

X REUNIÓN  
CIENTÍFICA  
**GEIO 2025**

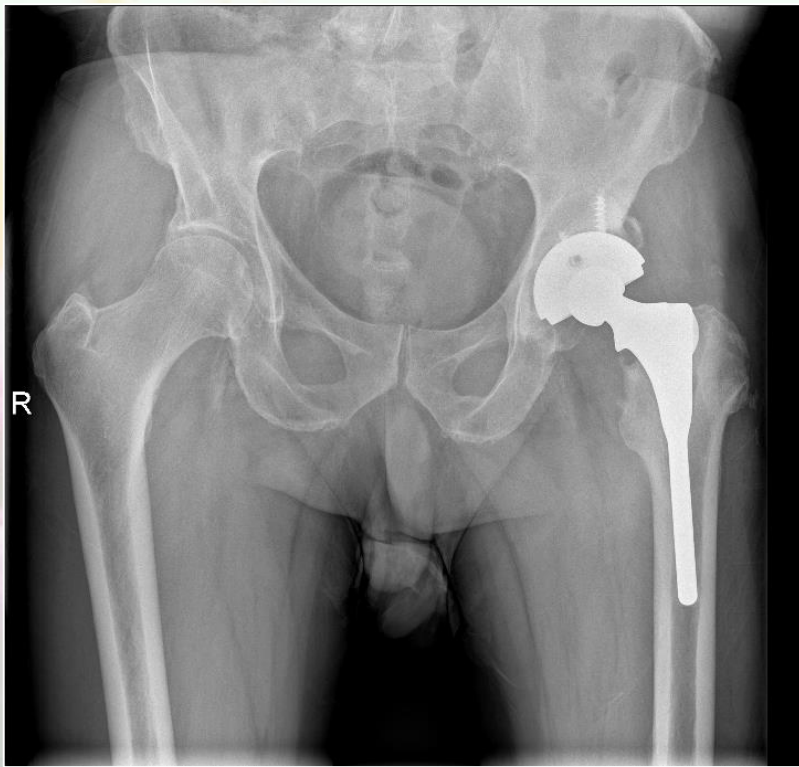
# MIS CASOS CON INFECCIÓN PROTÉSICA CRÓNICA

José M<sup>a</sup> Lamo de Espinosa

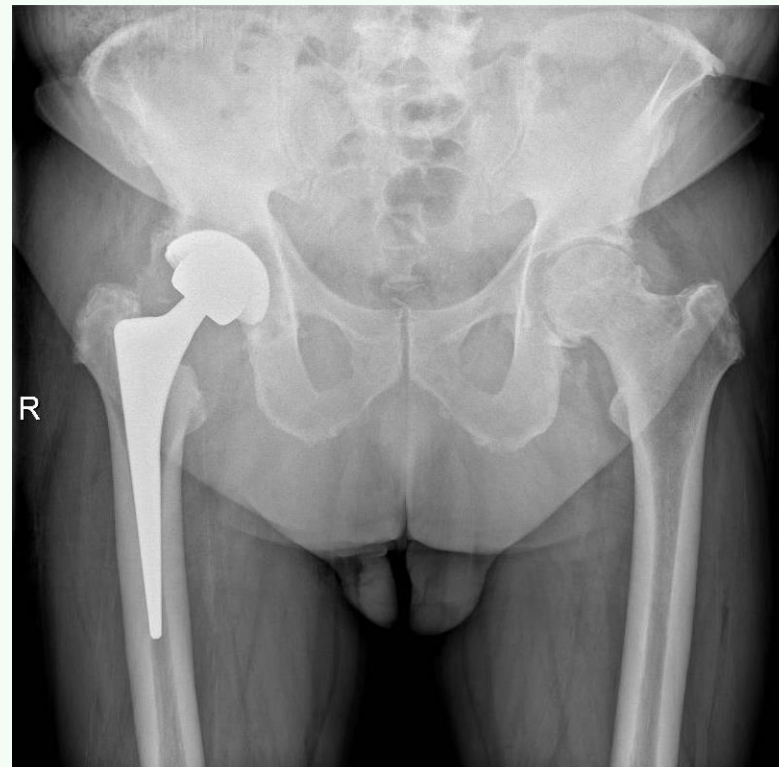
Hospital Biomédico ASCIRES (Valencia)

José M<sup>a</sup> Barbero Allende

Hospital Príncipe de Asturias (Alcalá de Henares)

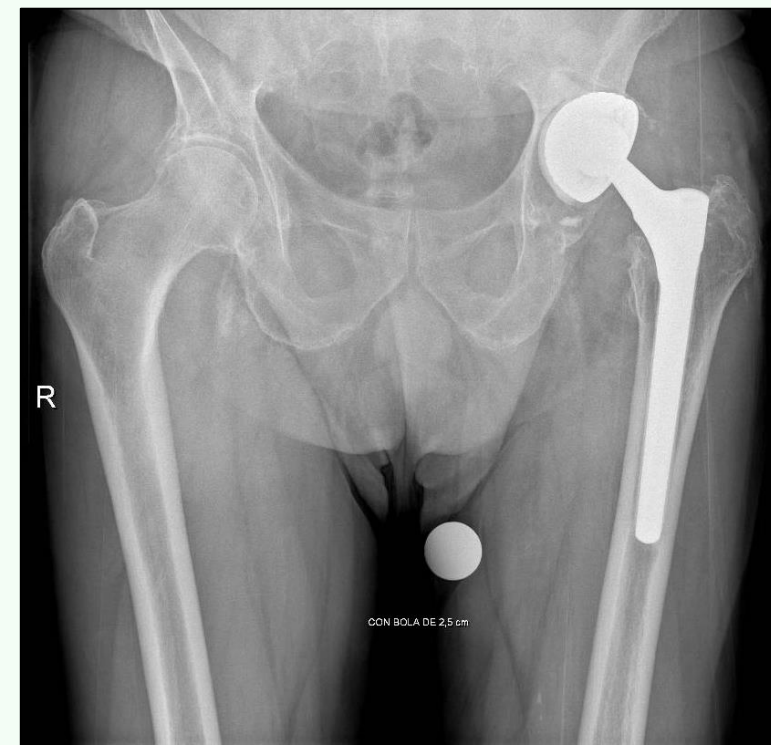


H 69 a  
Implantes movilizados



H 60 a  
Implantes estables

H 79 a  
Antecedente Ca. Pólmon  
Cardiópata  
Recambio previo



V60a

379946  
ABRIL 2014

R



379946

H 64 años

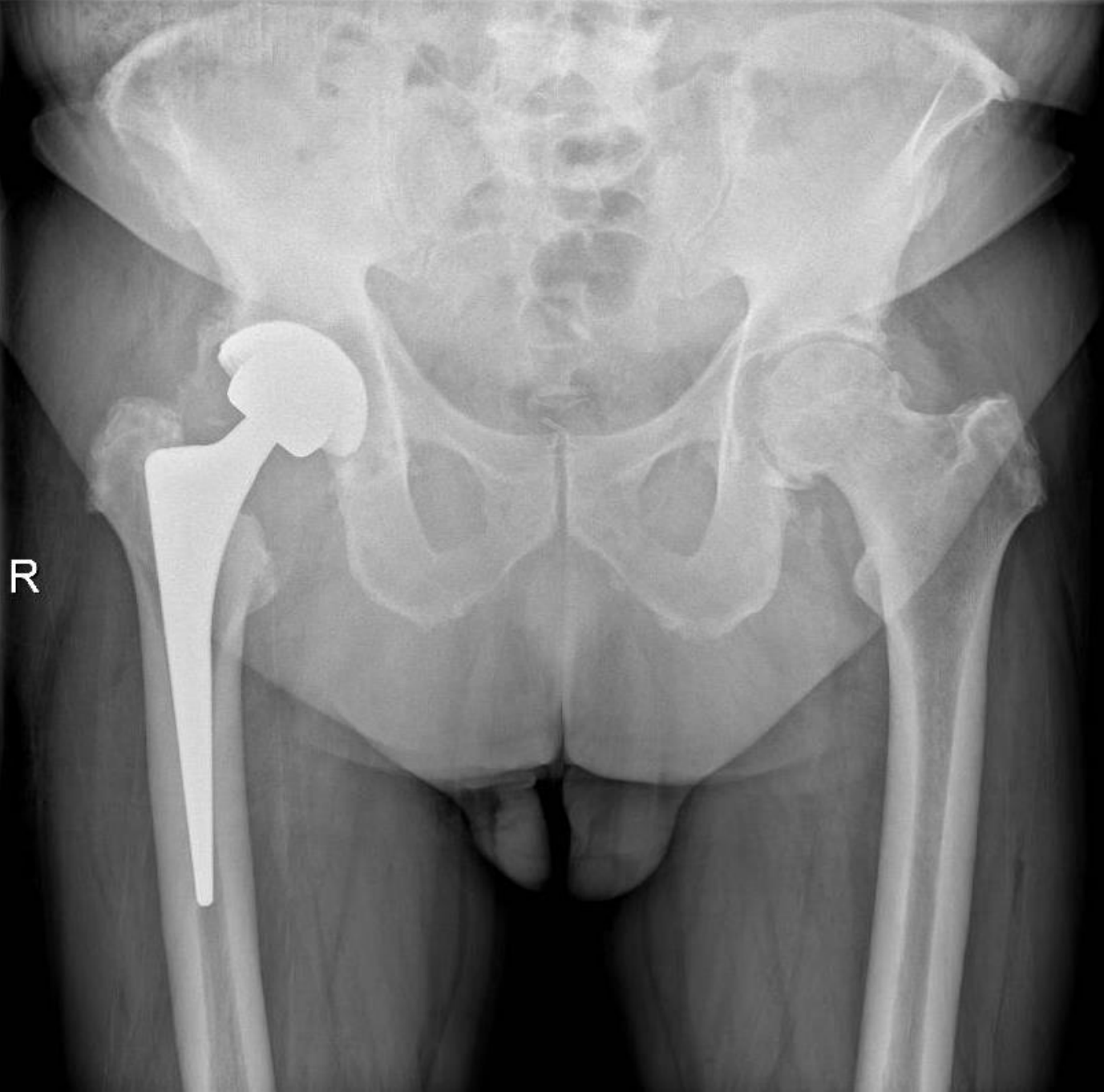
PTC dcha (Abril 2014)

Prostatectomía radical (Julio 2024)  
Eritema, dolor inguinal.

