.2	79 ± 111.7	.80
Removal of all infected implants	45 (58.4)	12 (57.1)	.99
Gentamicin-loaded cement spacer[a]	27 (35.1)	7 (33.3)	.84
Adequate empirical postsurgical antibiotic therapy[b]	73 (94.8)	17 (80.9)	.04
Rifampin-fluoroquinolone combination therapy	37 (48.1)	2 (9.5)	.001
Rifampin combination therapy	58 (75.3)	10 (47.6)	.002
Total duration of antibiotic therapy, mean days ± SD	165.7 ± 108.8	145.1 ± 101.6	.44

NOTE. Data are no. (%) of patients unless otherwise indicated. SD, standard deviation.

[a] Including 26 patients with 2-stage replacement and 8 with arthrodesis.

[b] At least 1 antibiotic agent active against intraoperative pathogen(s).

Senneville *et al.* CID 2011

- Etude rétrospective
- 6 hôpitaux dans 4 pays (Espagne – Portugal – USA – Pays-Bas)
- IPOA aigue hanche/genou
- Staphylocoque (SA ou SCN)
- DAIR avec changement des pièces mobiles « si possible »
- Posologie de RMP : 600 à 900 mg/jour
- CJP : échec de traitement à un an (reprise chirurgicale/suppressif/DCD)

Beldman *et al*. CID 2021

Clinical Infectious Diseases

MAJOR ARTICLE

If, When, and How to Use Rifampin in Acute Staphylococcal Periprosthetic Joint Infections, a Multicentre Observational Study

Mark Beldman,[1] Claudia Löwik,[1] Alex Soriano,[2] Laila Albiach,[2] Wierd P. Zijlstra,[3] Bas A. S. Knobben,[4] Paul Jutte,[1] Ricardo Sousa,[5] André Carvalho,[5] Karan Goswami,[6] Javad Parvizi,[6] Katherine A. Belden,[7] and Marjan Wouthuyzen-Bakker[8]

- Etude rétrospective
- 6 hôpitaux dans 4 pays (Espagne – Portugal – USA – Pays-Bas)
- IPOA aigue hanche/genou
- Staphylocoque (SA ou SCN)
- DAIR avec changement des pièces mobiles « si possible »
- Posologie de RMP : 600 à 900 mg/jour
- CJP : échec de traitement à un an (reprise chirurgicale/suppressif/DCD)

	Total patient group (n= 669)		
	Rifampin (n = 407)	No rifampin (n = 262)	*P* value
Baseline characteristics			
Male sex	43.5% (177/407)	43.9% (115/262)	.92
Age >80 years	23.4% (95/406)	18.3% (47/257)	.12
BMI >30 kg/m^2	48.1 % (177/368)	55.6% (138/248)	.07
Medical history			
Diabetes	20.6% (84/407)	17.9% (47/262)	.39
Renal failure	6.9% (28/407)	6.9% (18/262)	.99
COPD	18.4% (75/407)	15.6% (41/262)	.35
Liver cirrhosis	3.7% (15/407)	5.3% (14/262)	.30
Malignancy	14.3% (58/407)	14.5% (38/262)	.93
Rheumatoid arthritis	7.4% (30/407)	3.3% (22/262)	.63
Characteristics implant			
Primary	83% (338/407)	80.5% (206/256)	.40
Cemented	77.3% (310/401)	64.7% (152/235)	.001
Fracture as indication prosthesis	15.5% (63/407)	16.5% (42/254)	.72
Clinical presentation			
Serum CRP >115 mg/L	31.1% (124/399)	34.3% (87/254)	.40
Serum Leucocytes >12 cells/μL	28.5% (113/396)	26.9% (60/223)	.66
Late acute PJI	3.2% (13/406)	15.4% (39/253)	<.001
Identified micro-organism			
Staphylococcus aureus	61.9% (252/407)	56.9% (149/262)	.19
Polymicrobial	37.8% (154/407)	37.8% (99/262)	.98
Surgical treatment			
Exchange modular components	45.6% (182/399)	45.2% (104/230)	.92
DAIR >4 wks after surgery[a]	18.6% (73/393)	19.6% (42/214)	.75

Abbreviations: BMI, body mass index; COPD, chronic obstructive pulmonary disease; CRP, C-reactive protein; DAIR, debridement, antibiotics and implant retention; PJI, periprosthetic joint infections.

[a]For early acute (post-operative) PJI.

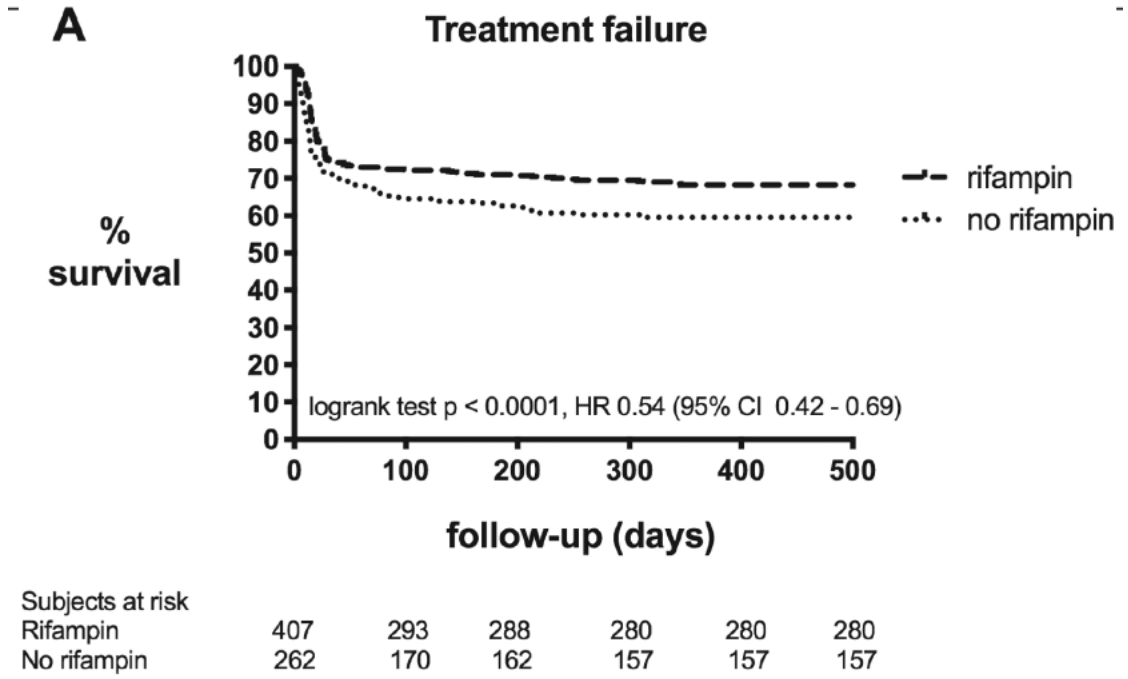
Beldman *et al.* CID 2021

Clinical Infectious Diseases

MAJOR ARTICLE

If, When, and How to Use Rifampin in Acute Staphylococcal Periprosthetic Joint Infections, a Multicentre Observational Study

Mark Beldman,[1] Claudia Löwik,[1] Alex Soriano,[2] Laila Albiach,[2] Wierd P. Zijlstra,[3] Bas A. S. Knobben,[4] Paul Jutte,[1] Ricardo Sousa,[5] André Carvalho,[5] Karan Goswami,[6] Javad Parvizi,[6] Katherine A. Belden,[7] and Marjan Wouthuyzen-Bakker[8]



Subjects at risk						
Rifampin	407	293	288	280	280	280
No rifampin	262	170	162	157	157	157

CJP :

- 32,2 % (131/407) traités par rifampicine
- 54,2 % (142/262) sans rifampicine (p < 0,001).

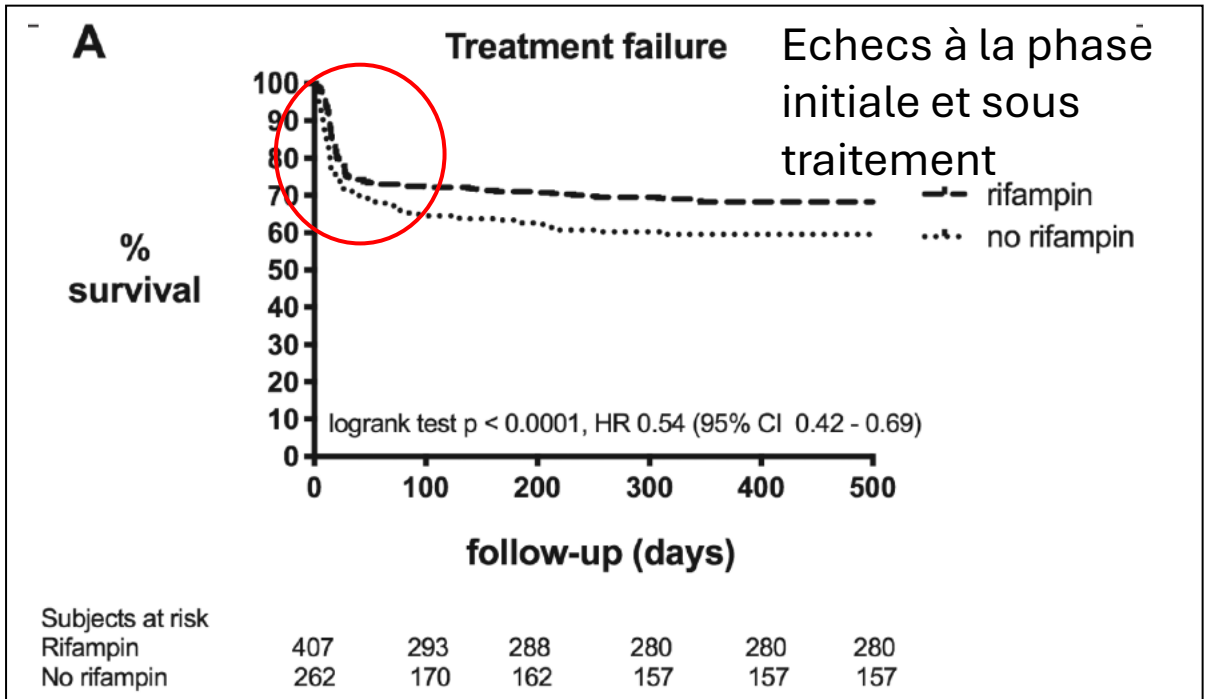
Beldman *et al.* CID 2021

Clinical Infectious Diseases

MAJOR ARTICLE

If, When, and How to Use Rifampin in Acute Staphylococcal Periprosthetic Joint Infections, a Multicentre Observational Study

Mark Beldman,[1] Claudia Löwik,[1] Alex Soriano,[2] Laila Albiach,[2] Wierd P. Zijlstra,[3] Bas A. S. Knobben,[4] Paul Jutte,[1] Ricardo Sousa,[5] André Carvalho,[5] Karan Goswami,[6] Javad Parvizi,[6] Katherine A. Belden,[7] and Marjan Wouthuyzen-Bakker[8]



Echecs à la phase initiale et sous traitement

CJP :

- 32,2 % (131/407) traités par rifampicine
- 54,2 % (142/262) sans rifampicine (p < 0,001).