Signos inflamatorios →  
Cultivos Negativos → Levofloxacino

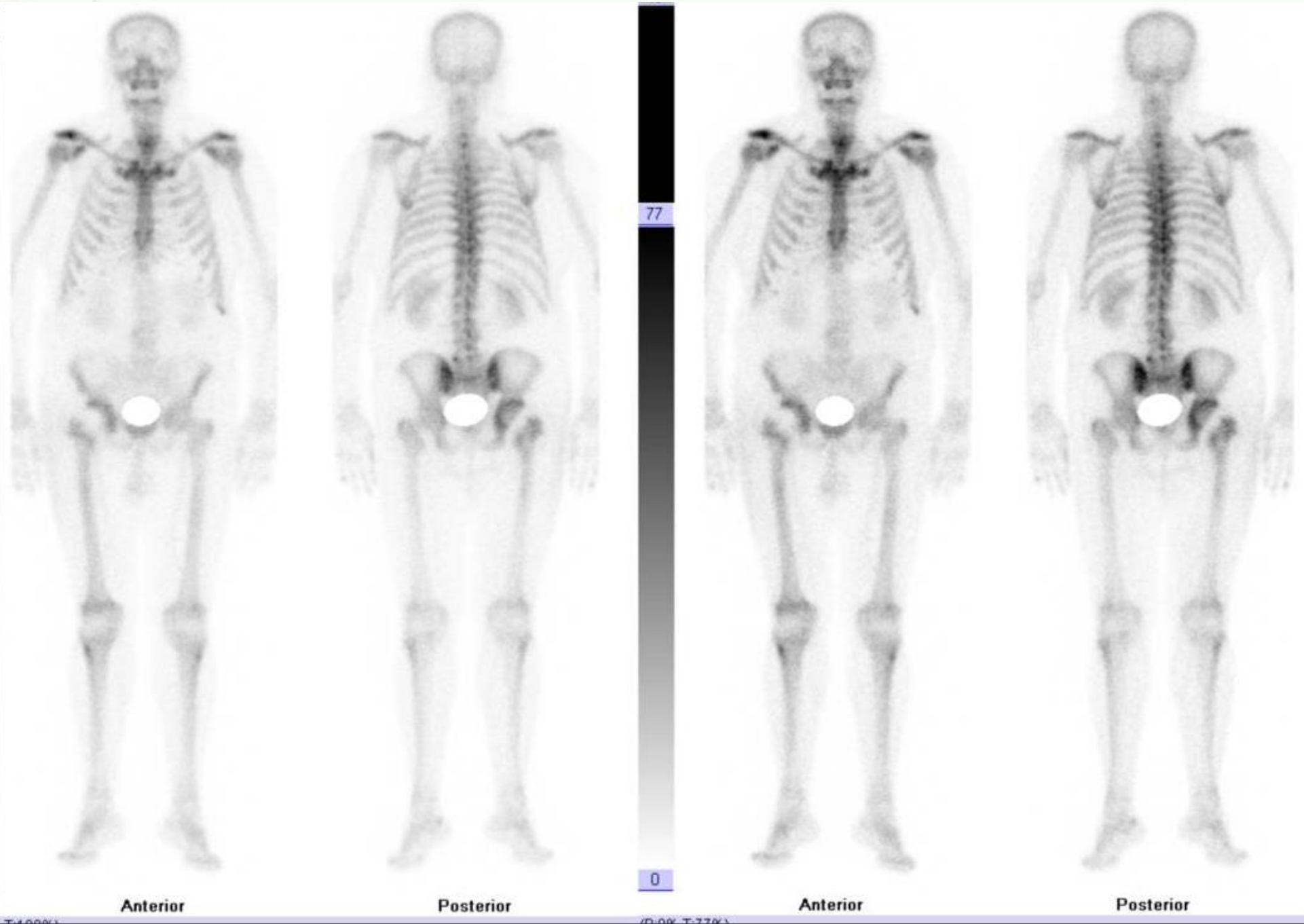


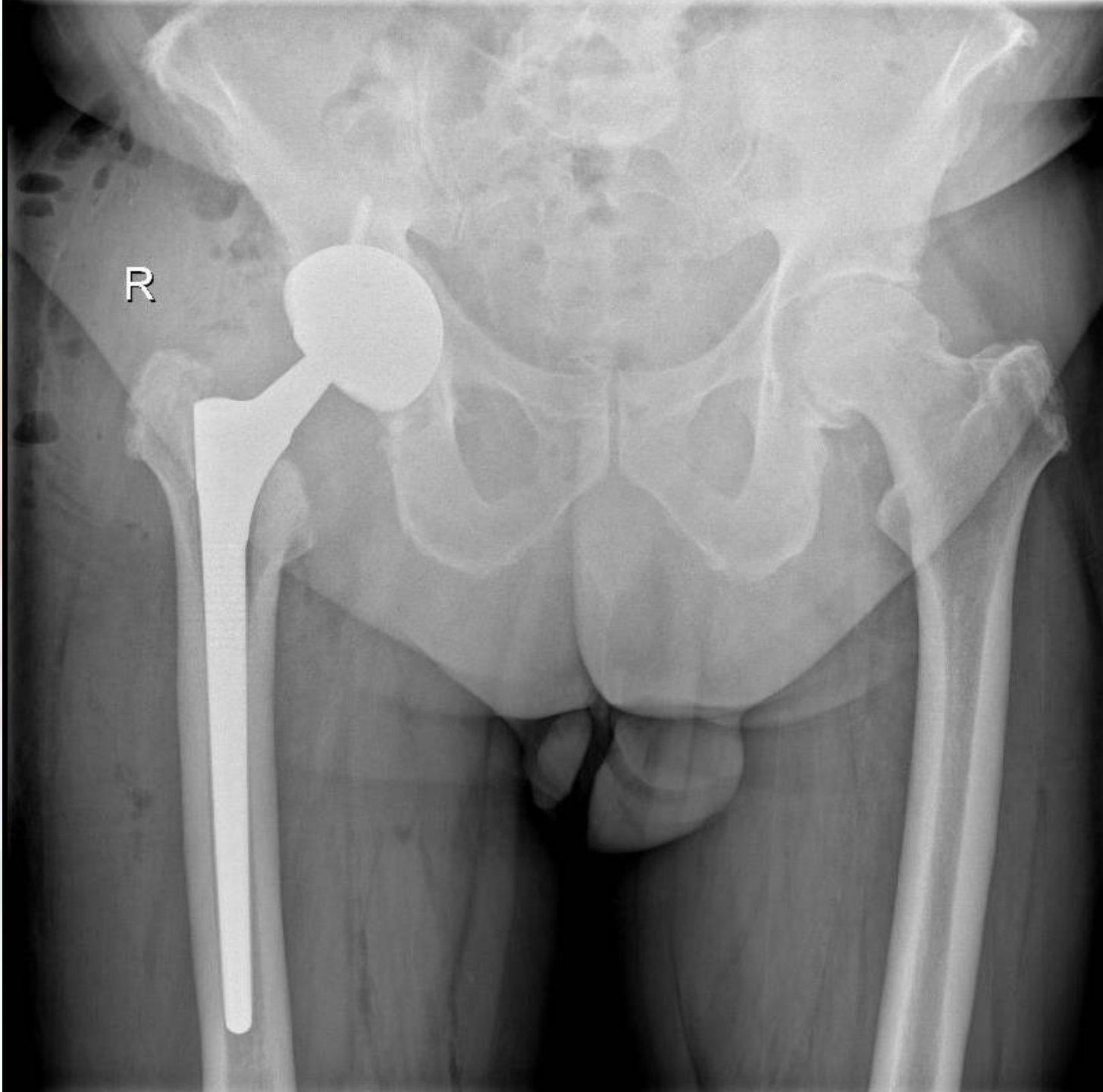
El mismo suspende  
los antibióticos  
por agotamiento



379946  
JUNIO 2014







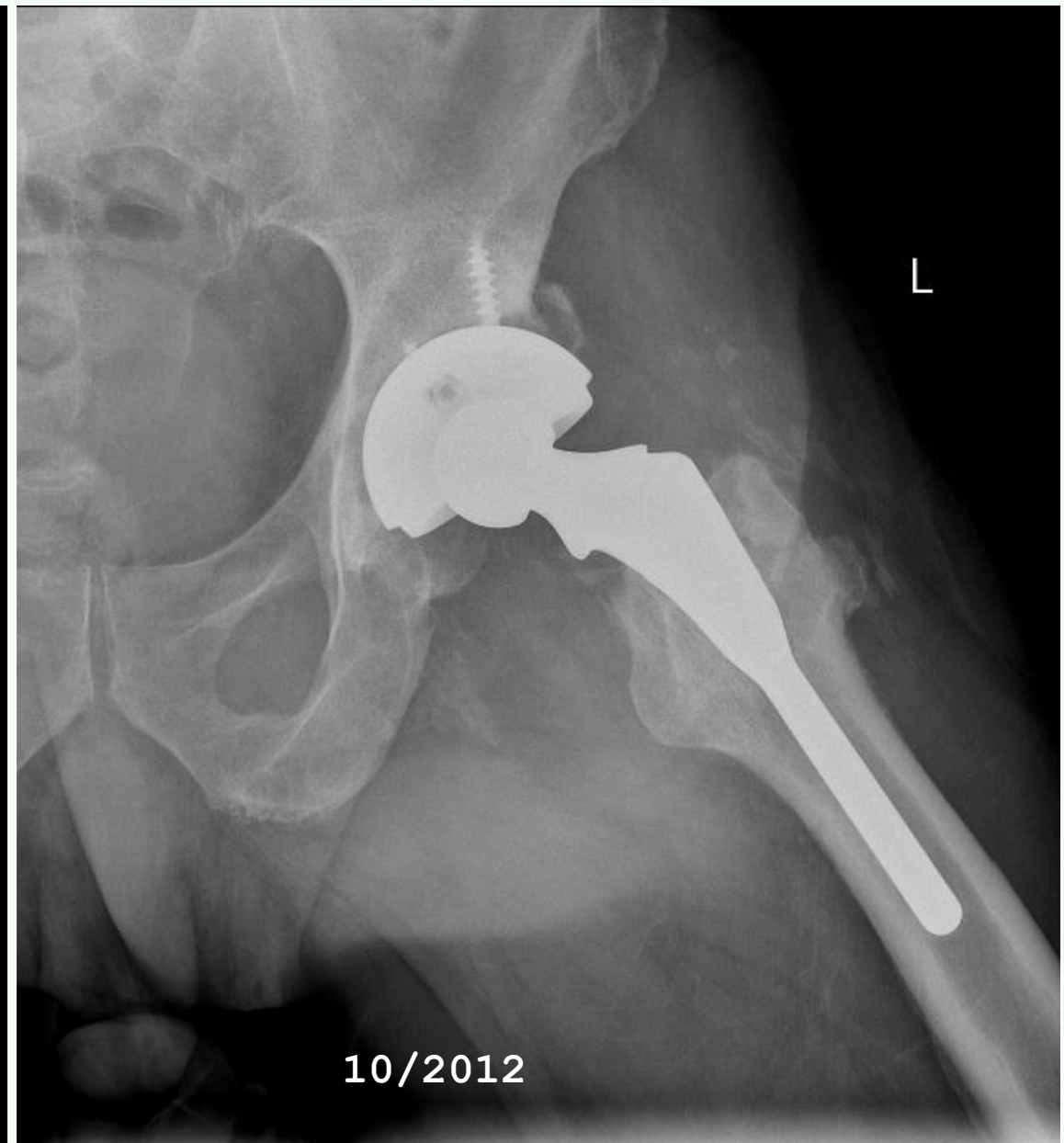
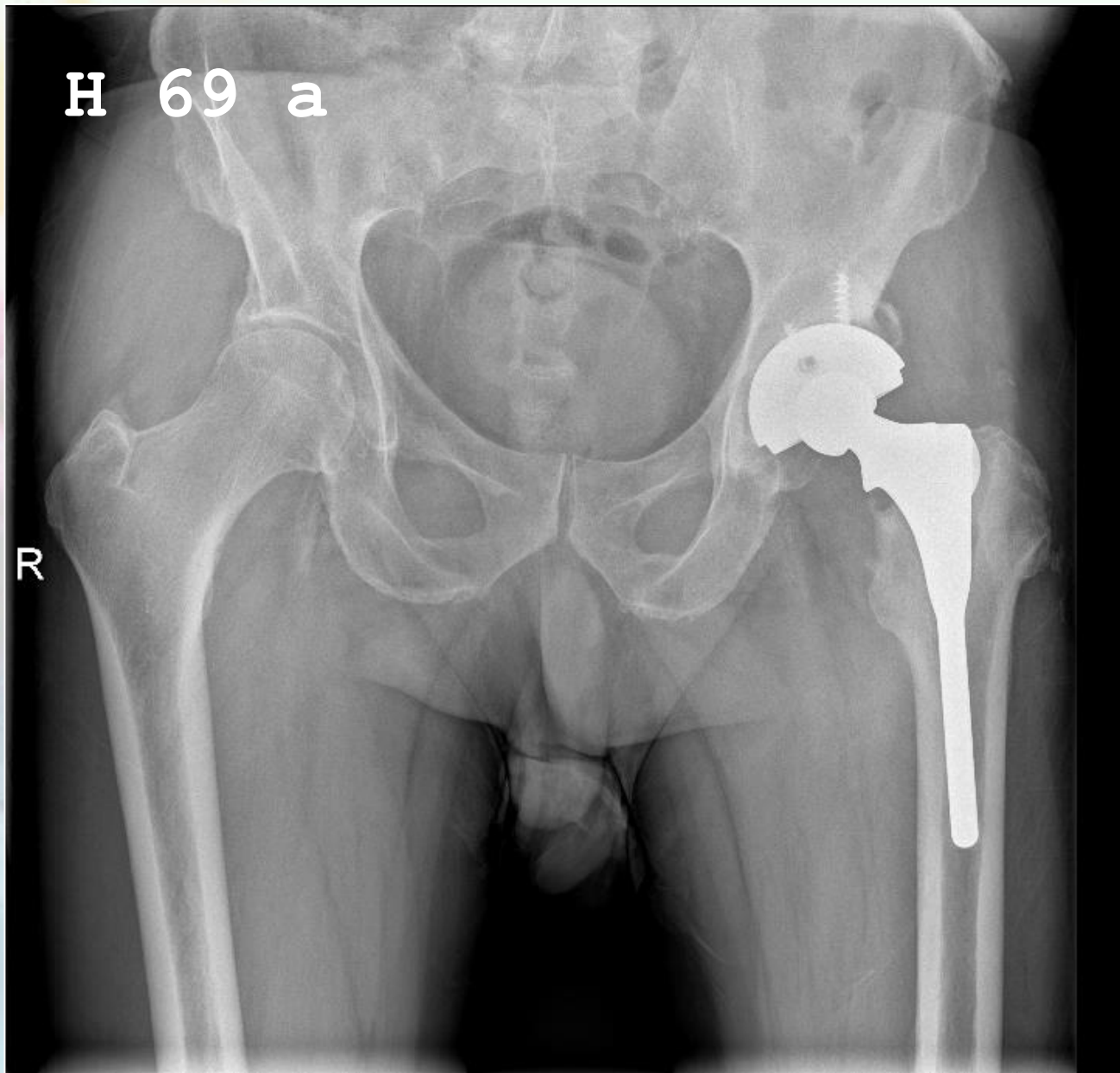
379946

H 69 a

2011



04/2011



Cultivo: S. Epidermidis





## One-Stage Versus Two-Stage Revision Surgery for Periprosthetic Hip Infection: An Updated Systematic Review and Meta-Analysis of Clinical Outcomes

José María Lamo-Espinosa, PhD

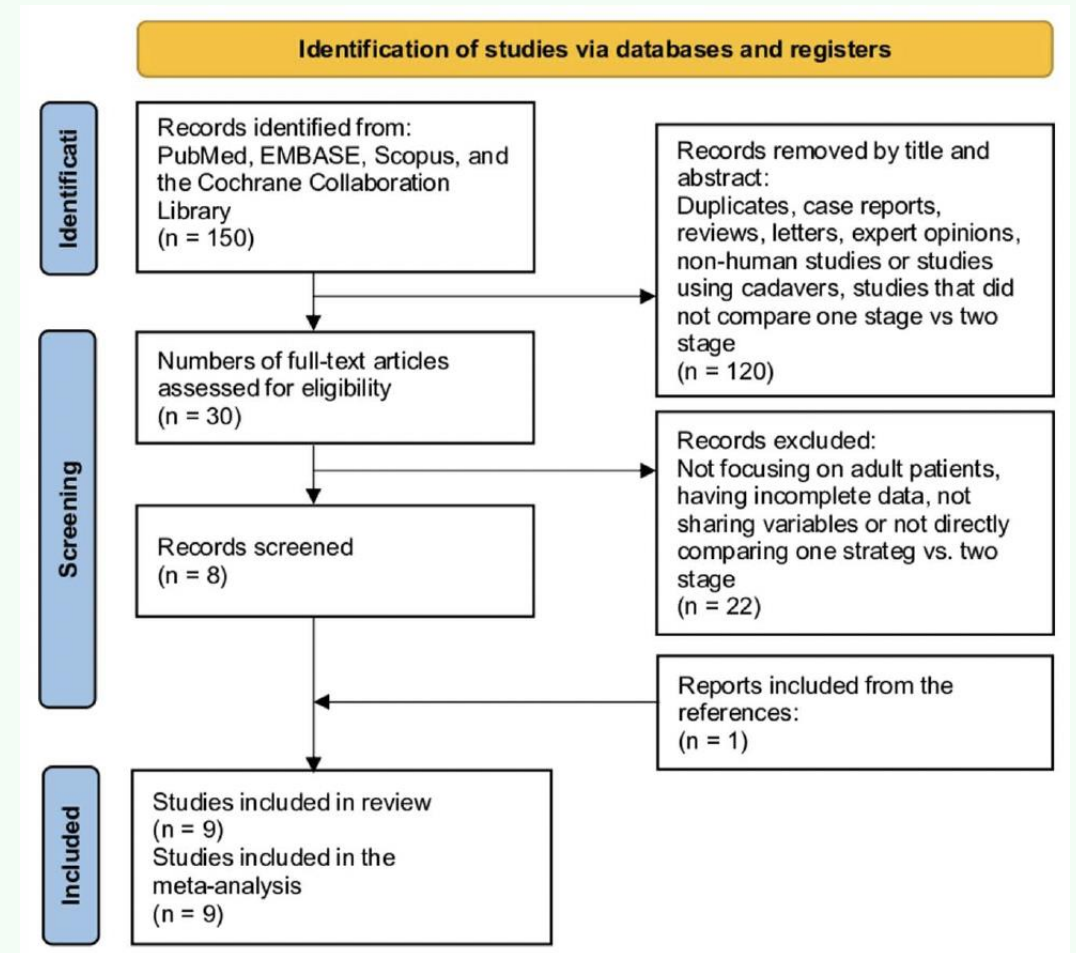
Gonzalo Mariscal, PhD 

Jorge Gómez-Álvarez, MD

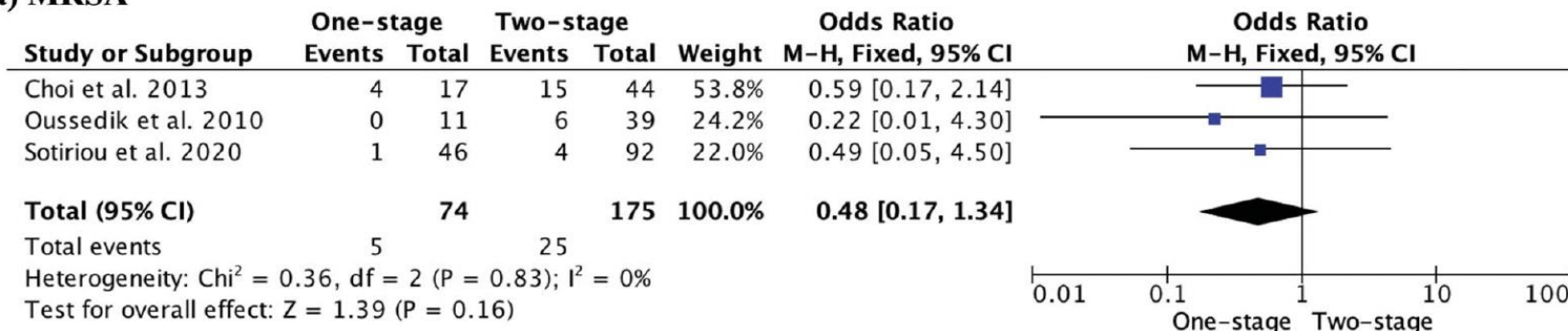
Lluís Font-Vizcarra, PhD

Jose Luis del Pozo, PhD

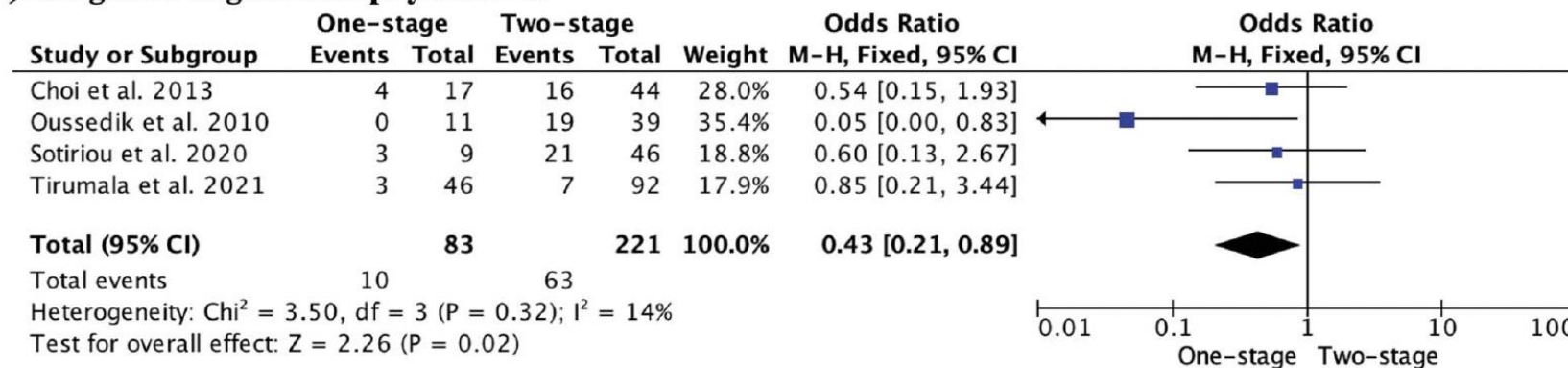
Mikel San-Julián, PhD



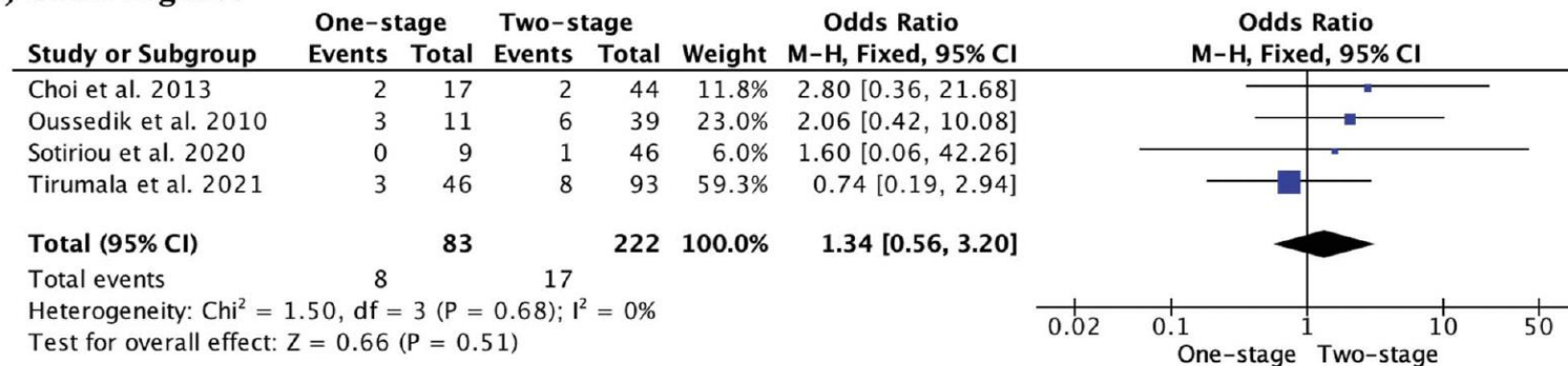
### a) MRSA



### b) Coagulase-negative Staphylococcus



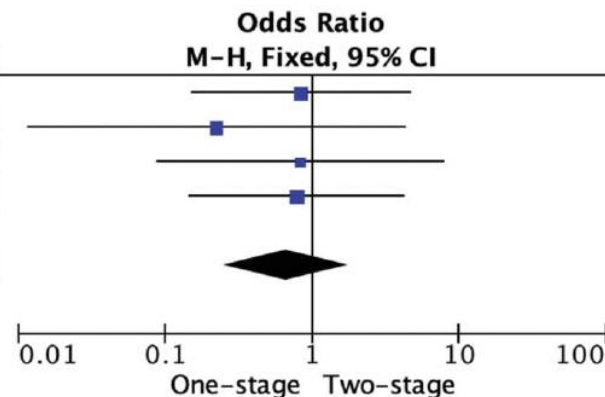
### c) Gram-negative



### a) Mixed growth

Study or Subgroup	One-stage		Two-stage		Weight	Odds Ratio
	Events	Total	Events	Total		M-H, Fixed, 95% CI
Choi et al. 2013	2	17	6	44	27.4%	0.84 [0.15, 4.66]
Oussedik et al. 2010	0	11	6	39	26.7%	0.22 [0.01, 4.30]
Sotiriou et al. 2020	1	9	6	46	16.2%	0.83 [0.09, 7.90]
Tirumala et al. 2021	2	46	5	92	29.6%	0.79 [0.15, 4.24]
<b>Total (95% CI)</b>		<b>83</b>		<b>221</b>	<b>100.0%</b>	<b>0.66 [0.25, 1.76]</b>

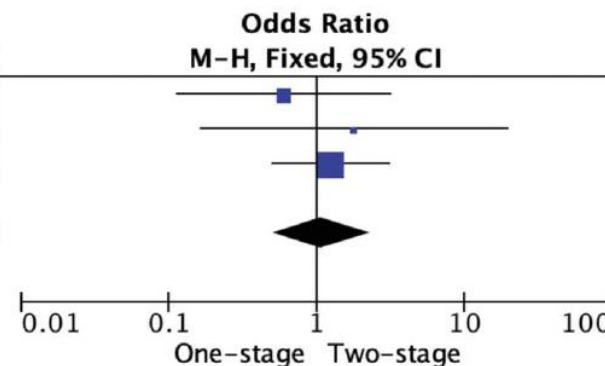
Total events 5 23  
 Heterogeneity:  $\text{Chi}^2 = 0.68$ ,  $\text{df} = 3$  ( $P = 0.88$ );  $I^2 = 0\%$   
 Test for overall effect:  $Z = 0.83$  ( $P = 0.41$ )



### b) Negative culture

Study or Subgroup	One-stage		Two-stage		Weight	Odds Ratio
	Events	Total	Events	Total		M-H, Fixed, 95% CI
Choi et al. 2013	2	17	8	44	30.6%	0.60 [0.11, 3.16]
Sotiriou et al. 2020	1	9	3	46	6.8%	1.79 [0.16, 19.47]
Tirumala et al. 2021	9	46	15	92	62.6%	1.25 [0.50, 3.12]
<b>Total (95% CI)</b>		<b>72</b>		<b>182</b>	<b>100.0%</b>	<b>1.09 [0.51, 2.31]</b>

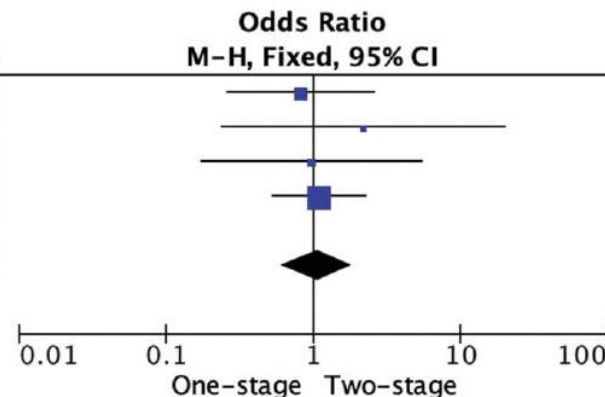
Total events 12 26  
 Heterogeneity:  $\text{Chi}^2 = 0.75$ ,  $\text{df} = 2$  ( $P = 0.69$ );  $I^2 = 0\%$   
 Test for overall effect:  $Z = 0.22$  ( $P = 0.83$ )

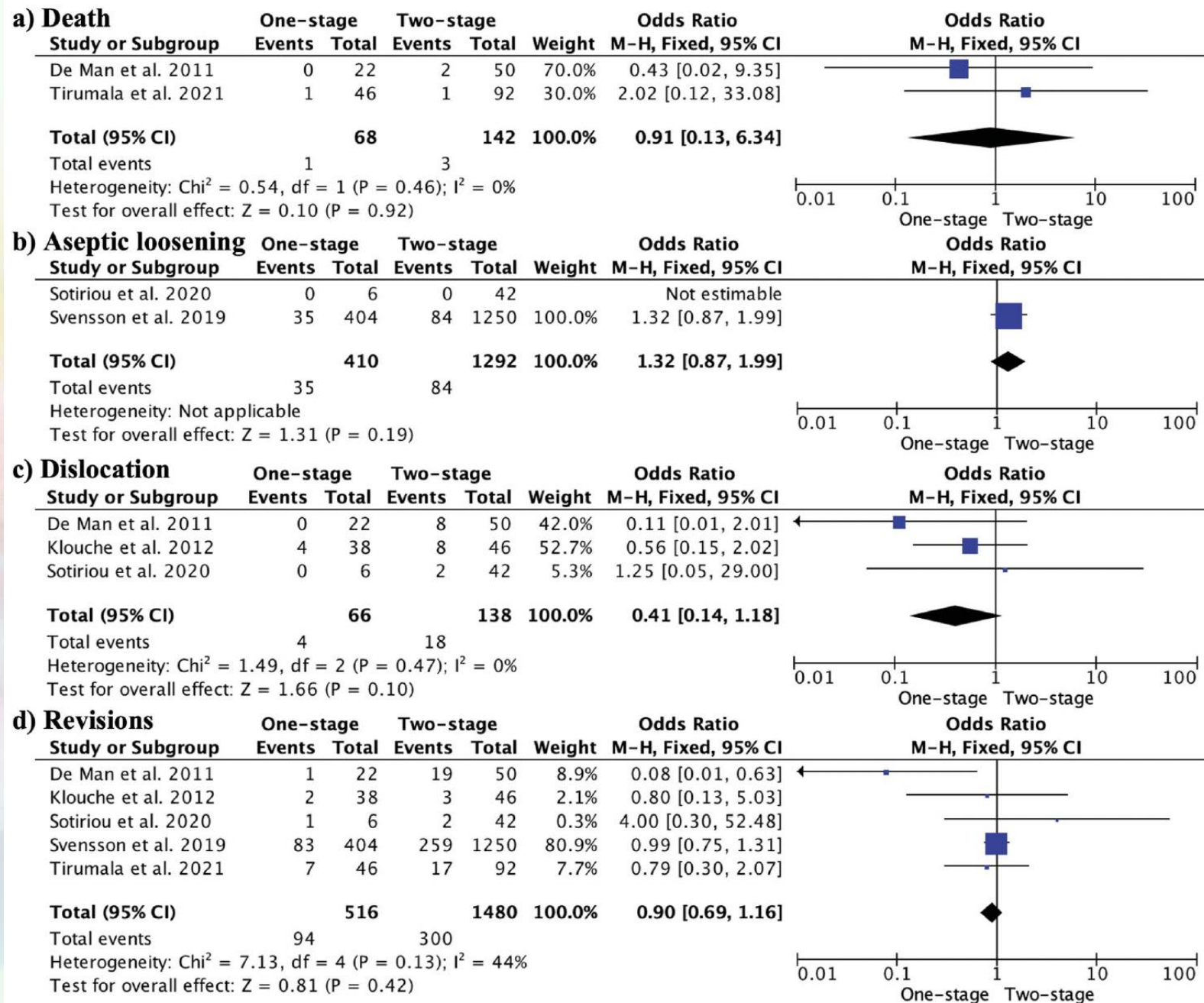


### c) Gram-positive

Study or Subgroup	One-stage		Two-stage		Weight	Odds Ratio
	Events	Total	Events	Total		M-H, Fixed, 95% CI
Choi et al. 2013	10	17	28	44	26.3%	0.82 [0.26, 2.56]
Oussedik et al. 2010	10	11	32	39	5.2%	2.19 [0.24, 19.99]
Sotiriou et al. 2020	7	9	36	46	10.7%	0.97 [0.17, 5.43]
Tirumala et al. 2021	28	46	54	92	57.7%	1.09 [0.53, 2.26]
<b>Total (95% CI)</b>		<b>83</b>		<b>221</b>	<b>100.0%</b>	<b>1.07 [0.61, 1.85]</b>

Total events 55 150  
 Heterogeneity:  $\text{Chi}^2 = 0.63$ ,  $\text{df} = 3$  ( $P = 0.89$ );  $I^2 = 0\%$   
 Test for overall effect:  $Z = 0.22$  ( $P = 0.82$ )





### a) Success rate

Study or Subgroup	One-stage		Two-stage		Weight	Odds Ratio	
	Events	Total	Events	Total		M-H, Random, 95% CI	Odds Ratio
Choi et al. 2013	14	17	33	44	28.1%	1.56	[0.38, 6.44]
De Man et al. 2011	19	22	46	50	27.3%	0.55	[0.11, 2.70]
Klouche et al. 2012	38	38	45	46	18.2%	2.54	[0.10, 64.12]
Wolf et al. 2014	3	12	45	48	26.4%	0.02	[0.00, 0.13]
<b>Total (95% CI)</b>		<b>89</b>		<b>188</b>	<b>100.0%</b>	<b>0.42</b>	<b>[0.05, 3.37]</b>

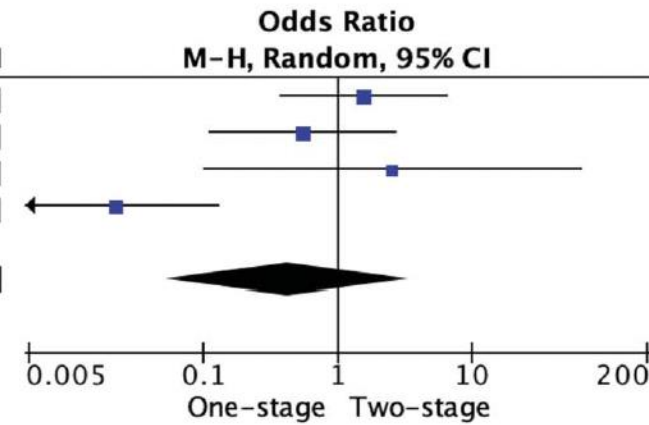
Total events

74

169

Heterogeneity:  $\text{Tau}^2 = 3.50$ ;  $\text{Chi}^2 = 15.36$ ,  $\text{df} = 3$  ( $P = 0.002$ );  $I^2 = 80\%$

Test for overall effect:  $Z = 0.82$  ( $P = 0.41$ )