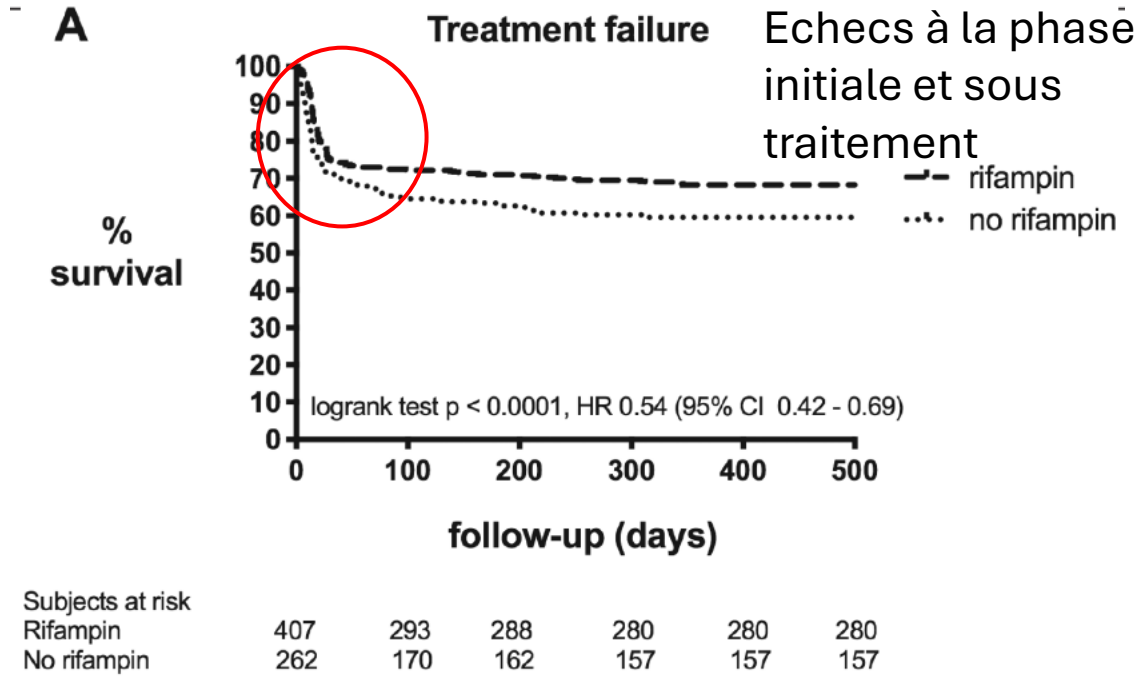
Beldman *et al.* CID 2021

Clinical Infectious Diseases

MAJOR ARTICLE

If, When, and How to Use Rifampin in Acute Staphylococcal Periprosthetic Joint Infections, a Multicentre Observational Study

Mark Beldman,[1] Claudia Löwik,[1] Alex Soriano,[2] Laila Albiach,[2] Wierd P. Zijlstra,[3] Bas A. S. Knobben,[4] Paul Jutte,[1] Ricardo Sousa,[5] André Carvalho,[5] Karan Goswami,[6] Javad Parvizi,[6] Katherine A. Belden,[7] and Marjan Wouthuyzen-Bakker[8]



Echecs à la phase initiale et sous traitement

CJP :

- 32,2 % (131/407) traités par rifampicine
- 54,2 % (142/262) sans rifampicine (p < 0,001).

Timing : Grande variabilité dans le délai après débridement chirurgical.

Impact du délai sur l'échec thérapeutique

- Rifampicine ≤ 5 jours : **40,8 % d'échec**
- Entre J5–J9 : **20,9 %**
- ≥ 10 jours : **21,4 %** *(p = 0,001)*

Facteurs associés à l'introduction précoce

- Plus d'infections à **S. aureus**
- Moins de **changement des composants mobiles**
- Malgré cela, **le délai d'introduction reste un facteur indépendant d'échec** (analyse multivariée).

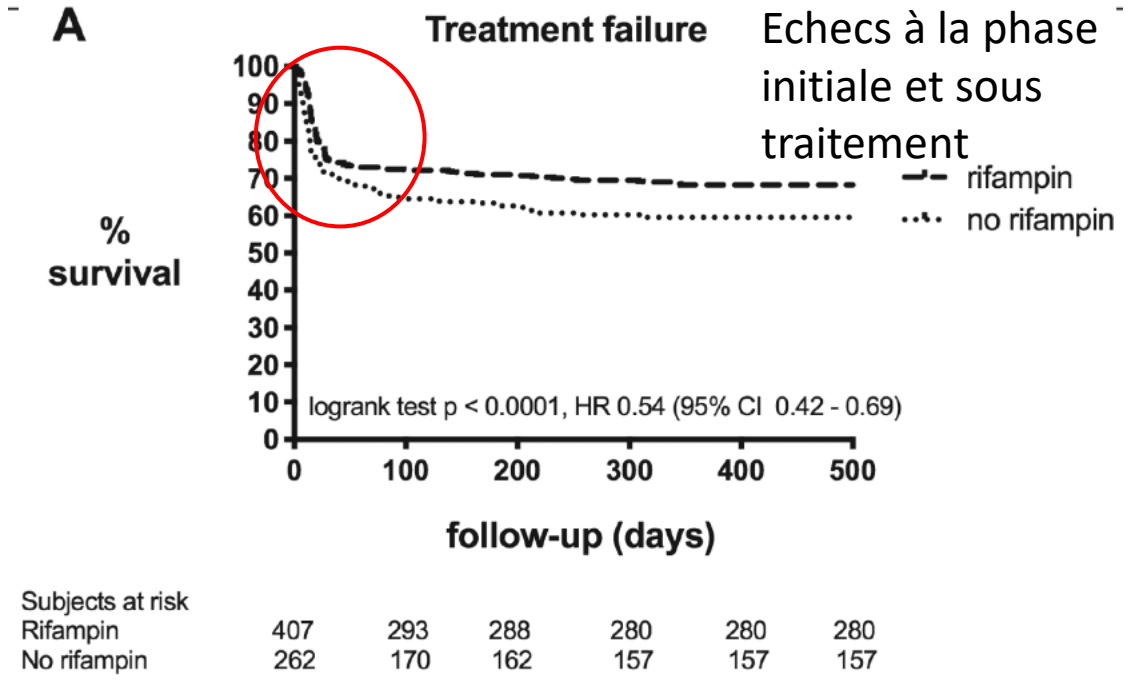
Beldman *et al.* CID 2021

Clinical Infectious Diseases

MAJOR ARTICLE

If, When, and How to Use Rifampin in Acute Staphylococcal Periprosthetic Joint Infections, a Multicentre Observational Study

Mark Beldman,[1] Claudia Löwik,[1] Alex Soriano,[2] Laila Albiach,[2] Wierd P. Zijlstra,[3] Bas A. S. Knobben,[4] Paul Jutte,[1] Ricardo Sousa,[5] André Carvalho,[5] Karan Goswami,[6] Javad Parvizi,[6] Katherine A. Belden,[7] and Marjan Wouthuyzen-Bakker[8]



Echecs à la phase initiale et sous traitement

CJP :

- 32,2 % (131/407) traités par rifampicine
- 54,2 % (142/262) sans rifampicine (p < 0,001).

Impact du délai sur l'échec thérapeutique

- Rifampicine ≤ 5 jours : **40,8 % d'échec**
- Entre J5–J9 : **20,9 %**
- ≥ 10 jours : **21,4 %** *(p = 0,001)*

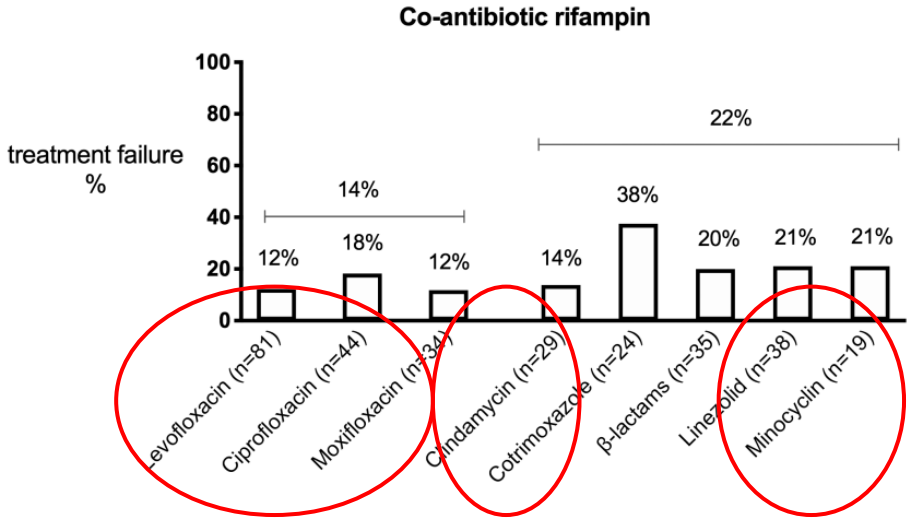


Figure 4. Treatment failure according to the co-antibiotic administered with rifampin.

Beldman *et al.* CID 2021

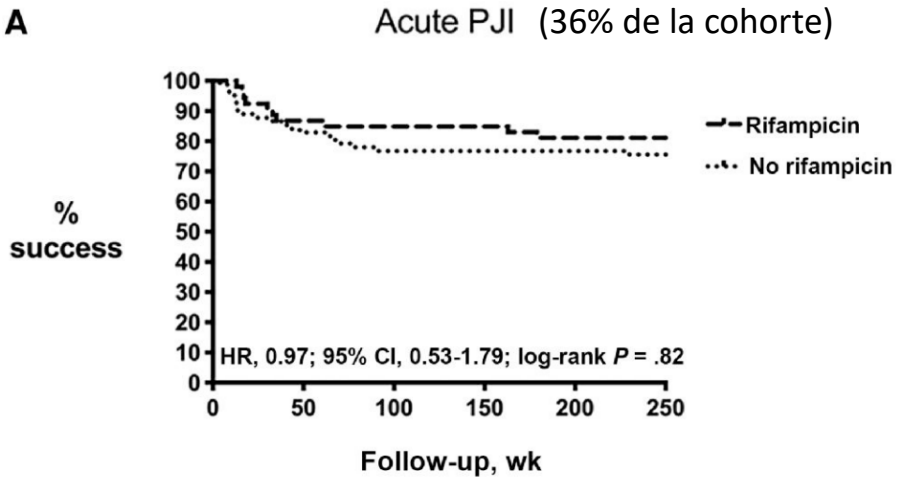
Open Forum Infectious Diseases
MAJOR ARTICLE

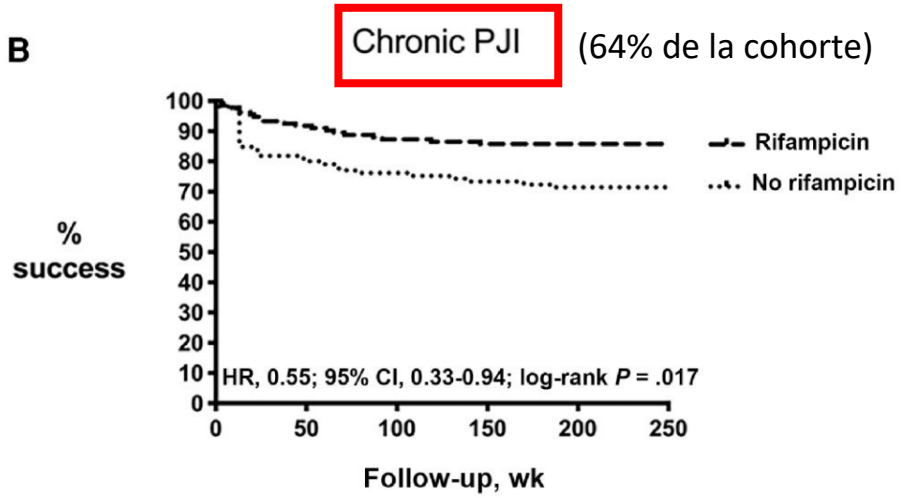
Changements?

Should We Use Rifampicin in Periprosthetic Joint Infections Caused by Staphylococci When the Implant Has Been Exchanged? A Multicenter Observational Cohort Study

Tobias Siegfried Kramer,[1,2,3] Alex Soriano,[4] Sarah Tedeschi,[5,6] Antonia F. Chen,[7] Pierre Tattevin,[8] Eric Senneville,[9] Joan Gomez-Junyent,[10] Victoria Birlutiu,[11] Sabine Petersdorf,[12] Vicens Diaz de Brito,[13] Ignacio Sancho Gonzalez,[14] Katherine A. Belden,[15] and Marjan Wouthuyzen-Bakker[16]; on behalf of the ESCMID Study Group on Implant Associated Infections (ESGIAI)

- Etude rétrospective multicentrique
- ESGIAI
- 375 patients ayant une IPOA à staphylocoque (PTG 49% PTH 49%) :
  - 1/3 Changement en 1 temps
  - 2/3 Changement en 2 temps
- RMP prescrite dans 49,9% des cas.
- Pas de différence statistiquement significative du taux d'échec entre les patients recevant de la rifampicine (22,5 %, 42/187) et ceux n'en recevant pas (31,4 %, 59/188 ; p = 0,051)





Kramer *et al*. OFID 2023

Non-compliance with IDSA guidelines for patients presenting with methicillin-susceptible *Staphylococcus aureus* prosthetic joint infection is a risk factor for treatment failure☆

Le non-respect des recommandations de l'IDSA pour les infections de prothèses à Staphylococcus aureus *sensible à la méthicilline est un risque d'échec*

A. Bouaziz[a], I. Uçkay[b], S. Lustig[c,d,e], A. Boibieux[a], D. Lew[b], P. Hoffmeyer[b], P. Neyret[c,d], C. Chidiac[a,d,e,f], T. Ferry[a,d,e,f,*]

- 89 patients inclus, avec un suivi moyen de 2,8 ans.
- La non-adhérence aux recommandations chirurgicales de l'IDSA était associée à un risque plus élevé d'échec thérapeutique (HR 2,16 ; IC95 % 1,02–4,7).
- Le score ASA, une antibiothérapie inadéquate et l'utilisation **d'un schéma à base de rifampicine n'influençaient pas significativement le pronostic.**

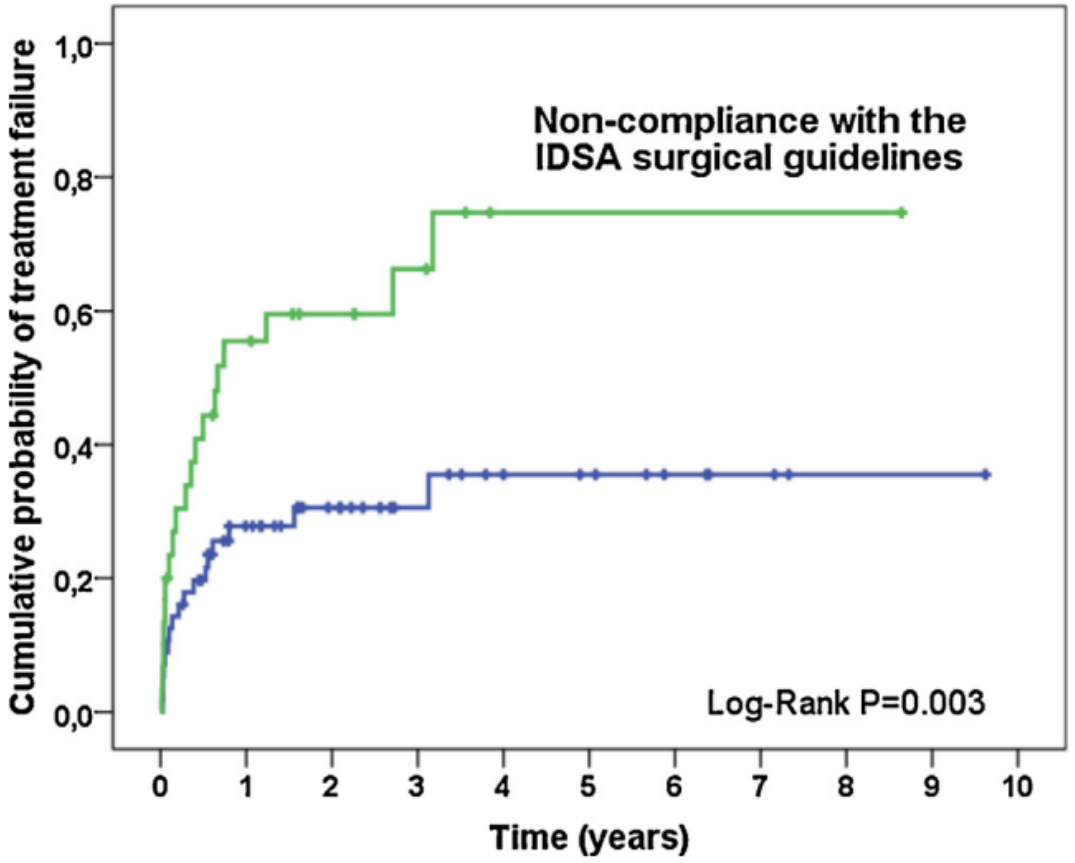


Fig. 1. Kaplan Meier curve with the cumulative probability of treatment failure by surgical treatment for patients presenting with methicillin-sensitive *Staphylococcus aureus* prosthetic joint infection during long-term follow-up.
Courbe de Kaplan-Meier montrant la probabilité cumulée de survenue d'un échec selon la prise en charge chirurgicale des patients présentant une infection de prothèse à Staphylococcus aureus sensible à la méthicilline

La rifampicine un antibiotique de la zone grise?