### b) Reinfection rate

Study or Subgroup	One-stage		Two-stage		Weight	Odds Ratio	
	Events	Total	Events	Total		M-H, Fixed, 95% CI	Odds Ratio
De Man et al. 2011	1	22	1	50	1.0%	2.33	[0.14, 39.09]
Klouche et al. 2012	0	38	4	46	6.6%	0.12	[0.01, 2.35]
Sotiriou et al. 2020	0	6	0	42		Not estimable	
Svensson et al. 2019	28	404	107	1250	79.8%	0.80	[0.52, 1.23]
Tirumala et al. 2021	8	46	14	92	12.6%	1.17	[0.45, 3.04]
<b>Total (95% CI)</b>		<b>516</b>		<b>1480</b>	<b>100.0%</b>	<b>0.81</b>	<b>[0.56, 1.19]</b>

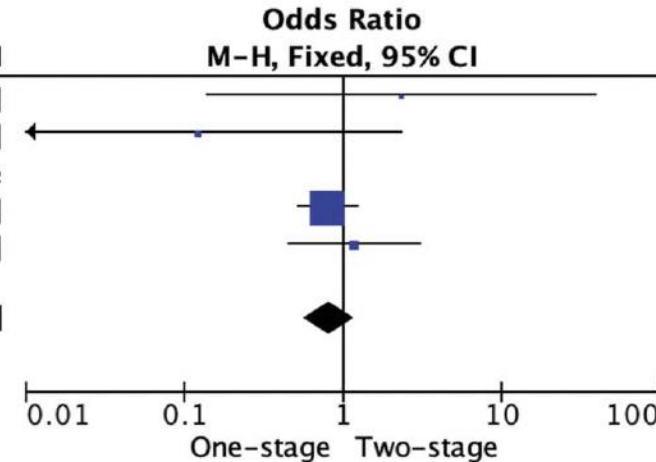
Total events

37

126

Heterogeneity:  $\text{Chi}^2 = 2.69$ ,  $\text{df} = 3$  ( $P = 0.44$ );  $I^2 = 0\%$

Test for overall effect:  $Z = 1.06$  ( $P = 0.29$ )

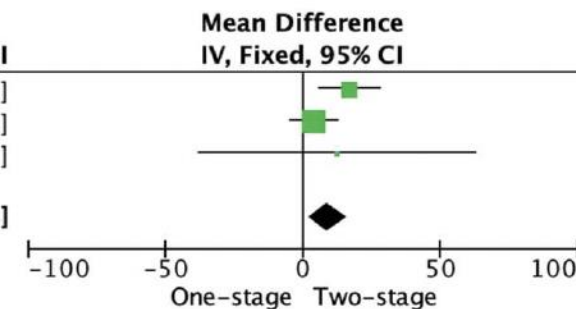


### c) Harris Hip Score

Study or Subgroup	One-stage			Two-stage			Weight	Mean Difference	
	Mean	SD	Total	Mean	SD	Total		IV, Fixed, 95% CI	Mean Difference
Choi et al. 2013	77	14	17	60	30	44	37.3%	17.00	[5.92, 28.08]
De Man et al. 2011	84	17	22	80	18	50	60.9%	4.00	[-4.68, 12.68]
Oussedik et al. 2010	87.8	62.2201	11	75.5	109.513	39	1.8%	12.30	[-38.03, 62.63]
<b>Total (95% CI)</b>			<b>50</b>			<b>133</b>	<b>100.0%</b>	<b>9.00</b>	<b>[2.23, 15.78]</b>

Heterogeneity:  $\text{Chi}^2 = 3.29$ ,  $\text{df} = 2$  ( $P = 0.19$ );  $I^2 = 39\%$

Test for overall effect:  $Z = 2.61$  ( $P = 0.009$ )



# I CURSO PRESENCIAL DE INFECCIÓN OSTEOARTICULAR

18, 19 y 20 JUNIO 2025  
Rancho de la Aldegüela  
Torrecaballeros, Segovia



Effect Size	Studies (N)	Participants (N)	Fixed-Effect Model (OR 95% CI)	I <sup>2</sup> (%)	P
Paprosky acetabular classification					
Paprosky I	2	156	<sup>a</sup> OR 8.90, 95% CI 4.00 to 19.78	76%	<0.00001
Paprosky II	2	156	OR 0.51, 95% CI 0.25 to 1.02	0%	0.06
Paprosky III	2	156	OR 0.07, 95% CI 0.02 to 0.28	35%	0.0002
Paprosky femoral classification					
Paprosky I	2	156	OR 3.46, 95% CI 1.31 to 9.11	0%	0.01
Paprosky II	2	156	<sup>a</sup> OR 1.48, 95% CI 0.19 to 11.59	88%	0.71
Paprosky III	2	156	OR 0.46, 95% CI 0.22 to 0.96	6%	0.04
Paprosky IV	2	156	OR 0.13, 95% CI 0.01 to 2.36	0%	0.17

ORGANIZADO POR



## Modalidad

**1 tiempo (revisión directa)**

**2 tiempos (revisión diferida)**

## Indicaciones

- Infección crónica pero con **germen identificado y sensible**
- Buen estado general
- Buen stock óseo
- Tejidos blandos adecuados
- Sin sinus/fístula persistente
  
- Infección crónica o polimicrobiana
- Germen desconocido o resistente
- Fístula o mal estado de partes blandas
- Implante inestable o mala calidad ósea

## Contraindicaciones

- **?Germen desconocido?** o multirresistente
- Fístula activa
- Mal estado general
- Múltiples cirugías previas fallidas
  
- Paciente no apto para 2da cirugía (riesgo alto)

## CASO 1

Cultivo Se aísla:  
 Microorganismo 1 Staphylococcus epidermidis

### Estudio: INCIDENCIAS ANALÍTICAS

	S.epidermidis
Oxacilina	R
Gentamicina	R
Tobramicina	R
Levofloxacino	R
Cefepima	I
Er	
<b>VANCOMICINA</b>	
Clindamicina	R
Vancomicina	S
Rifampicina	S
Linezolid	S
Trimetoprim/sulfameto zazol	R
Tigeciclina	S

## CASO 2

### Estudio: BACTERIAS

### Estudio: -- EXUDADOS --

Cultivo Se aísla:  
 Microorganismo 1 Pseudomonas aeruginosa

	P.aeruginosa
Cefepima	I
Ce	
Az	
<b>CEFTAZIDIMA</b>	
Gentamicina	S
Ciprofloxacino	R
Levofloxacino	R
Piperacilina/tazobacta	I

S = Sensible; I = Sensible con aumento de la exposición al antibiótico (aumento de la dosis o  
 R = Resistente

Tratamiento inicial: betalactámicos, (glico)lipopéptidos

## CASO 1

Cultivo Se aísla:  
Microorganismo 1 Staphylococcus epidermidis

### Estudio: INCIDENCIAS ANALÍTICAS

	S.epidermidis	
Oxacilina	R	
Gentamicina	R	
Tobramicina	R	
Levofloxacino	R	
Cefepima	I	
Er	<b>VANCOMICINA</b>	
Clindamicina	R	
Vancomicina	S	
Rifampicina	S	
Linezolid	S	
Trimetoprim/sulfametoxazol	R	
Tigeciclina	S	

## CASO 2

### Estudio: BACTERIAS

### Estudio: -- EXUDADOS --

Cultivo Se aísla:  
Microorganismo 1 Pseudomonas aeruginosa

	P.aeruginosa	
Cefepima	I	
Ce	<b>CEFTAZIDIMA</b>	
Az		
Gentamicina	S	
Ciprofloxacino	R	
Levofloxacino	R	
Piperacilina/tazobacta	I	

S = Sensible; I = Sensible con aumento de la exposición al antibiótico (aumento de la dosis o  
R = Resistente

Tratamiento inicial: betalactámicos, (glico)lipopéptidos

Tratamiento de continuación



## CASO 1

Cultivo

Se aísla:

Microorganismo 1

Staphylococcus epidermidis

### Estudio: INCIDENCIAS ANALÍTICAS

	S.epidermidis	
Oxacilina	R	
Gentamicina	R	
Tobramicina	R	
Levofloxacino	R	
Fosfomicina	S	
Eritromicina	R	
Clindamicina	R	
Vancomicina	S	
Rifampicina	S	
Linezolid	S	
Trimetoprim/sulfameto zazol	R	
Tigeciclina	S	

Tratamiento inicial: betalactámicos, (glico)lipopéptidos

Tratamiento de continuación



## CASO 2

**Estudio: BACTERIAS**

**Estudio: -- EXUDADOS --**

Cultivo

Se aísla:

Microorganismo 1

Pseudomonas aeruginosa

	P.aeruginosa	
Cefepima	I	
Ceftazidima	I	
Aztreonam	R	
Gentamicina	S	
Ciprofloxacino	R	
Levofloxacino	R	
Piperacilina/tazobacta	I	

S = Sensible; I = Sensible con aumento de la exposición al antibiótico (aumento de la dosis o  
R = Resistente

Tratamiento habitual: valsartan/HCTZ,  
amlodipino, doxazosina, venlafaxina,  
trazodona, tramadol, Eutirox

# Posología dalbavancina en IOA



*antibiotics*

Article

## Dalbavancin as Suppressi Osteoarticular Infections

Rosa Escudero-Sanchez<sup>1,2,3\*</sup>, Laura Morata<sup>4</sup>, Lu  
Carrion<sup>9</sup>, María Tacias Pitarch<sup>10</sup>, Jose Luis del P  
cía Pais<sup>14</sup>, Pablo Bachiller Luque<sup>15</sup>, Francisco Jav



Table 2. Variables related to dalbavancin administration.

Characteristics of dalbavancin administration		n (%)
Treatment type: Targeted		40 (93.0)
Empirical		3 (7.0)
First dalbavancin dose:	500mg	2 (5.0)
	1000mg	16 (38.1)
	1500mg	24 (57.1)
Subsequent regimens:		
500mg weekly		6 (14.0)
500mg every 2 weeks		1 (2.3)
1000mg weekly		3 (7.0)
1000mg every 2 weeks		8 (18.6)
1000mg every 3 weeks		1 (2.3)
1000mg monthly		2 (4.7)
1500mg every 2 weeks		11 (25.6)
1500mg every 3 weeks		1 (2.3)
1500mg monthly		10 (23.3)

# Posología dalbavancina en IOA

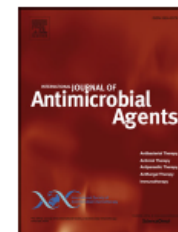
International Journal of Antimicrobial Agents 62 (2023) 106960



Contents lists available at [ScienceDirect](#)

International Journal of Antimicrobial Agents

journal homepage: [www.elsevier.com/locate/ijantimicag](http://www.elsevier.com/locate/ijantimicag)



## Expert Opinion on Dose Regimen and Therapeutic Drug Monitoring for Long-Term Use of Dalbavancin: Expert Review Panel



Eric Senneville<sup>a,\*</sup>, Guillermo Cuervo<sup>b</sup>, Matthieu Gregoire<sup>c,d</sup>, Carmen Hidalgo-Tenor<sup>e</sup>, François Jehl<sup>g</sup>, Jose M. Miro<sup>b,h</sup>, Andrew Seaton<sup>i</sup>, Bo Söderquist<sup>j,k</sup>, Alex Soriano<sup>l,h</sup>, Florian Thalhammer<sup>m</sup>, Federico Pea<sup>n,o</sup>

**Box 1.** Type of complex infections eligible for off-label dalbavancin use.

- Infective endocarditis (IE)
- Bone and joint infections (BJIs)
- Prosthetic joint infections (PJIs)
- Vascular graft infections (VGIs)
- Catheter-related bacteraemia and other Gram-positive biofilm-related infections

# Posología dalbavancina en IOA







antibiotics

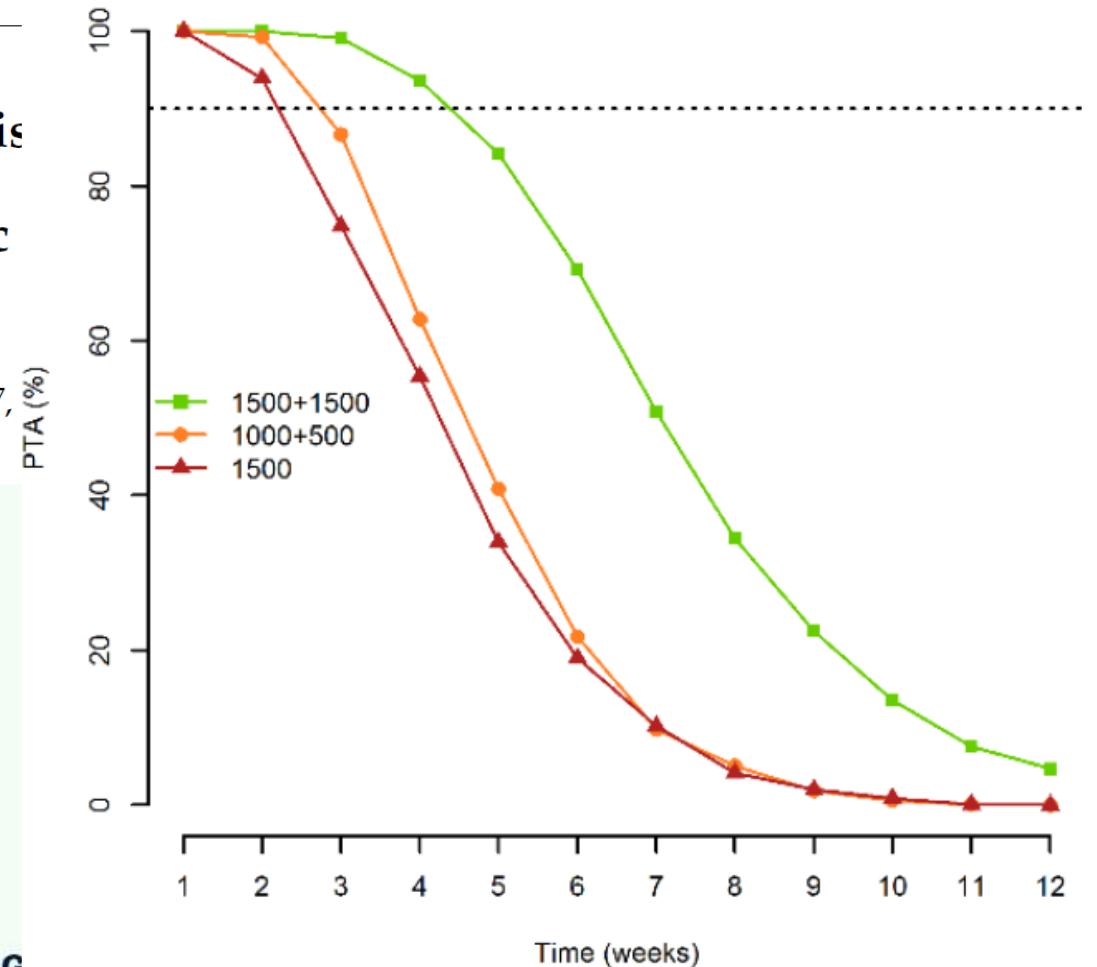


Article

## Population Pharmacokinetic and Pharmacodynamic Analysis of Dalbavancin for Long-Term Treatment of Subacute and/or Chronic Infectious Diseases: The Major Role of Therapeutic Drug Monitoring