Probabilité de succès élevée

Probabilité de succès faible

Aigu + changement en 1 temps **DAIR** **Chronique avec changement** **Chronique avec DAIR**

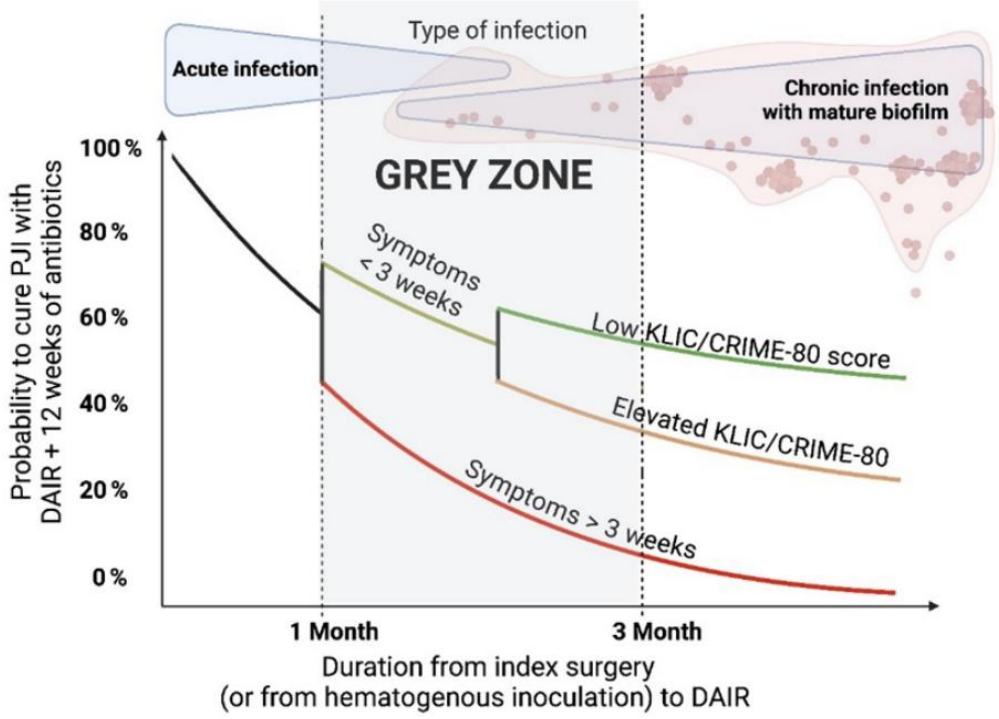


Figure 1. Probability of curing periprosthetic joint infection without consideration of the causing pathogen, its susceptibility pattern, presence of bacteraemia, the soft tissue envelope, the type of surgery, and host and clinical factors.

Bactériémie

Adjunctive rifampicin for *Staphylococcus aureus* bacteraemia (ARREST): a multicentre, randomised, double-blind, placebo-controlled trial

Guy E Thwaites, Matthew Scarborough, Alexander Szubert, Emmanuel Nsutebu, Robert Tilley, Julia Greig, Sarah A Wyllie, Peter Wilson,

- 758 patients avec bactériémie à *Staphylococcus aureus*.
- Étude randomisée : rifampicine vs placebo
- Rifampicine : 600–900 mg/j pendant 2 semaines (per os ou IV).
- Administrée en plus de l'antibiothérapie standard.
- Critère principal : échec bactériologique, récidive ou décès à 12 semaines.
- Aucun bénéfice de la rifampicine : 17 % vs 18 % (HR 0,96 ; p = 0,81).
- Plus d'effets indésirables et d'interactions médicamenteuses avec la rifampicine.

Population à très faible risque++++

	Placebo (n=388)	Rifampicin (n=370*)	Total (N=758*)
Men	246 (63%)	249 (67%)	495 (65%)
Age at last birthday (years)	66 (51–76)	64 (49–76)	65 (50–76)
Mode of acquisition of infection*			
Community acquired	240 (62%)	245 (66%)	485 (64%)
Nosocomial infection (onset ≥48 h after admission)	76 (20%)	56 (15%)	132 (17%)
Health-care associated (all other)	72 (19%)	68 (18%)	140 (18%)
Meticillin-resistant *Staphylococcus aureus*	21 (5%)	26 (7%)	47 (6%)
Main focus or foci of infection*†			
Native heart valve	16 (4%)	17 (5%)	33 (4%)
Native joint	34 (9%)	29 (8%)	63 (8%)
Prosthetic heart valve or joint‡	5 (1%)	9 (2%)	14 (2%)
Implanted vascular device (other than intravenous catheter)	23 (6%)	13 (4%)	36 (5%)
Deep tissue infection or abscess	94 (24%)	82 (22%)	176 (23%)
Central or peripheral intravenous catheter	67 (17%)	63 (17%)	130 (17%)
Skin or soft tissue (excluding wounds)	66 (17%)	72 (19%)	138 (18%)
Surgical wound	15 (4%)	10 (3%)	25 (3%)
Pneumonia or urinary tract infection	30 (8%)	30 (8%)	60 (8%)
Not established	67 (17%)	72 (19%)	139 (18%)
Any deep-seated focus§	159 (41%)	142 (38%)	301 (40%)
Admitted to intensive care unit*	36 (9%)	34 (9%)	70 (9%)

Thwaites *et al.* Lancet 2018

Bactériémie

- 758 pati
  Staphyl
- Étude ra
- Rifampi
  semaine
- Adminis
  standar
- Critère
  récidive
- Aucun b
  18 % (H
- Plus d'e
  médica

Population à très faible risque++++

Adjunctive rifampicin for *Staphylococcus aureus* bacteraemia (ARREST): a multicentre, randomised, double-blind, placebo-controlled trial

Peter Wilson,

	Bacteriological failure or recurrence		
	Placebo	Rifampicin	p value
Total randomised	388	370	..
Total events	71 (18%)	62 (17%)	0·81
Failure	5 (1%)	4 (1%)	0·82
Failure due to slow resolution	3 (1%)	1 (<1%)	..
Recurrence	16 (4%)	3 (1%)	0·01
Death without either	50 (13%)	55 (15%)	0·30

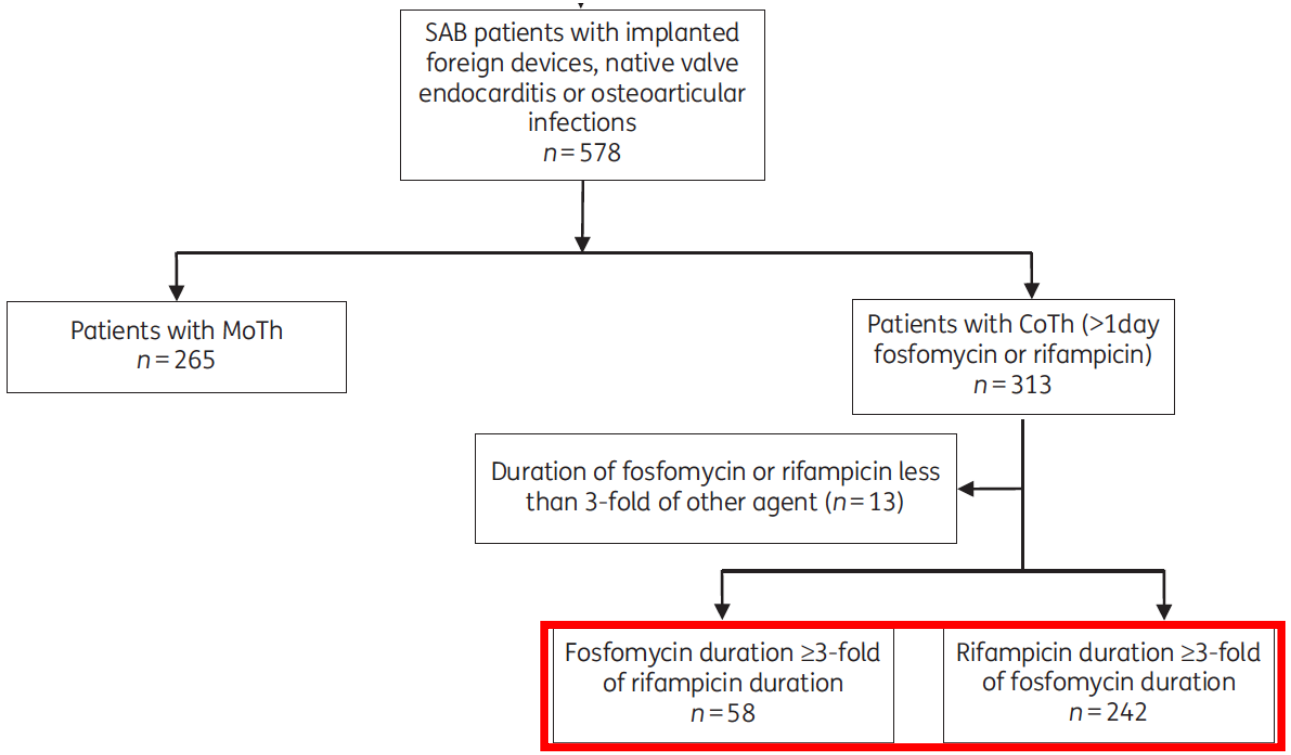
Trop peu complexes?

			Total (N=758*)
			495 (65%)
			65 (50–76)
			485 (64%)
			132 (17%)
			140 (18%)
			47 (6%)
			33 (4%)
			63 (8%)
			14 (2%)
			36 (5%)
			176 (23%)
			130 (17%)
			138 (18%)
			25 (3%)
Pneumonia or urinary tract infection	30 (8%)	30 (8%)	60 (8%)
Not established	67 (17%)	72 (19%)	139 (18%)
Any deep-seated focus§	159 (41%)	142 (38%)	301 (40%)
Admitted to intensive care unit*	36 (9%)	34 (9%)	70 (9%)

Combination therapy with rifampicin or fosfomycin in patients with *Staphylococcus aureus* bloodstream infection at high risk for complications or relapse: results of a large prospective observational cohort

Journal of Antimicrobial Chemotherapy

- « difficult-to-treat » scenarios (≠ arrest)
- Analyse post-hoc de données issues de la cohorte INSTINCT:
  - BSA
  - Cologne et Frieburg 2006-2012
  - Evaluation systématique par un infectiologue
- Inclusion : IOA (avec ou sans matériel) – EI native – patients ayant du matériel étranger
- Comparaison des patients ayant reçu monothérapie versus bithérapie avec RMP ou fosfomycine



Rieg *et al.* J Antimicrob chemother 2020

Combination therapy with rifampicin or fosfomycin in patients with *Staphylococcus aureus* bloodstream infection at high risk for complications or relapse: results of a large prospective observational cohort

Journal of Antimicrobial Chemotherapy

- Cohorte totale:
  - Réduction du critère composite décès/complications à J180 (HR 0.65, CI 0.46–0.92)
- Pas de bénéfice de la RMP si NVE ou IOA
- Bénéfice si présence de matériel étranger (prothèse ostéo-articulaire/valvulaire/vasculaire et DIC)

Table 3. Inverse probability-weighted MSCM including treatment as time-dependent covariate, stratified by the subgroups of implanted foreign devices (*in situ* or infected), osteoarticular infections and infective endocarditis

	90 day mortality			Death or SAB-related late complications within 180 days		
Variable/subgroup	HR	95% CI	*P*	HR	95% CI	*P*
Implanted foreign devices (*in situ* or infected, *n* = 378)						
treatment						
MoTh (*n* = 219)	1			1		
CoTh (*n* = 159)	**0.57**	**0.36–0.91**	**0.020**	**0.53**	**0.35–0.79**	**0.002**
Osteoarticular infections (*n* = 214)						
treatment						
MoTh (*n* = 49)	1			1		
CoTh (*n* = 165)	0.59	0.29–1.21	0.153	0.74	0.43–1.28	0.283
Endocarditis (*n* = 129)						
treatment						
MoTh (*n* = 32)	1			1		
CoTh (*n* = 97)	0.93	0.41–2.10	0.859	1.20	0.52–2.79	0.674

MoTh, monotherapy; CoTh, combination therapy.
Only HRs for CoTh are reported; for the complete Cox regression of the implanted foreign device subgroup see Tables S9 and S10.
Balance check after IPTW in the subgroup of patients with implanted foreign devices is outlined in Table S4.
Significant values are shown in bold ($P < 0.05$).