Pier Giorgio Cojutti<sup>1</sup>, Sara Tedeschi<sup>2,3</sup>, Milo Gatti<sup>1,3</sup> , Eleonora Zamparini<sup>2</sup>, Marianna Meschiari<sup>4</sup> , Paola Della Siega<sup>5</sup>, Maria Mazzitelli<sup>6</sup> , Laura Soavi<sup>7</sup>, Raffaella Binazzi<sup>8</sup>, Elke Maria Erne<sup>8</sup>, Marco Rizzi<sup>7</sup>, Anna Maria Cattelan<sup>6</sup>, Carlo Tascini<sup>5</sup>, Cristina Mussini<sup>4</sup>, Pierluigi Viale<sup>2,3</sup> and Federico Pea<sup>1,3,\*</sup> 

CL<sub>CR</sub>: 90-120 mL/min/1.73 m<sup>2</sup>







# Posología dalbavancina en IOA



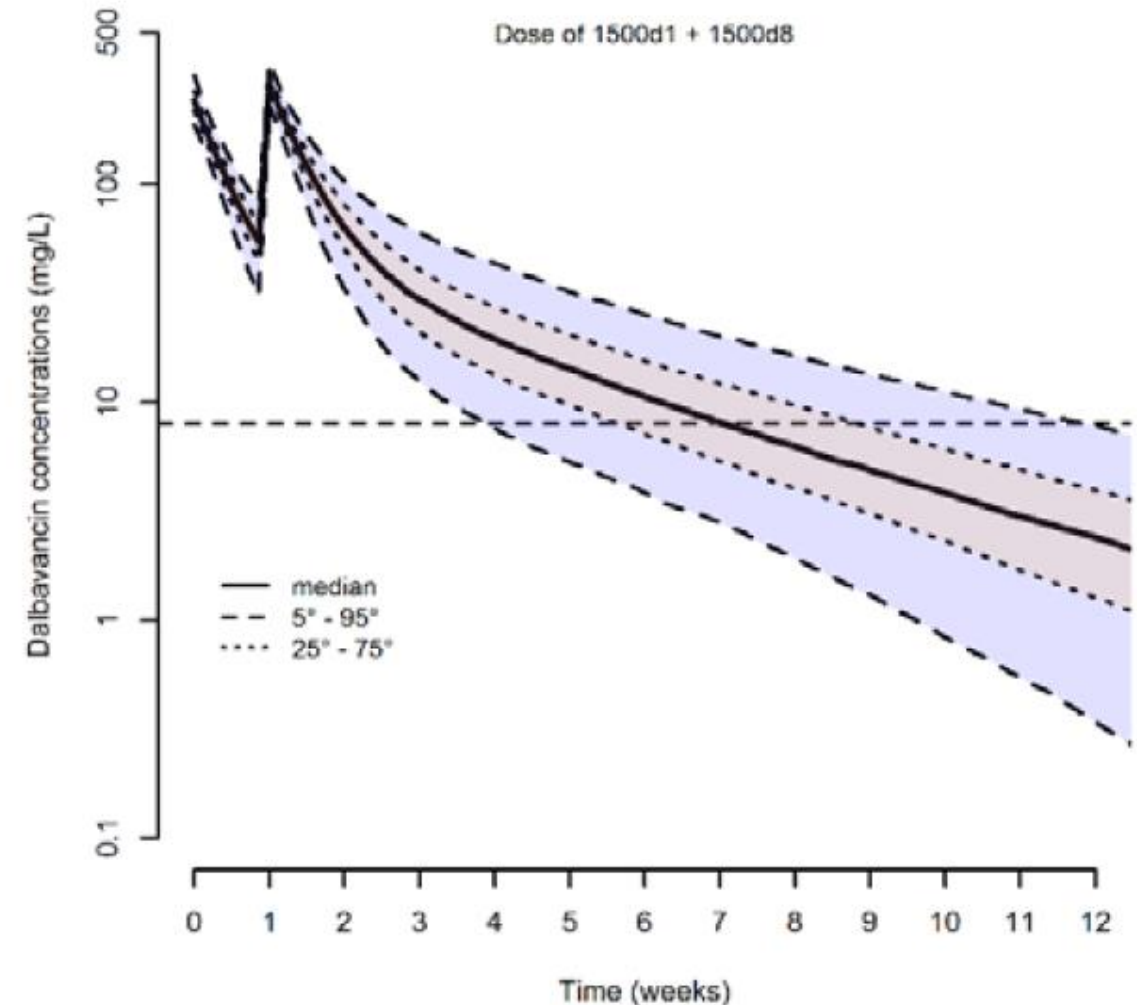
antibiotics

Article

## Population Pharmacokinetic and Pharmacodynamic Analysis of Dalbavancin for Long-Term Treatment of Subacute and/or Chronic Infectious Diseases: The Major Role of Therapeutic Drug Monitoring

Pier Giorgio Cojutti<sup>1</sup>, Sara Tedeschi<sup>2,3</sup>, Milo Gatti<sup>1,3</sup> , Eleonora Zamparini<sup>2</sup>, Marianna Meschiari<sup>4</sup> , Paola Della Siega<sup>5</sup>, Maria Mazzitelli<sup>6</sup> , Laura Soavi<sup>7</sup>, Raffaella Binazzi<sup>8</sup>, Elke Maria Erne<sup>8</sup>, Marco Ri Anna Maria Cattelan<sup>6</sup>, Carlo Tascini<sup>5</sup>, Cristina Mussini<sup>4</sup>, Pierluigi Viale<sup>2,3</sup> and Federico Pea<sup>1,3,\*</sup> 

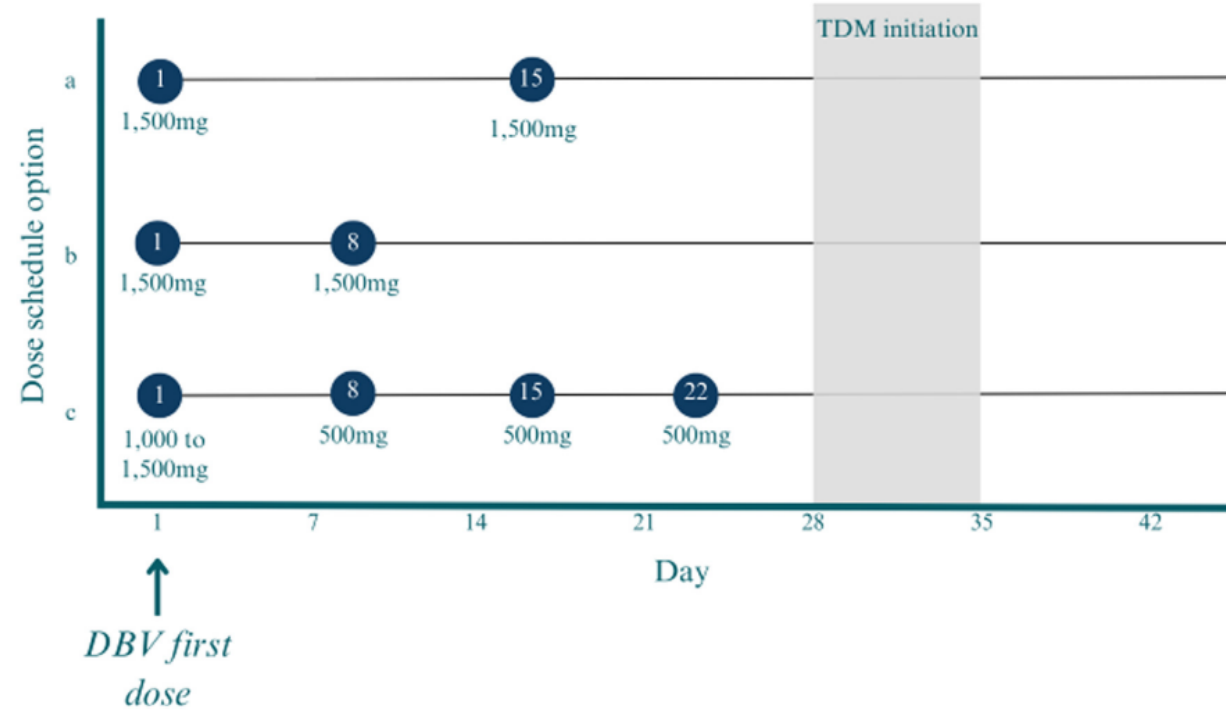
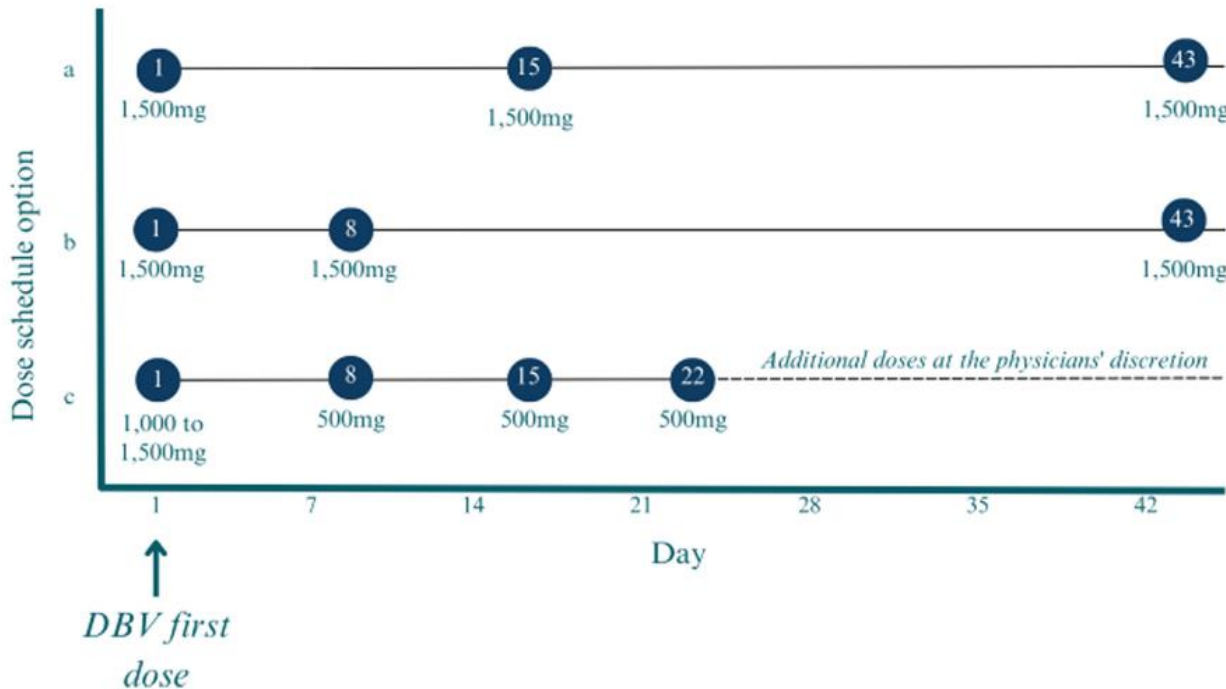
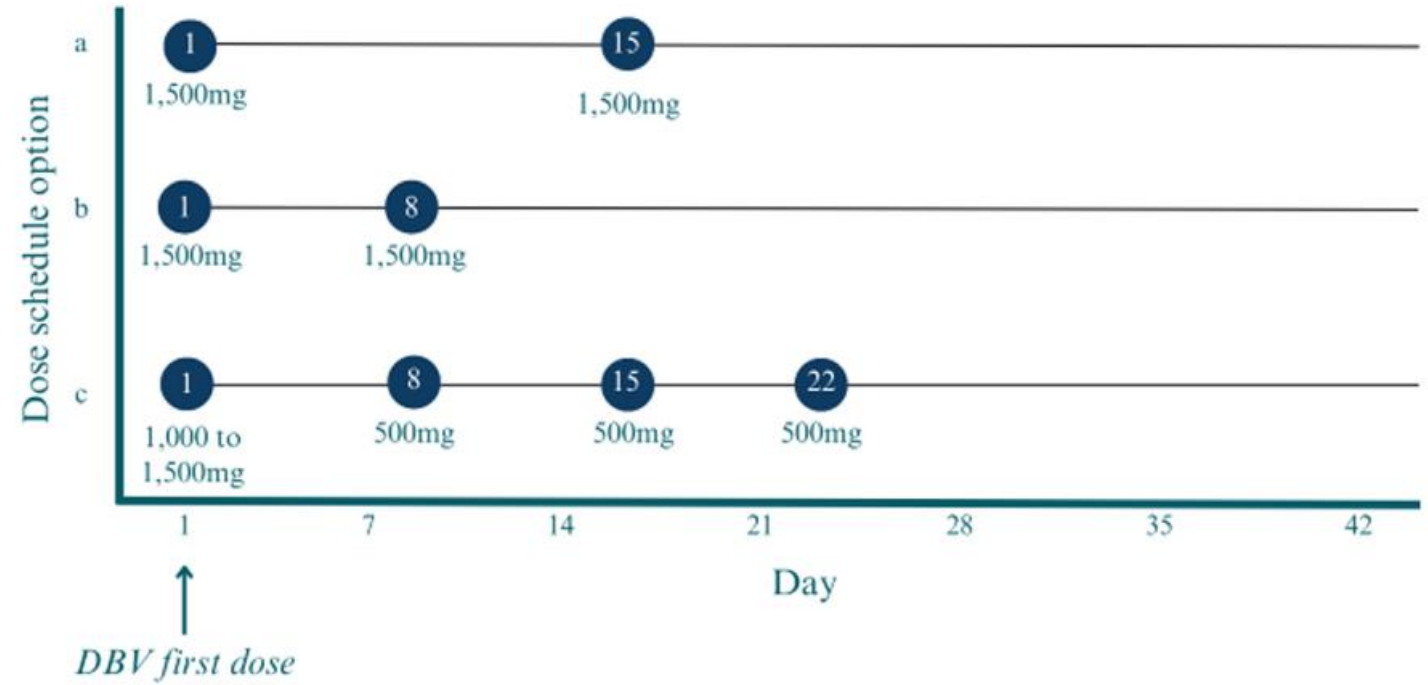
$CL_{CR}$ : 90-120 mL/min/1.73 m<sup>2</sup>





## Expert Opinion on Dose Regimen and Therapeutic Drug Monitoring for Long-Term Use of Dalbavancin: Expert

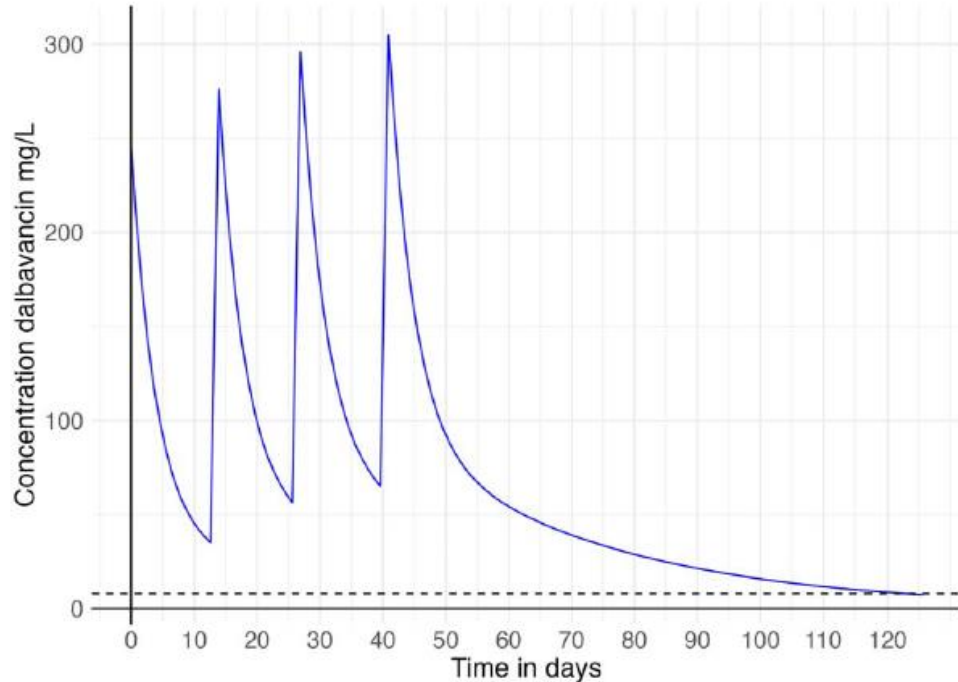
Eric Senneville<sup>a,\*</sup>, Guillermo Cuervo<sup>b</sup>, Matthieu Gregoire<sup>c</sup>, François Jehl<sup>g</sup>, Jose M. Miro<sup>b,h</sup>, Andrew Seaton<sup>i</sup>, Bo Sørensen<sup>j</sup>, Florian Thalhammer<sup>m</sup>, Federico Pea<sup>n,o</sup>