Combination therapy with rifampicin or fosfomycin in patients with *Staphylococcus aureus* bloodstream infection at high risk for complications or relapse: results of a large prospective observational cohort

Journal of Antimicrobial Chemotherapy

- Groupe « matériel étranger implanté »:
  - 378 patients
  - 351 patients n'ayant pas d'infection prouvée de ce matériel (93%)
- Impact de la bithérapie sur les **dispositifs intravasculaires** (et non IPOA)

		90-day mortality			Death or SAB-related late complications within 180 days		
Variable	Subgroup	HR	95%-CI	p-value	HR	95%-CI	p-value
Orthopedic devices (in situ or infected, n=90)							
Treatment	MoTh (n=36)	1			1		
	CoTh (n=54)	0.57	0.23 – 1.45	0.238	0.76	0.32 – 1.79	0.525
Intravascular devices (in situ or infected, n=288)							
Treatment	MoTh (n=183)	1			1		
	CoTh (n=105)	0.58	0.33 – 1.03	0.063	0.54	0.33 – 0.89	0.015

Table S7 Inverse probability weighted marginal structural Cox proportional hazards models (MSCM) including treatment as time-dependent covariate. Stratification of patients with implanted foreign devices into the subgroups orthopedic devices (in situ or infected, n=90) and intravascular devices (in situ or infected, n=288). Only hazard ratios for CoTh are reported.

Combination therapy with rifampicin or fosfomycin in patients with *Staphylococcus aureus* bloodstream infection at high risk for complications or relapse: results of a large prospective observational cohort

Journal of Antimicrobial Chemotherapy

- Groupe « matériel étranger implanté »:
  - 378 patients
  - 351 patients d'infection p matériel (93
- Impact de la les **dispositifs intravasculaires** (et non IPOA)

Table S7). Finally, we reviewed all patients with SAB-related late complications and found that in 56% (19/34) of cases a foreign device was the cause of SAB relapse or late metastatic infection (Table S8). In another 12% (4/34) of patients the foreign device was considered to be a possible cause for relapse or late metastatic infection.

		90-day mortality			Death or SAB-related late complications within 180 days		
Variable	Subgroup	HR	95%-CI	p-value	HR	95%-CI	p-value
					1		
				5 0.238	0.76	0.32 – 1.79	0.525
Treatment	MoTh (n=183)	1			1		
	CoTh (n=105)	0.58	0.33 – 1.03	0.063	0.54	0.33 – 0.89	0.015

Table S7 Inverse probability weighted marginal structural Cox proportional hazards models (MSCM) including treatment as time-dependent covariate. Stratification of patients with implanted foreign devices into the subgroups orthopedic devices (in situ or infected, n=90) and intravascular devices (in situ or infected, n=288). Only hazard ratios for CoTh are reported.

Combination therapy with rifampicin or fosfomycin in patients with *Staphylococcus aureus* bloodstream infection at high risk for complications or relapse: results of a large prospective observational cohort

Journal of Antimicrobial Chemotherapy

- Groupe « mat
  implanté »:
  - 378 patients
  - 351 patients
    d'infection pr
    matériel (93%
- Impact de la b
  les dispositifs
  intravasculaires (et non IPOA)

Exemples: quelle antibiothérapie pour :

- Bactériémie à SAMS sur KT chez un patient ayant un LVAD?
- Endocardite sur valve native chez un patient ayant une prothèse vasculaire avec angioTDM/TEP neg?

					or SAB-related complications thin 180 days		
						95%-CI	p-value
						0.32 – 1.79	0.525
Treatment	MoTh (n=183)	1			1		
	CoTh (n=105)	0.58	0.33 – 1.03	0.063	0.54	0.33 – 0.89	0.015

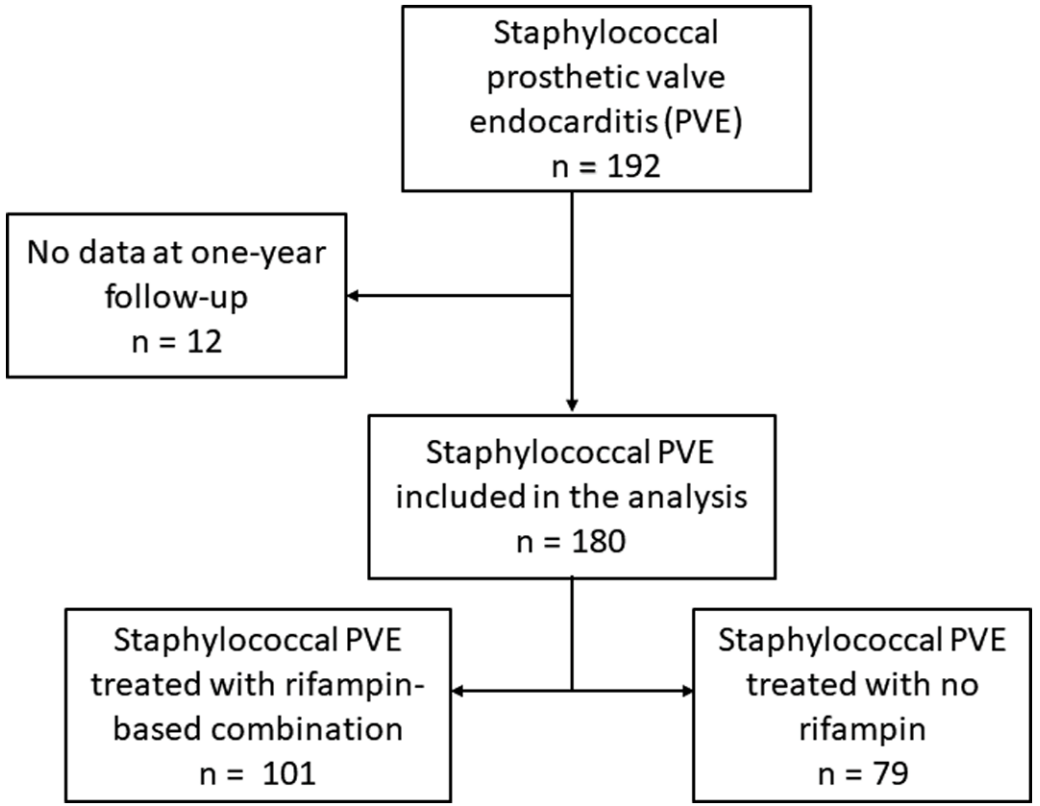
Table S7 Inverse probability weighted marginal structural Cox proportional hazards models (MSCM) including treatment as time-dependent covariate. Stratification of patients with implanted foreign devices into the subgroups orthopedic devices (in situ or infected, n=90) and intravascular devices (in situ or infected, n=288). Only hazard ratios for CoTh are reported.

Is Rifampin Use Associated With Better Outcome in Staphylococcal Prosthetic Valve Endocarditis? A Multicenter Retrospective Study

Clinical Infectious Diseases

MAJOR ARTICLE

- Etude observationnelle
- PVE à staphylocoque
- 2000-2018
- CJP : mortalité à 1 an
- 3 centres : Brest Nantes Rennes



56.1% des patients ont reçu un traitement avec de la rifampicine

Le Bot *et al.* Clin Infect Dis 2021

Table 2. Outcomes of 180 Episodes of Staphylococcal Prosthetic Valve Endocarditis Treated With or Without Rifampin

Variable	Total (n = 180)	Rifampin-based Combination (n = 101)	No Rifampin (n = 79)	Odds Ratio (95% CI)	*P* Value
Mortality					
In-hospital mortality	42 (23.6)	26 (25.7)	16 (20.3)	1.4 (.67–2.77)	.49
6-month mortality	58 (32.6)	36 (35.6)	22 (27.8)	1.4 (.76–2.72)	.34
1-year mortality	63 (35.4)	38 (37.6)	25 (31.6)	1.2 (.66–2.28)	.62
Relapse	13 (7.3)	6 (5.9)	7 (8.9)	.64 (.21–2.02)	.65
Vitamin K antagonist imbalance during endocarditis	21 (33.9)	15 (42.9)	6 (22.2)	2.63 (.85–8.11)	.15
Bleeding complication	23 (12.9)	13 (12.8)	10 (12.7)	1.02 (.42–2.46)	.85
Length of stay, days	37 ± 17.6	42.3 ± 18.6	31.3 ± 14.0	…	<.0001

Quantitative variables are expressed as mean ± standard deviation; qualitative variables are expressed by numbers (%).

Abbreviation: CI, confidence interval.

	Univariate				Multivariate	
Variable	Dead During the 1-year Follow-up (n = 63)	Alive at 1 year (n = 117)	Odds Ratio (95% CI)	*P* Value	Odds Ratio (95% CI)	*P* Value
Definite endocarditis (modified Duke criteria)	57 (90.5)	92 (78.6)	2.38 (.91–6.19)	.11	7.15 (1.47–34.77)	.018
Cerebral emboli	27 (42.9)	26 (22.2)	2.62 (1.35–5.10)	.006	2.95 (1.30–6.70)	.009
Staphylococcus aureus	45 (71.4)	69 (59.0)	1.74 (.90–3.36)	.14		
Methicillin-resistant *S. aureus*	9 (14.3)	8 (6.8)	2.27 (.83–6.22)	.17	6.04 (1.34–27.26)	.019
Bleeding complication	6 (9.5)	12 (10.3)	.92 (.33–2.59)	.92		
Rifampin treatment	38 (60.3)	63 (53.8)	1.30 (.70–2.42)	.50	.90 (.38–2.11)	.81

Quantitative variables are expressed as mean ± standard deviation or median (interquartile range) as appropriate; qualitative variables are expressed by numbers (%).

Le Bot *et al.* Clin Infect Dis 2021

Alors chez les PVE non opérés?

Supplementary table 4. Univariate analysis of outcomes in 128 patients with staphylococci prosthetic valve endocarditis without valve surgery

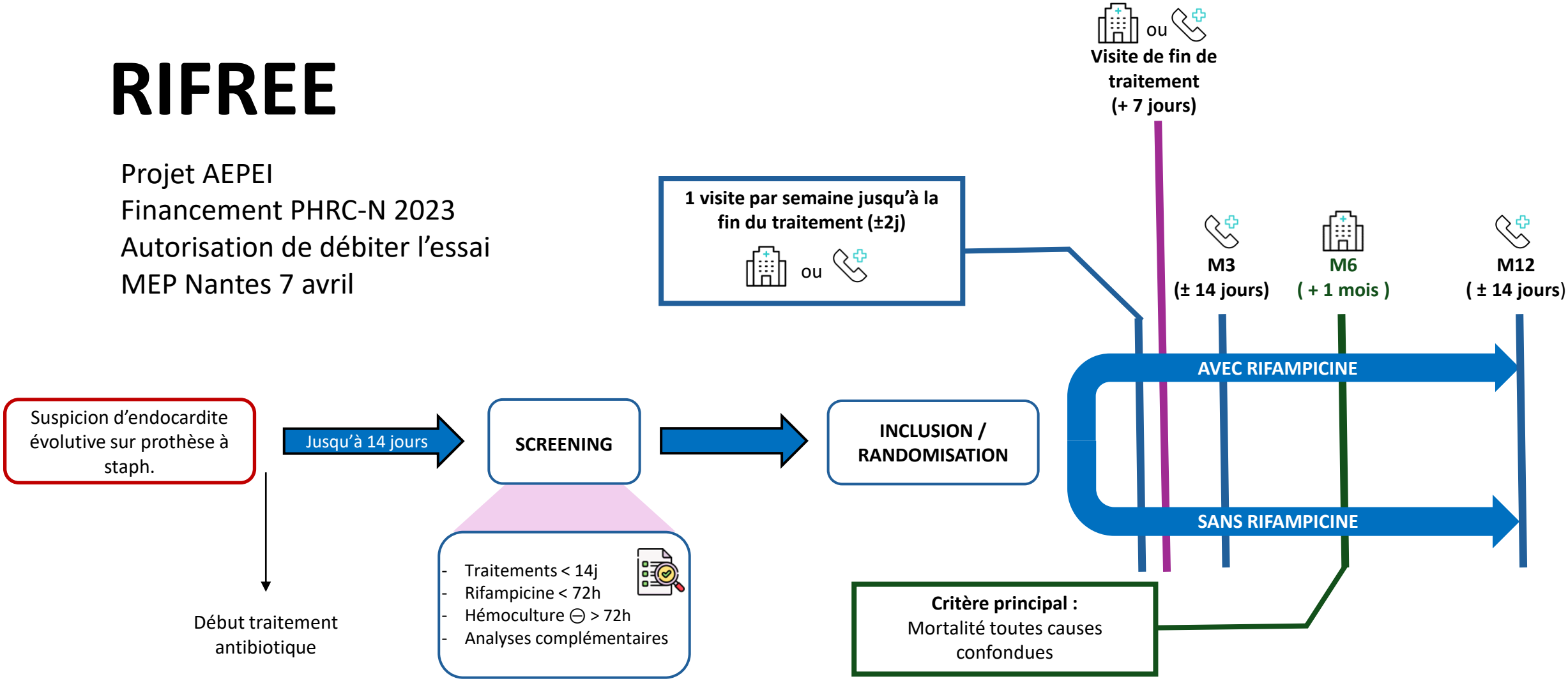
Variable	Total (n=128)	Rifampin-based combination (n=66)	No rifampin (n=62)	Odd-Ratio (CI 95%)	*P* Value
Mortality					
In-hospital mortality	29 (22.7)	18 (27.3)	11 (17.7)	1.73 (0.74-4.06)	.28
One-month mortality	37 (28.9)	21 (31.8)	16 (25.8)	1.34 (0.62-2.90)	.58
Three-month mortality	39 (30.5)	23 (34.8)	16 (25.8)	1.54 (0.72-3.29)	.36
Six-month mortality	44 (34.4)	27 (40.9)	17 (27.4)	1.83 (0.87-3.85)	.16
One-year mortality	49 (38.3)	29 (43.9)	20 (32.3)	1.65 (0.80-3.39)	.24
Relapse	12 (9.4)	6 (9.0)	6 (9.7)	0.93 (0.28-3.07)	.93
Vitamin K antagonist imbalance during endocarditis	16 (12.5)	11 (16.7)	5 (8.6)	2.3 (0.74-7.00)	.23
Bleeding complication	15 (11.7)	7 (10.6)	8 (12.9)	0.80 (0.27-2.36)	.90
Length of stay, days	35.2 ± 17.1	39.7 ± 18.9	30 4 ± 13.6	-	.007

Quantitative variables are expressed as mean +/- standard deviation, qualitative variables are expressed by numbers (%)

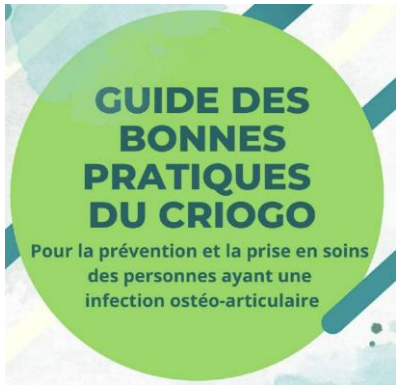
- Patients les plus graves n'ont pas eu de RMP?

RIFREE

Projet AEPEI
Financement PHRC-N 2023
Autorisation de débiter l'essai
MEP Nantes 7 avril



Bon usage d'utilisation de la RIFAMPICINE+++



Q18 : La rifampicine est utilisée à la posologie de 10-15 mg/kg/j à jeun soit pour un patient de poids < 60 kg : 600 mg/j ; 60-90 kg : 900 mg/j ; > 90 kg : 1200 mg/j, en une prise par jour pour les doses ≤ 900 mg/j et en deux prises par jour pour les doses > 900 mg/j.
Proposition appropriée (médiane = 10)

Q19 : Compte tenu de l'excellente biodisponiblilité orale de la rifampicine, le mode recommandé d'administration de cette molécule est la voie orale.
Proposition appropriée (médiane = 10)

Q20 : L'utilisation de la rifampicine nécessite une surveillance biologique attentive (NFS, Bilan hépatique, créatininémie) tous les 7 à 14 jours.
Proposition appropriée (médiane = 10)

Q21 : La rifampicine ne doit pas être utilisée sans avoir procédé au préalable à une recherche exhaustive des interactions médicamenteuses et contre-indications d'associations.
Proposition appropriée (médiane = 10)

Q22 : La réévaluation précoce de la tolérance de la rifampicine doit être réalisée systématiquement entre le 5ème et le 10ème jour de traitement.
Proposition appropriée (médiane = 8)

EVRIOS

- Etude randomisée:
  - Rifampicine 10 versus 20 mg/kg/j
  - Toute IOA à Staphylococcus sp.

Non infériorité démontrée

En per protocole

		Groupe de traitement		
	n=	Rifampicine FAIBLE dose	Rifampicine FORTE dose	p
Echec Antibiothérapie	327 (0)	163 (0)	164 (0)	
Certain	11 (3.4% [1.7% - 5.9%])	6 (3.7% [1.4% - 7.8%])	5 (3.0% [1.0% - 7.0%])	NA
Non	316 (96.6% [94.1% - 98.3%])	157 (96.3% [92.2% - 98.6%])	159 (97.0% [93.0% - 99.0%])	

En intention de traiter

		Groupe de traitement		
	n=	Rifampicine FAIBLE dose	Rifampicine FORTE dose	p
Echec Antibiothérapie	492 (38)	227 (17)	265 (21)	
Certain	18 (3.7% [2.2% - 5.7%])	8 (3.5% [1.5% - 6.8%])	10 (3.8% [1.8% - 6.8%])	NA
Non	474 (96.3% [94.3% - 97.8%])	219 (96.5% [93.2% - 98.5%])	255 (96.2% [93.2% - 98.2%])	

EVRIOS

- Etude randomisée:
  - Rifampicine 10 versus 20 mg/kg/j
  - Toute IOA à Staphylococcus sp.

Non infériorité démontrée

EI lié à la rifampicine	530 (0)	244 (0)	286 (0)	p = 0.0043 (K)
1.grave	24 (4.5% [2.9% - 6.7%])	4 (1.6% [0.4% - 4.1%])	20 (7.0% [4.3% - 10.6%])	
2.Non+Sévère	117 (22.1% [18.6% - 25.9%])	45 (18.4% [13.8% - 23.9%])	72 (25.2% [20.3% - 30.6%])	
3.Non+Modéré	176 (33.2% [29.2% - 37.4%])	83 (34.0% [28.1% - 40.3%])	93 (32.5% [27.1% - 38.3%])	
4.Non+leger	123 (23.2% [19.7% - 27.0%])	67 (27.5% [22.0% - 33.5%])	56 (19.6% [15.1% - 24.7%])	
5.Non	90 (17.0% [13.9% - 20.5%])	45 (18.4% [13.8% - 23.9%])	45 (15.7% [11.7% - 20.5%])	

Moins bonne tolérance de la forte dose

Addition of Rifampin to Standard Therapy for Treatment of Native Valve Infective Endocarditis Caused by *Staphylococcus aureus*[▽]

David J. Riedel,[1]* Elizabeth Weekes,[2]† and Graeme N. Forrest[3]

- Etude rétrospective NVE à *S.aureus*
- Cas-contrôle (42/42)
- Patients non comparables (plus graves, plus d'emboles cérébraux etc…)
  - Survie inférieure dans le groupe RMP (79% versus 95%; P 0.048)
- Emergence de résistance dans 9 cas/42 (21%)
- MAIS émergence de résistance chez 9 des 16 patients (57%) qui ont reçu leur 1ère dose de RMP alors que les hémocultures étaient + contre 0/26 chez les patients Hcs-.