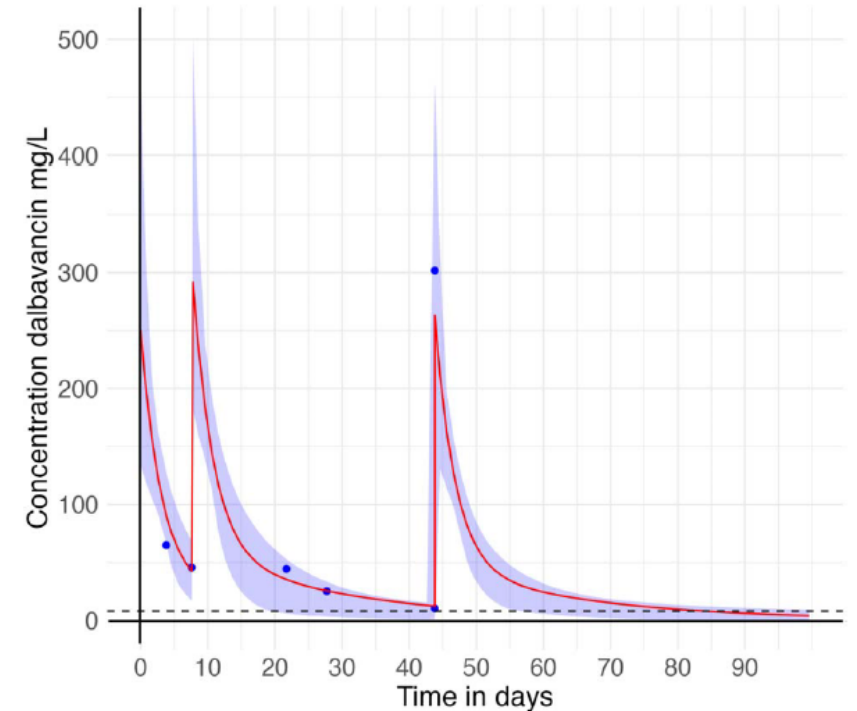
OPEN

# Therapeutic Drug Monitoring Versus Fixed-Interval Dosing of Dalbavancin in Implant-Associated Spinal Infections: Grand Round/A Case Study

Jeroen P.A. Houwen, PharmD.\* Charlotte S. Hakkers, MD, PhD.† Valentijn A. Schweitzer, MD, PhD,‡ Daniël J. Touw, PharmD, PhD,§, PhD\*



**FIGURE 2.** Case 2: Predicted dalbavancin concentrations over time. Dashed line represents the threshold of 8 mg/L, indicating the minimum plasma concentration required for adequate dalbavancin exposure.



**FIGURE 1.** Case 1. Observed (blue dots) and predicted dalbavancin plasma concentrations (red line) over time. Shaded area represents the 95% confidence interval based on uncertainty of the model parameters. Dashed line indicates the threshold of 8 mg/L, reflecting the minimum plasma concentration considered adequate for dalbavancin exposure.

## CASO 1

Cultivo Se aísla:  
Microorganismo 1 Staphylococcus epidermidis

### Estudio: INCIDENCIAS ANALÍTICAS

	S.epidermidis	
Oxacilina	R	
Gentamicina	R	
Tobramicina	R	
Levofloxacino	R	
Fosfomicina	S	
Er	<b>VANCOMICINA</b>	
Clindamicina	R	
Vancomicina	S	
Rifampicina	S	
Linezolid	S	
Trimetoprim/sulfameto xazol	R	
Tigeciclina	S	

Tratamiento inicial: betalactámicos, (glico)lipopéptidos

Tratamiento de continuación



## CASO 2

### Estudio: BACTERIAS

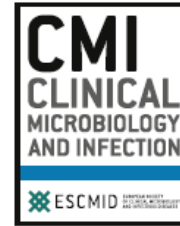
### Estudio: -- EXUDADOS --

Cultivo Se aísla:  
Microorganismo 1 Pseudomonas aeruginosa

	P.aeruginosa	
Cefepima	I	
Ceftazidima	I	
Aztreonam	R	
Gentamicina	S	
Ciprofloxacino	R	
Levofloxacino	R	
Piperacilina/tazobacta	I	

S = Sensible; I = Sensible con aumento de la exposición al antibiótico (aumento de la dosis o  
R = Resistente

## CEFTAZIDIMA



Letter to the Editor

## *In vitro* susceptibility to delafloxacin of *Pseudomonas* resistance to other quinolones (ciprofloxacin and

J.D.D. Jordán-Chaves<sup>1,\*</sup>, Ruben Lobato-Cano<sup>2</sup>, Javier Casas-Ciria Carolina Freyre-Carillo<sup>1</sup>, J.D. Santotoribio<sup>3</sup>, M.F. de-la-Rubia-Ma

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<sup>4</sup> Clinical Microbiology, Hospital Universitario Puerto del Mar, Cadiz, Spain

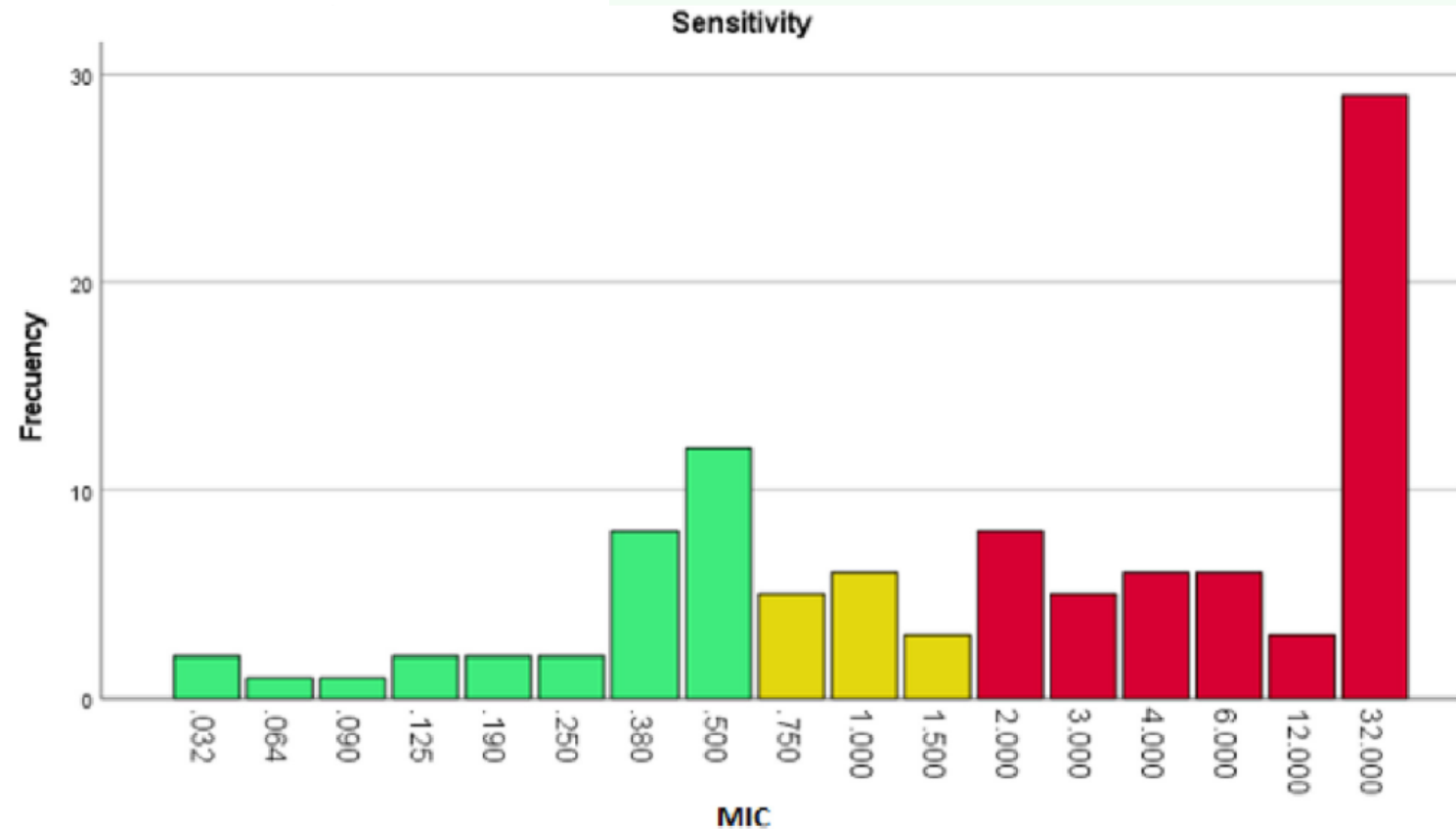
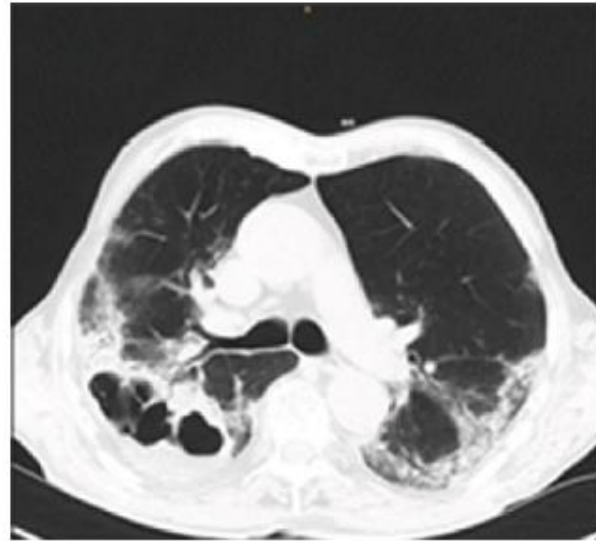


Fig. 1. Frequency of Delafloxacin MICs obtained in *Pseudomonas aeruginosa* Ciprofloxacin and Levofloxacin resistant strains.

## Case Report

# Ciprofloxacin-Resistant *Pseudomonas aeruginosa* Lung Abscess Complicating COVID-19 Treated with the Novel Oral Fluoroquinolone Delafloxacin



Antimicrobial susceptibility testing (Thermo Fisher Scientific, Massachusetts, USA) of *P. aeruginosa* showed resistance to meropenem, imipenem, ciprofloxacin, gentamicin, and tobramycin. Antibacterial treatment was switched on August 28<sup>th</sup>, 2020, to piperacillin/tazobactam 4.5 g tid i.v.,

# ¿Cuánto tiempo?

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

## Antibiotic Therapy for 6 or 12 Weeks for Prosthetic Joint

L. Bernard, C. Arvieux, B. Brunschweiler, S. Touché, C. Boeri, G. Gras, J. Druon, P. Rosset, E. Senneker, G. Le Moal, J. Michon, H. Aumaître, E. Forestier, C. Chirouze, F.-A. Dauchy, E. Devaud, B. Maréchal, E. Stindel, A. Dinh, P. Bemer, B. Giraudeau

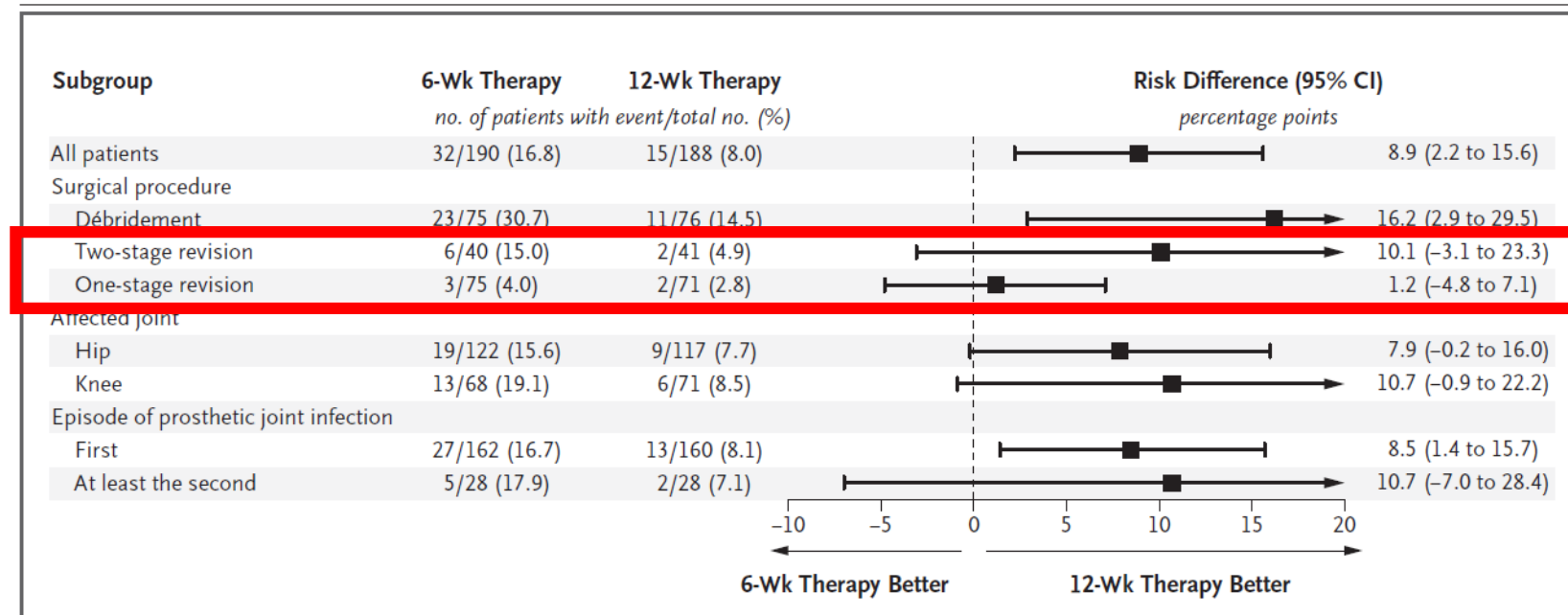


Figure 2. Exploratory Subgroup Analyses of Persistent Infection within 2 Years after the Completion of Antibiotic Therapy (Primary Outcome).