TABLE 3. Adverse effects of rifampin for cases and controls

Characteristic or effect	Value for group		*P* value
	Cases	Controls	
Total no. of subjects	42	42	
Rifampin-resistant isolates [no. (%)][a]	9 (21)	0 (0)	<0.001
Median time to rifampin resistance[b] [days (range)]	16 (11–26)	NA[d]	NA
Elevated transaminases, ≥5 × baseline [no. (%)]	9 (21)	1 (2)	0.014
Drug interactions [no. (%)][c]	22 (52)	0 (0)	<0.001

[a] All nine isolates were from patients who were bacteremic at initiation of rifampin treatment.
[b] Nine isolates were analyzed.
[c] Drug interactions occurred with methadone (nine cases), warfarin (four cases), protease inhibitors (three cases), antifungal agents (e.g., fluconazole [three cases], voriconazole [one case]), and antiepileptic agents (e.g., phenytoin [two cases]).
[d] NA, not applicable.

Riedel *et al.* AAC 2008

Conclusion

IPOA chronique avec changement

DAIR

Probabilité de succès élevée → Probabilité de succès faible

Indications indiscutables – Bénéfices francs (switch ACG etc…).

Conclusion

IPV sans chirurgie

EI/DIC non retiré

IPOA chronique avec changement

DAIR

IPOA chronique avec DAIR

Bactériémie simple

Probabilité de succès élevée → Probabilité de succès faible

Indications indiscutables – Bénéfices francs (switch ACG etc…).

Indications à ne pas en mettre de façon indiscutable

Conclusion

Bactériémie compliquée

PVE avec RV

PVE sans RV

IPV sans chirurgie

EI/DIC non retiré

IPOA aigue avec changement

IPOA chronique avec changement

DAIR

IPOA chronique avec DAIR

Bactériémie simple

Probabilité de succès élevée → Probabilité de succès faible

Indications indiscutables – Bénéfices francs (switch ACG etc…).

Indications à ne pas en mettre de façon indiscutable

A discuter?

ISCVID 2026 - Rennes

ISCVID

18th International Symposium
On Modern Concepts in Endocarditis
And Cardiovascular Infections

Rennes University Campus - France

PLENARY SESSIONS

INTERACTIVES PRESENTATIONS

TRAINING WORKSHOP

EXHIBITION AREAS

SAVOURY & SWEET EXCHANGE TIME

Merci de votre attention

raphael.lecomte@chu-nantes.fr

La conclusion : quand est-ce que je dois m’acharner à mettre de la RIFAMPICINE?

- Quand on a fait tout le boulot : probablement non
- Quand on n’a pas fait le boulot : probablement non
- Quand le boulot n’est pas parfait : sans doute oui!

- C’est pas parce que c’est dur de l’utiliser qu’on ne doit pas l’utiliser! Attention à la sous-utilisation de cette molécule!

Role of Rifampin for Treatment of Orthopedic Implant–Related Staphylococcal Infections

A Randomized Controlled Trial

Werner Zimmerli, MD; Andreas F. Widmer, MD, MSc; Marianne Blatter, MD; R. Frei, MD; Peter E. Ochsner, MD; for the Foreign-Body Infection (FBI) Study Group

- Essai randomisé
- Très peu de patient
- FQ+RMP>FQ seule

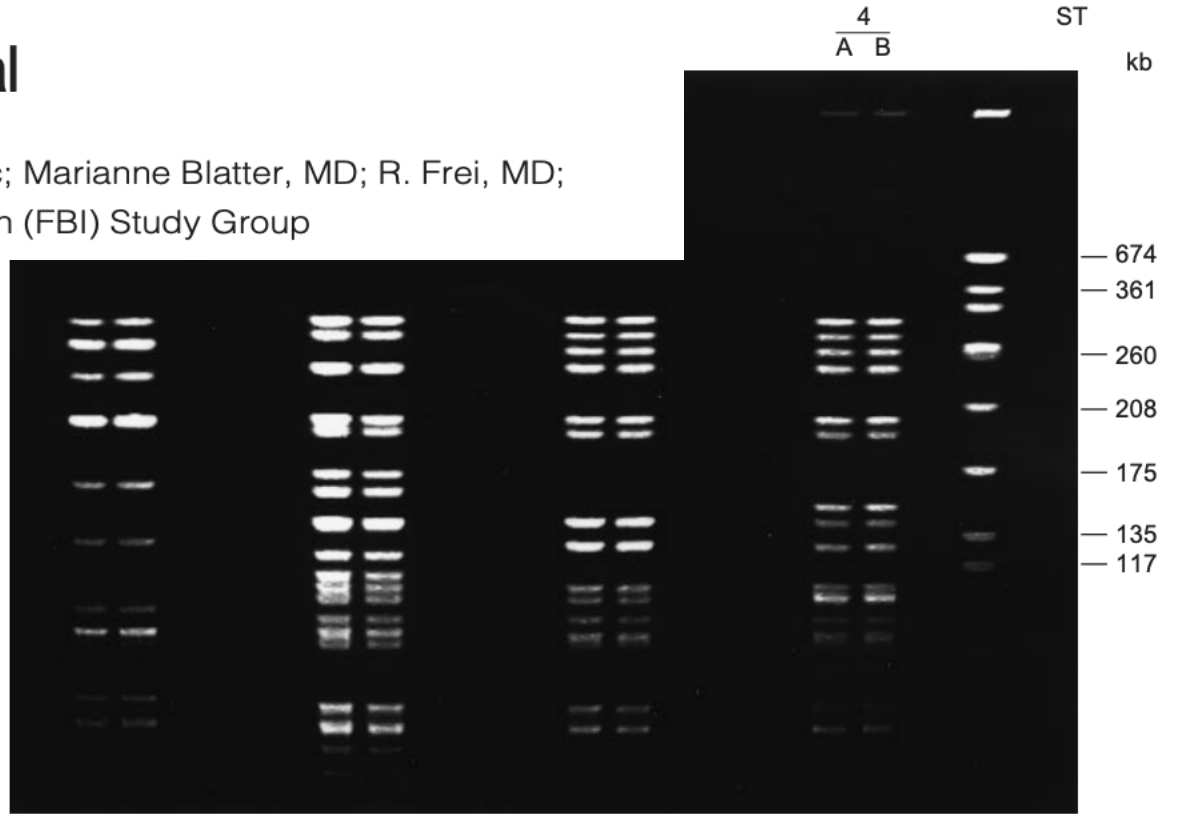


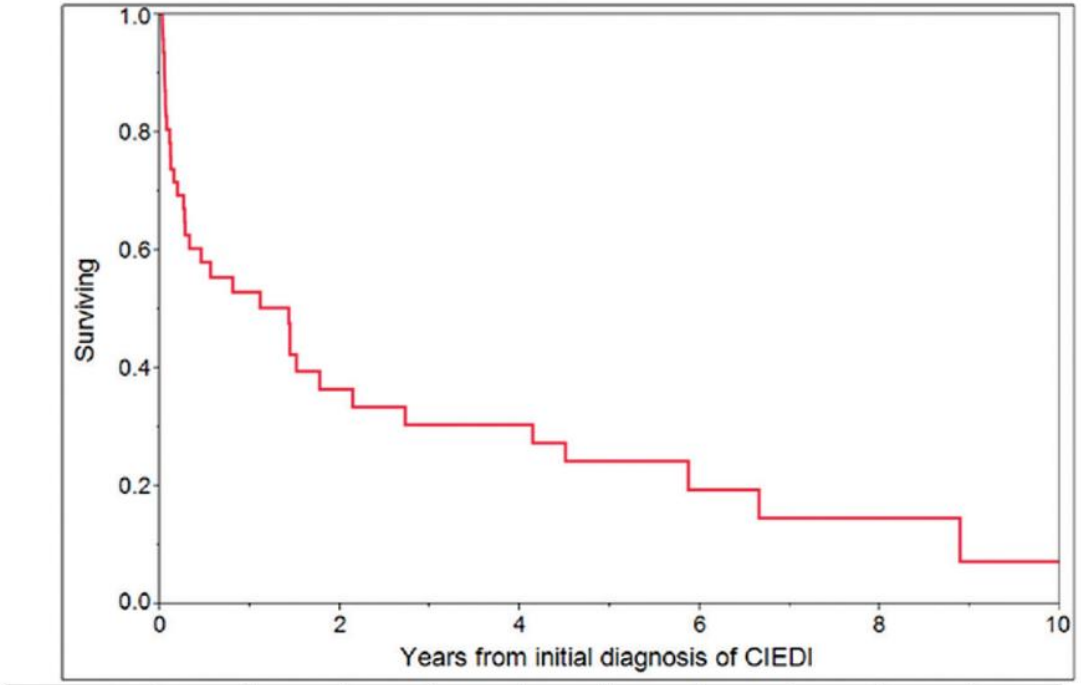
Figure 2.—Pulsed-field gel electrophoresis of chromosomal DNA from 4 ciprofloxacin-resistant isolates from patients with failure. DNA from 4 pairs (lanes 1-4) of ciprofloxacin-resistant isolates (A indicates initial and B, at the time of failure) was digested with *Eag*I. Lane ST is the molecular weight standard (*Staphylococcus aureus* NCTC 8325 DNA digested with *Sma*I). kb indicates kilobase.

Place de la Rifampicine

- Etudes contradictoires
- Si une bithérapie semble nécessaire,
  - pas de certitude sur la molécule
  - Intérêt d'un essai randomisé+++ (avec RMP/Clinda?)
- Introduction une fois l'inoculum maîtrisé (plus qu'un délai comme recommandé)

Outcomes in Patients With Cardiovascular Implantable Electronic Device Infection Managed With Chronic Antibiotic Suppression

- Etude rétrospective
- 660 DIC
- Absence d'explantation du matériel
- Prescription d'une antibiothérapie suppressive
- 2005-2015
- 48 patients inclus
- 80% récusé pour le changement de matériel
- Médiane de survie : 1 an



Number at risk	Start	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9
n = 48	48	20	12	10	10	6	4	2	2	1

Tan *et al.* Clin Infect Dis 2017

Table 1. Characteristics of 180 Cases of Staphylococcal Prosthetic Valve Endocarditis Treated With or Without Rifampin

Variable	Total (n = 180)	Rifampin-based Combination (n = 101)	No Rifampin (n = 79)	*P* Value
Demographic features				
Age, years	70.4 ± 12.4	69.0 ± 12.8	72.2 ± 11.6	.08
Sex, male	132 (73.3)	74 (73.3)	58 (73.4)	.88
Type of prosthetic valve				
Bioprosthesis	111 (61.7)	60 (59.4)	51 (64.6)	.58
Mechanical prosthesis	67 (37.2)	41 (40.6)	26 (32.9)	.37
Rifampin resistance	0 (0)	0 (0)	0 (0)	
Duration of bacteremia, days	5.5 ± 3.0	5.6 ± 3.6	5.5 ± 3.5	.98
Positive valve culture if surgery	11 (22)	5 (15.6)	6 (33.3)	.19
Treatment				
Valve surgery	51 (28.3)	34 (33.7)	17 (21.5)	.10
Early valve surgery[b]	48 (94)	32 (94.1)	16 (94.1)	.53
Interval between first positive blood culture and surgery, days	13 [8–20.2]	14.0 [11–19.5]	10.0 [5–17]	.23
Osteoarticular surgery	5 (27.8)	3 (37.5)	2 (20.0)	.77
Lifelong suppressive antibacterial treatment	7 (3.9)	2 (2.0)	5 (6.3)	.27
Vitamin K antagonists	62 (34.4)	35 (34.7)	27 (34.2)	.93
Heparin	83 (46.1)	52 (51.5)	31 (39.2)	.14

Durée médiane de traitement par RMP : 33 jours [12,5-41]
Dose médiane 1200 mg/j [900-1200]
Intervalle médian entre première Hc+ et RMP : 7 jours [3-15]
Arrêt prématuré pour EI : 30,7% (31/101)

Le Bot *et al.* Clin Infect Dis 2021

RESEARCH ARTICLE

Improved Outcome with Early Rifampicin Combination Treatment in Methicillin-Sensitive *Staphylococcus aureus* Bacteraemia with a Deep Infection Focus – A Retrospective Cohort Study

Erik Forsblom*, Eeva Ruotsalainen, Asko Järvinen

Division of Infectious Diseases, Department of Medicine, Helsinki University Central Hospital, Helsinki, Finland

* erik.forsblom@helsinki.fi

microorganisms

MDPI

Article

The Effectiveness of Combination Therapy for Treating Methicillin-Susceptible *Staphylococcus aureus* Bacteremia: A Systematic Literature Review and a Meta-Analysis

Sara Grillo [1,†], Mireia Puig-Asensio [1,2,3,*,†], Marin L. Schweizer [3,4], Guillermo Cuervo [1,2], Isabel Oriol [5], Miquel Pujol [1,2] and Jordi Carratalà [1,2,6]

Table 2. Summary of the subgroup analyses performed.

	Subgroup Analyses	N°. of Studies	References	N°. of Patients (Combination/Monotherapy)	Pooled Risk Ratio (95% CI)	I^2 Test
30-day mortality	All studies	7	[19,20,22–24,26,27]	1043/894	0.92 (0.70–1.20)	26%
	RCTs	3	[19,20,22]	287/276	1.08 (0.70–1.67)	0%
	Observational studies	4	[23,24,26,27]	756/618	0.85 (0.60–1.22)	42%
	Adjusted observational studies + well-balanced RCTs	3	[19,22,27]	290/287	1.04 (0.67–1.60)	0%
	Early administration of combination therapy	4	[20,22,26,27]	278/346	1.31 (0.88–1.95)	0%
	After excluding studies published before 2000	6	[19,22–24,26,27]	1000/859	0.88 (0.69–1.13)	18%
90-day mortality	All studies	6	[18,19,22–24,26]	1336/1179	0.89 (0.74–1.06)	27%
	RCTs	3	[18,19,22]	632/611	0.93 (0.72–1.20)	0%
	Observational studies	3	[23,24,26]	704/568	0.86 (0.60–1.22)	68%
	Adjusted observational studies + well-balanced RCTs	5	[18,19,22,23,26]	1075/1083	0.96 (0.78–1.19)	13%
	After excluding studies with late start of combination therapy	3	[18,22,26]	577/635	1.07 (0.84–1.37)	0%
	All participants with deep-seated infections (rifampicin) [a]	3	[19,23,24]	833/420	0.62 (0.42–0.92)	73%
Any-time mortality [b]	All studies	11	[18–28]	1503/1339	0.91 (0.76–1.08)	0%
	RCTs	6	[18–22,25]	732/696	1.01 (0.78–1.31)	0%
	Observational studies	5	[23,24,26–28]	771/643	0.86 (0.64–1.15)	25%
	After excluding studies with late start of combination therapy	7	[18,20–22,25–27]	723/766	1.09 (0.85–1.41)	0%
	After excluding studies published before 2000	7	[18,19,22–24,26,27]	1388/1229	0.89 (0.74–1.08)	5%
	All participants with endocarditis (aminoglycosides) [c]	4	[20,21,25,28]	115/110	1.17 (0.64–2.16)	0%
	≥30% left-sided endocarditis (aminoglycosides)	3	[20,25,28]	79/72	1.12 (0.60–2.11)	0%
Relapse [d]	All studies	5	[18,21–24]	749/598	0.38 (0.22–0.66)	0%
	Excluding Thwaites study that used a different definition (recurrence)	4	[21–24]	379/210	0.45 (0.24–0.83)	0%
	RCTs	3	[18,21,22]	459/477	0.54 (0.12–2.51)	46%
	Observational studies	2	[23,24]	290/121	NA	
Drug adverse-events [d]	Any type of antibiotic adverse-event	5	[18,20–22,27]	539/554	1.74 (1.31–2.31)	0%
	After excluding studies published before 2000	3	[18,22,27]	460/482	1.69 (1.24–2.30)	0%
	Nephrotoxicity or AKI	4	[20–22,27]	169/166	1.81 (1.17–2.79)	0%

Abbreviations: AKI, acute kidney injury; CI, confidence interval; RCT, randomized controlled trial; NA, not applicable. [a] All these studies compared the use of beta-lactams in monotherapy with beta-lactams plus rifampicin. [b] When different definitions of mortality were available for one study (e.g., 30-day mortality, 90-day mortality, mortality during antibiotic treatment), 30-day mortality was preferably chosen for pooled analyses. We hypothesized that at later time points, the evaluation of treatment-related effectiveness might be less accurate given the increasing effect of patient's baseline comorbidities on mortality. [c] All these studies compared the use of beta-lactams in monotherapy with beta-lactams plus gentamicin. They primarily focused on patients with native valve endocarditis, in particular right-sided endocarditis (30-100% of participants) in drug users. [d] None of these studies adjusted their analyses when evaluating the outcome relapse or adverse event.

- Quand on fait une méta-analyse, finalement, le seul traitement qui sort comme étant bénéfique, c'est la RMP!


SALOMON
SALOMON
MILANO CORTINA 2026
11
SALOMON
13
FISCHER
SALOMON
SALOMON
MILANO CORTINA 2026
14
MILANO CORTINA 2026
12

Si on utilise la RMP, il faut la mettre au moins 14 jours.

IVYSPRING INTERNATIONAL PUBLISHER

Journal of Bone and Joint Infection

2020; 5(1): 28-34. doi: 10.7150/jbji.40333

Research Paper

Duration of rifampin therapy is a key determinant of improved outcomes in early-onset acute prosthetic joint infection due to *Staphylococcus* treated with a debridement, antibiotics and implant retention (DAIR): a retrospective multicenter study in France

A. Becker[1,2✉], L. Kreitmann[3,4], C. Triffaut-Fillit[1,2], F. Valour[1,2,4,5], E. Mabrut[2], E. Forestier[6], O. Lesens[7], C. Cazorla[8], S. Descamps[9], B. Boyer[10], C. Chidiac[1,2,4], S. Lustig[2,4,11], E. Montbarbon[12], C. Batailler[2,4,11], T. Ferry[1,2,4,5] on behalf of the IPASTAPH study group

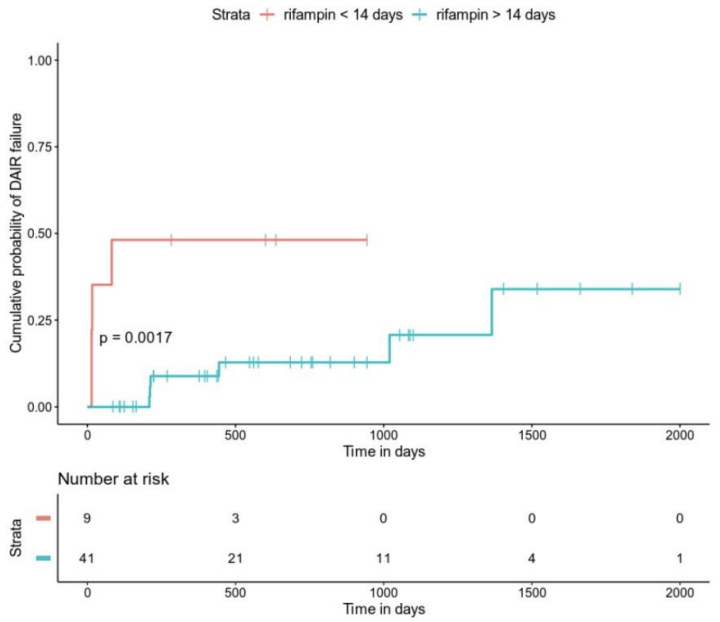


Figure 1. Kaplan Meier estimates of treatment failure probability in patients receiving less and more than 14 days of rifampin.