# ¿Cuánto tiempo?


*J Antimicrob Chemother* 2019; **74**: 2394–2399  
doi:10.1093/jac/dkz202 Advance Access publication 18 May 2019

**Journal of  
Antimicrobial  
Chemotherapy**

## **Four versus six weeks of antibiotic therapy for osteoarticular infections after implant removal: a randomized trial**

**Mohamed Benkabouche<sup>1†</sup>, Guillaume Racloz<sup>2,3†</sup>, Hervé Spechbach<sup>1</sup>, Benjamin A. Lipsky<sup>4</sup>, Jean-Michel Gaspoz<sup>1</sup> and Ilker Uçkay<sup>2,4,5\*</sup>**

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†Equal contribution as first authors.

**Table S1. Characteristics of patients with four versus six weeks of systemic antibiotic therapy after removal of the infected orthopaedic implant (ITT & PP analyses)**

ITT analysis	Six weeks	Four weeks	<i>p</i> -value *	PP analysis	Six weeks	Four weeks	<i>p</i> -value *
n = 123	n = 61	n = 62		n = 117	n = 60	n = 57	
Female sex	23 (37%)	25 (41%)	.67	Female sex	20 (35%)	25 (42%)	.47
Median age	65 years	62 years	.27	Median age	63 years	63 years	.36
Immune suppression <sup>+</sup>	18 (29%)	20 (33%)	.65	Immune suppression <sup>+</sup>	15 (26%)	20 (33%)	.41
Bacteraemia	8 (13%)	4 (7%)	.24	Bacteraemia	7 (12%)	4 (7%)	.30
Median ASA-Score <sup>16</sup>	2	2	.13	Median ASA-Score <sup>16</sup>	2	2	.22
Psychiatric co-morbidity	25 (40%)	24 (39%)	.91	Psychiatric co-morbidity	22 (39%)	24 (40%)	.88
Haematogenous origin of infection	9 (15%)	7 (11%)	.62	Haematogenous origin of infection	9 (15%)	7 (12%)	.52
Primary surgical site infections	23 (38%)	19 (31%)	.53	Primary surgical site infections	22 (37%)	18 (32%)	.36
Serum CRP level on admission (median)	37 mg/L	23 mg/L	.24	Serum CRP level on admission (median)	42 mg/L	23 mg/L	.35
Visible osteosynthesis material	7 (11%)	11 (18%)	.29	Visible osteosynthesis material	5 (9%)	11 (18%)	.13
Removed arthroplasties	24 (39%)	15 (25%)	.09	Removed Arthroplasties	23 (40%)	15 (25%)	.08
- with temporary spacers	18 (30%)	13 (21%)	.28	- with temporary spacers	18 (30%)	13 (23%)	.38
- re-implantation after infection	17 (29%)	13 (21%)	.37	- re-implantation after infection	17 (28%)	13 (23%)	.49
- median interval between stages	8 weeks	6 weeks	.01	- median interval between stages	8 weeks	6 weeks	.01
Duration of intravenous therapy (median)	5 days	3.5 days	.09	Duration of intravenous therapy (median)	4 days	3.5 days	.23
Complete clinical remission	58 (94%)	58 (95%)	.71	Complete clinical remission	54 (95%)	57 (95%)	.95
Complete microbiological remission	60 (97%)	60 (98%)	.57	Complete microbiological remission	55 (97%)	59 (98%)	.53
Significant antibiotic-related adverse events	22 (35%)	17 (28%)	.36	Significant antibiotic-related adverse events	19 (33%)	17 (28%)	.56

# ¿Cuánto tiempo?

CLINICS 2007;62(2):99-108

## CLINICAL SCIENCES

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### PROSPECTIVE STUDY OF THE TREATMENT OF INFECTED HIP ARTHROPLASTIES WITH OR WITHOUT THE USE OF AN ANTIBIOTIC-LOADED CEMENT SPACER

Henrique Berwanger Cabrita, Alberto Tesconi Croci, Olavo Pires de Ana Lúcia Lei Munhoz de Lima

Systemic antibiotics were given for 3 weeks, according to infectious disease protocols. The empiric therapy was

**Table 10** - Recurrence of infection after first and second stages, by treatment group

Recurrence of infection	After first stage	After second stage	Overall
Control group	7 (23.3%)	3 (8.1%)	10 (33.3%)
Study group	2 (5,2%)	2 (6.1%)	4 (10.5%)
P	0.04	0.01	0.002

# ¿Cuánto tiempo?

*Journal of Antimicrobial Chemotherapy* (2009) **64**, 392–397  
doi:10.1093/jac/dkp177  
Advance Access publication 28 May 2009

JAC

## Two-stage revision of infected hip arthroplasty using an antibiotic-loaded spacer: retrospective comparison between short-term and prolonged antibiotic therapy

Pan ***Patients and methods:*** We reviewed 99 patients with PHI who were managed with SEA using an ALCS from February 2002 to October 2005. A standard (4–6 week) antibiotic treatment course was administered in the first 46 patients and a short-term (1 week) therapy was adopted in the subsequent 53 patients.

<sup>1</sup>Department  
Chang Gung

Chia-Yi, Taiwan

***Results:*** Eight patients (four in each group) had persistent infection following the first attempt of surgery and antibiotic treatment; in three of them the infection was cured by additional debridement prior to re-implantation. Forty-two (91%) patients in the long-term group and 47 (89%) patients in the short-term group were free of infection ( $P=0.67$ ) at an average follow-up of 43 months (range, 24–60 months). Five (11%) patients developed complications related to prolonged antibiotic therapy. The short-term treatment resulted in a shorter hospital stay (18 versus 43 days,  $P<0.001$ ) and a lower direct medical cost (US\$13732 versus US\$21756,  $P<0.001$ ).

# ¿Cuánto tiempo?



## The use of two-stage exchange arthroplasty with depot antibiotics in the absence of long-term antibiotic therapy in infected total hip replacement

I. Stockley,  
B. J. Mockford,  
A. Hoad-Reddick,  
P. Norman

*From Sheffield  
Teaching Hospitals  
Trust, Sheffield,  
England*

We present a series of 114 patients with microbiologically-proven chronically-infected total hip replacement, treated between 1991 and 2004 by a two-stage exchange procedure with antibiotic-loaded cement, but without the use of a prolonged course of antibiotic therapy. The mean follow-up for all patients was 74 months (2 to 175) with all surviving patients having a minimum follow-up of two years. Infection was successfully eradicated in 100 patients (87.7%) a rate which is similar to that reported by others, but where prolonged adjuvant antibiotic therapy has been used. Using the technique described, a prolonged course of systemic antibiotics does not appear to be essential and the high cost of the administration of antibiotics can be avoided.

# ¿Cuánto tiempo?

CLINICAL ORTHOPAEDICS AND RELATED RESEARCH  
Number 295, pp. 96-101  
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## A Comparison of Gentamicin-Impregnated Polymethylmethacrylate Bead Implantation to Conventional Parenteral Antibiotic Therapy in Infected Total Hip and Knee Arthroplasty

CARL L. NELSON, M.D.,\* RICHARD P. EVANS, M.D.,\*\* J. DAVID BLAHA, M.D.,†  
JASON CALHOUN, M.D.,‡ STEPHEN L. HENRY, M.D.,§  
AND MICHAEL J. PATZAKIS, M.D. §§

**Group 1, debridement and the implantation of gentamicin-polymethylmethacrylate (PMMA) beads; and Group 2, debridement and conventional parenteral systemic antibiotic therapy. After initial**

**1990. Twenty-eight patients (22 total hip arthroplasties and six total knee arthroplasties) who had periprosthetic infections were treated according to a prospective, randomized protocol. After initial debridement for their infections, patients were ran-**



**months to 5.6 years). Infection recurred in two patients treated by debridement and the implantation of gentamicin-PMMA beads (15%) and in four patients treated with debridement and conventional systemic antibiotic therapy (30%). All recurrences**



# Enfermedades Infecciosas y Microbiología Clínica

[www.elsevier.es/eimc](http://www.elsevier.es/eimc)



Consensus statement

## Executive summary of management of prosthetic joint infections. Clinical practice guidelines by the Spanish Society of Infectious Diseases and Clinical Microbiology (SEIMC)

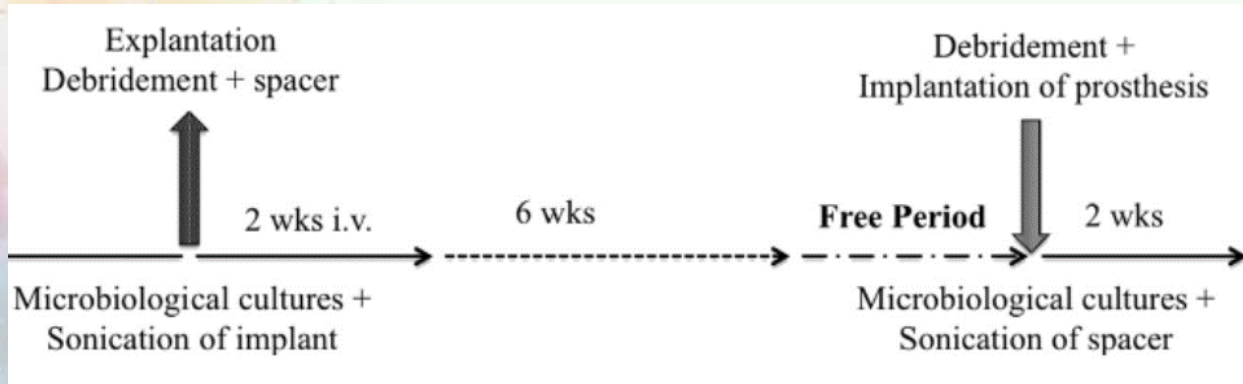


- The two-step exchange procedure should include a targeted intravenous antimicrobial treatment for 4 to 6 weeks (A-II), or 1–2 weeks of intravenous antibiotics followed by oral antimicrobials with good bioavailability for a total duration of 6 weeks (B-II).
- In chronic PJI caused by CNS, “universal” anti-staphylococcal antimicrobial therapy (i.e. glycopeptides, daptomycin, or linezolid) may be considered after the first-step surgery (prosthesis removal), because this carries a lower rate of positive cultures during the second-step surgery (re-implantation) (C-III).
- Shortening the systemic antimicrobial treatment could be considered for cases of PJI due to low-virulent microorganisms, such as CNS or Propionibacterium acnes, as long as the first-step surgery has included a thorough and exhaustive debridement of the joint, and a cement spacer loaded with antibiotics active against the microorganism responsible for the infection has been used (B-II).

Caso 1: Vancomicina 5 días + dalbavancina 1500 mg  
2 dosis separadas 8 días

Caso 2: Ceftazidima 10 días + delafloxacino 18 días

# El reimplante



The Journal of Arthroplasty 34 (2019) 704–709

Contents lists available at [ScienceDirect](#)

 **ELSEVIER**

The Journal of Arthroplasty

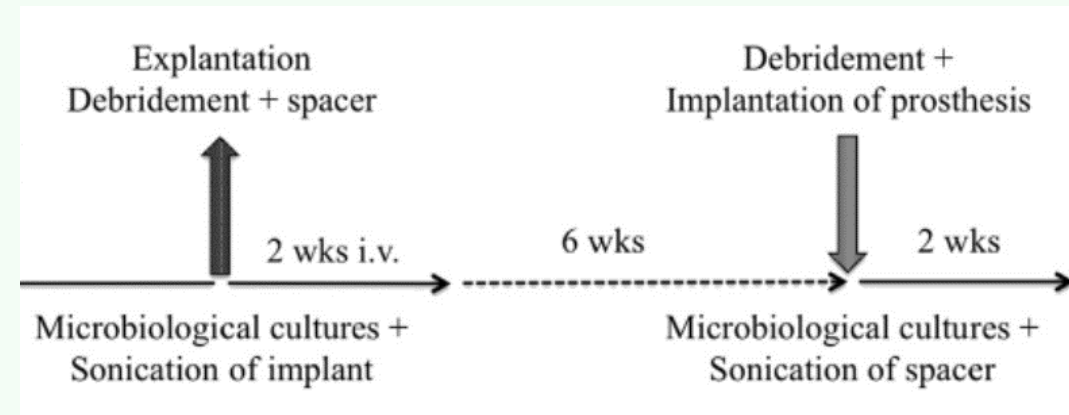
journal homepage: [www.arthroplastyjournal.org](http://www.arthroplastyjournal.org)

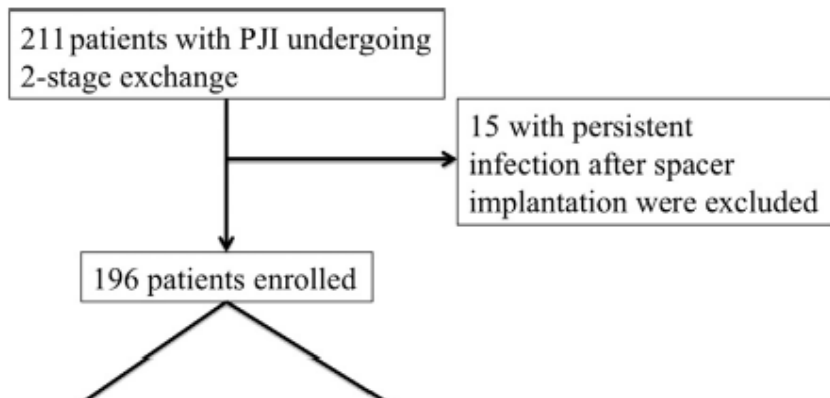
Complications - Infection

Continuous Antibiotic Therapy Can Reduce Recurrence of Prosthetic Joint Infection in Patients Undergoing 2-Stage Exchange

Tiziana Ascione, MD <sup>a,\*</sup>, Giovanni Balato, MD, PhD <sup>b</sup>, Massimo Mariconda, MD <sup>b</sup>, Renato Rotondo, MD <sup>c</sup>, Andrea Baldini, MD <sup>d</sup>, Pasquale Pagliano, MD <sup>a</sup>







### Question 5: Should there be an antibiotic holiday period prior to reimplantation?

**Consensus:** No existen pruebas concluyentes que apoyen unas vacaciones ATBs tras la interrupción del tratamiento ATB y antes de la cirugía de reimplantación como medio para garantizar la erradicación de la infección.  
**Delegate Vote:** Agree: 74%, Disagree: 22%, Abstain: 4% (Strong Consensus).

*Proceedings of the International Consensus Meeting on PJI 2018*

Continuous therapy	104	10	2.72 (1.17-6.30)	.02	3.32 (1.31-8.44)	.01
Holiday period	65	17				
Bacterial growth	146	18	3.17 (1.26-7.90)	.02	3.96 (1.55-10.19)	.01
No bacterial growth	23	9				
Gram-positive growth	133	10	8.18 (2.75-24.3)	<.001	—	NS
Gram-negative growth	13	8				
Oral therapy	110	12	2.33 (1.02-5.30)	.03	—	NS
Intravenous therapy	59	15				
Absence of immunocompromisation	108	11	2.58 (1.12-5.90)	.03	2.73 (1.1-7.3)	.04
Presence of immunocompromisation	61	16				

CI, confidence interval; NS, not significant.

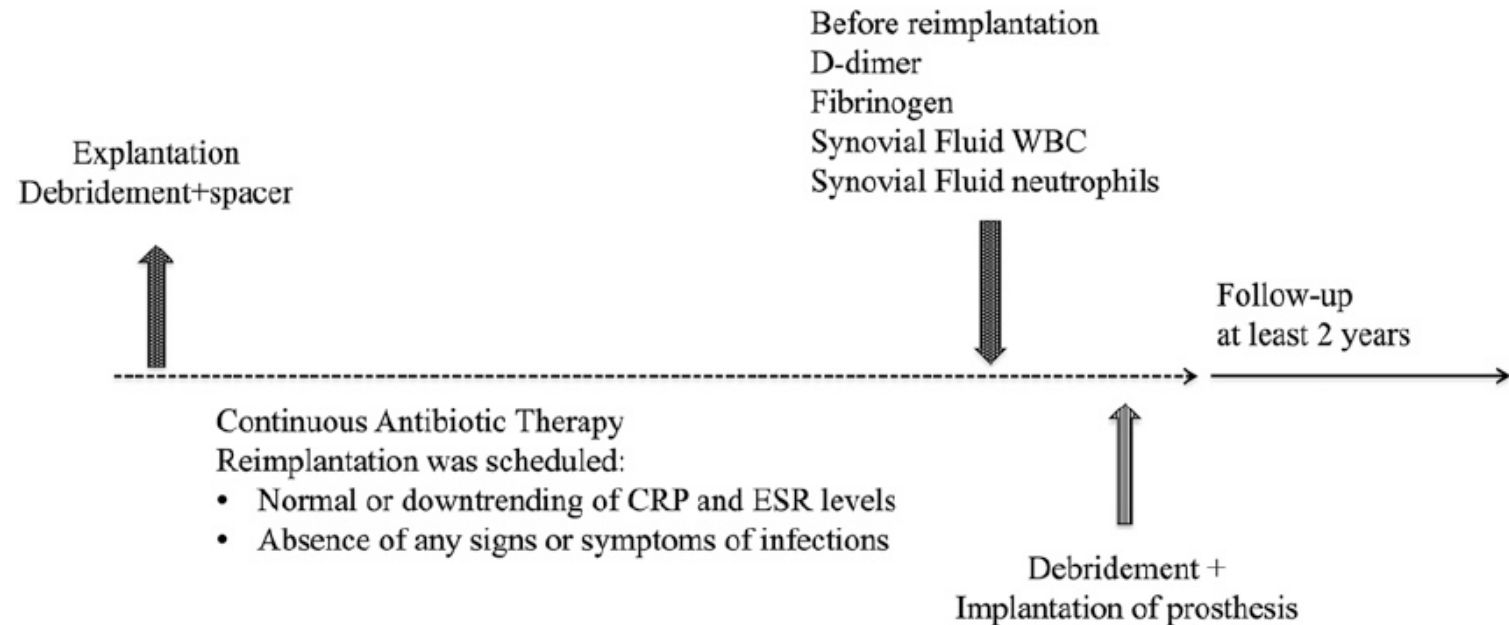
# El reimplante

- *Monitoring of CRP during the follow-up is advisable; the persistence of high values is suggestive of treatment failure **(B-III)**, but its total normalization must not be a condition for deciding the end of therapy **(B-II)**.*

# El reimplante

## Ideal Timing of Reimplantation in Patients with Periprosthetic Knee Infection Undergoing 2-Stage Exchange

A Diagnostic Scoring System



# El reimplante

## Ideal Timing of Reimplantation in Patients with Periprosthetic Knee Infection Undergoing 2-Stage Exchange

A Diagnostic Scoring System

**TABLE III Pre-Reimplantation Diagnostic Parameters in Patients with and without Recurrent Infection\***

	Median (IQR) Level		P Value†
	Patients with Infection (N = 19)	Patients without Infection (N = 134)	
ESR ( <i>mm/hr</i> )	31 (16-53)	23.5 (11-43)	0.091
CRP ( <i>mg/L</i> )	9.3 (2.2-21.5)	3.35 (2-7.2)	0.1
Fibrinogen ( <i>ng/mL</i> )	450 (301-562)	392.5 (314.5-481)	0.23
D-dimer ( <i>ng/mL</i> )	1420 (970-2833)	907.5 (575.5-1564.5)	0.008
SF-WBC count ( <i>cells/μL</i> )	1290 (934-2798)	439 (263-872)	<0.001
SF-PMN percentage	63 (53-75)	34 (27-51)	<0.001

\*IQR = interquartile range, ESR = erythrocyte sedimentation rate, CRP = C-reactive protein, SF = synovial fluid, WBC = white blood cell, PMN = polymorphonuclear leukocyte. †Mann-Whitney U test.

**TABLE IV Diagnostic Parameters for Pre-Reimplantation D-Dimer, SF-WBC Count, and SF-PMN Percentage at the Proposed Threshold\***

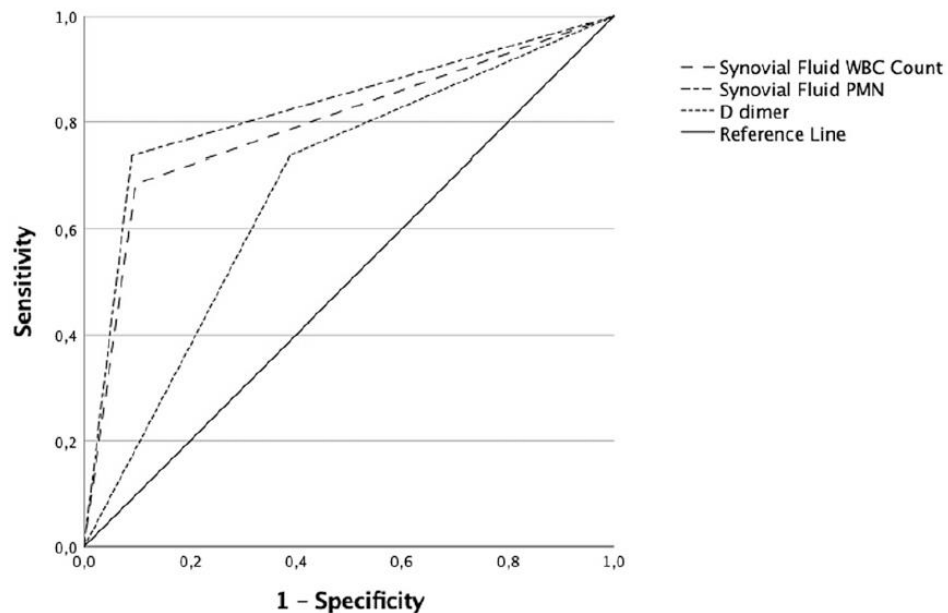
	D-Dimer	SF-WBC Count	SF-PMN Percentage	D-Dimer >1110 ng/mL, SF-WBC Count >934 cells/μL, SF-PMN Percentage >52%
Threshold	1110 ng/mL	934 cells/μL	52%	
Sensitivity	74% (66%-80%)	68% (60%-76%)	73% (66%-80%)	47% (39%-56%)
Specificity	61% (52%-68%)	90% (84%-93%)	90% (83%-94%)	99% (95%-99%)
Positive predictive value	0.21 (0.13-0.29)	0.50 (0.42-0.58)	0.52 (0.44-0.60)	0.82 (0.75-0.87)
Negative predictive value	0.94 (0.89-0.97)	0.95 (0.90-0.98)	0.96 (0.91-0.98)	0.93 (0.87-0.96)
Area under the curve	0.69 (0.57-0.81)	0.79 (0.67-0.92)	0.82 (0.70-0.94)	0.73 (0.58-0.88)

\*Data are given with the 95% confidence interval in parentheses. SF = synovial fluid, WBC = white blood cell, PMN = polymorphonuclear leukocyte.

# El reimplante

## Ideal Timing of Reimplantation in Patients with Periprosthetic Knee Infection Undergoing 2-Stage Exchange

A Diagnostic Scoring System



**TABLE V Simple Importance-Based Beta Coefficients for the 3 Diagnostic Parameters\***

Variable	Beta	Standard Error	P Value†	Score
Serum D-dimer >1110 ng/mL	1.52	0.75	0.041	1.5
SF-WBC >934 cells/ $\mu$ L	2.13	0.74	0.004	2
SF-PMN percentage >52%	2.18	0.74	0.003	2

\*SF = synovial fluid, WBC = white blood cell, PMN = polymorphonuclear leukocyte. †Age- and sex-adjusted multivariable logistic regression analysis.

# El reimplante

## Ideal Timing of Reimplantation in Patients with Periprosthetic Knee Infection Undergoing 2-Stage Exchange

A Diagnostic Scoring System

TABLE VII Distribution of the Scores According to Outcome\*

Score	Patients with Infection (no. [%])	Patients without Infection (no. [%])	Sensitivity	Specificity
0	1 (5%)	69 (51%)	94%	51%
1.5	2 (11%)	44 (33%)	84%	84%
2	2 (11%)	11 (8%)	74%	93%
3.5	3 (16%)			
4	2 (11%)			
5.5	9 (47%)			

Based on our findings, patients with a score of  $>2$  should not undergo reimplantation but rather be considered for repeat debridement and spacer exchange as they are at a high risk of recurrent PJI. Patients with a score of  $\leq 2$  can undergo definitive reimplantation with the lowest risk of recurrence.

# El reimplante. ¿Qué profilaxis?

European Journal of Clinical Microbiology & Infectious Diseases  
<https://doi.org/10.1007/s10096-024-04838-3>

ORIGINAL ARTICLE



## Impact of antibiotic prophylaxis in second-stage surgery in joint prosthesis infection treated with two-stage exchange. A multicenter case-control study

Jose M. Barbero Allende<sup>1,2</sup> · Encarnación Fernández Antón<sup>3,4</sup> · Joan Gómez-Junyent<sup>2,5,6</sup> · Lluïsa Sorlí Redó<sup>2,5,7,8</sup> · Dolors Rodríguez-Pardo<sup>2,9,10</sup> · Óscar Murillo Rubio<sup>2,10,11</sup> · Marta Fernández Sampedro<sup>2,10,12</sup> · Rosa Escudero-Sánchez<sup>2,10,13,14</sup> · Manuel García Gutiérrez<sup>2,10,15</sup> · Ma Eugenia Portillo<sup>2,16,17</sup> · Ignacio Sancho<sup>17,18</sup> · Alicia Rico Nieto<sup>2,10,19</sup> · Laura Gulo Carrlón<sup>2,20,21</sup> · Alex Soriano Viladomiu<sup>22,23</sup> · Laura Morata Ruiz<sup>2,22,23</sup> · Francisco José de Abajo Iglesias<sup>24,25</sup>

Only before surgery (n=62)	
Cefazolin	48 (17.3%)
Cefazolin + ticloplatin	4 (1.5%)
Cefuroxime	3 (1.1%)
Vancomycin	2 (0.8%)
Vancomycin + ceftriaxone	1 (0.4%)
Ticoplanin	1 (0.4%)
Ticoplanin + ceftriaxone	1 (0.4%)
Ticoplanin + ertrapenem	1 (0.4%)
Ticoplanin + meropenem	1 (0.4%)
Before and after surgery (n=183)	
Vancomycin + ceftazidime	28 (10.7%)
Ticoplanin + ceftazidime before and vancomycin + ceftazidime after	20 (7.4%)
Cefazolin	16 (6.1%)
Ticoplanin + gentamicin	14 (5.3%)
Ticoplanin + meropenem before and vancomycin + meropenem after	11 (4.2%)
Cefazolin before and vancomycin + ceftazidime after	10 (3.8%)
Vancomy	5 (1.9%)
Cefazolin before and levofloxacin after	4 (1.5%)
Cefazolin before and linezolid after	3 (1.1%)
Ceftriaxone	3 (1.1%)
Ticoplanin	3 (1.1%)
Ticoplanin + ertrapenem	3 (1.1%)
Ticoplanin + meropenem	3 (1.1%)
Ticoplanin + gentamicin before and ticoplanin after	3 (1.1%)
Ticoplanin + aztreonam before and vancomycin + aztreonam after	2 (0.8%)
Cefazolin + vancomycin	2 (0.8%)
Ticoplanin + ceftazidime	2 (0.8%)
Ticoplanin + cefepime	2 (0.8%)
Ticoplanin + levofloxacin before and vancomycin + levofloxacin after	2 (0.8%)
Chlaxacin	2 (0.8%)
Chlaxacin before and after and cefadroxi oral	1 (0.4%)
Cefuroxime	1 (0.4%)
Cefazolin before, cefuroxime after and levofloxacin oral	1 (0.4%)
Cefazolin before and cotrimoxazol after	1 (0.4%)
Cefazolin before and meropenem after	1 (0.4%)
Cefazolin before and amoxicilina/clavulánico after	1 (0.4%)
Cefazolin before and vancomycin after	1 (0.4%)
Cefazolin before and vancomycin + rifampicin after	1 (0.4%)
Cefazolin before and vancomycin + ceftriaxone after	1 (0.4%)
Cefazolin before and vancomycin + ceftazidime after	1 (0.4%)
Cefazolin before and daptomicin + ampicilina after	1 (0.4%)
Cefazolin before and daptomicin + ceftazidime after	1 (0.4%)
Cefazolin before, ceftazidime after and ciprofloxacina oral	1 (0.4%)
Cefazolin before, ticloplatin after and levofloxacin oral	1 (0.4%)
Cefazolin before, linezolid after and doxycycline oral	1 (0.4%)
Cefazolin before and linezolid + meropenem after	1 (0.4%)
Cefazolin before and vancomycin + rifampicin after	1 (0.4%)
Cefazolin before, vancomycin + ceftazidime after and amoxicilav oral	1 (0.4%)
Cefazolin + amikacin	1 (0.4%)
Cefazolin + ticloplatin before, ticloplatin after and cotrimoxazol oral	1 (0.4%)
Cefazolin + ticloplatin before, ticloplatin after and levofloxacin oral	1 (0.4%)
Cefazolin + ticloplatin before, ticloplatin after and cotrimoxazol + linezolid oral	1 (0.4%)
Cefazolin + ciprofloxacina preimplante y ciprofloxacina postoperatorio	1 (0.4%)
Cefazolin + amikacin	1 (0.4%)
Cefuroxime before, levofloxacin after and doxycycline oral	1 (0.4%)
Ceftazidime + amikacin	1 (0.4%)
Vancomycin before and linezolid + imipenem after	1 (0.4%)
Vancomycin before and after and minocycline oral	1 (0.4%)
Vancomycin before and daptomicin + ciprofloxacina after	1 (0.4%)
Vancomycin before, vancomycin and rifampicin after and cotrimoxazol oral	1 (0.4%)
Vancomycin before, linezolid after and levofloxacin oral	1 (0.4%)
Vancomycin + ertrapenem	1 (0.4%)
Vancomycin + cefepime before and vancomycin + ceftazidime after	1 (0.4%)
Vancomycin + ciprofloxacina before and vancomycin after	1 (0.4%)
Ticoplanin + ceftriaxone before and vancomycin + meropenem after	1 (0.4%)
Ticoplanin before and ticloplatin + rifampicin after	1 (0.4%)
Ticoplanin before and after and cotrimoxazol oral	1 (0.4%)
Ticoplanin + amikacin before and ticloplatin + ceftazidime after	1 (0.4%)
Ticoplanin + ceftazidime before, ticloplatin after and linezolid oral	1 (0.4%)
Ticoplanin + rifampicin	1 (0.4%)
Daptomicin + ertrapenem before + linezolid after	1 (0.4%)
Daptomicin + gentamicin	1 (0.4%)
Clindamicin + gentamicin before and clindamicina after	1 (0.4%)
Linezolid + meropenem	1 (0.4%)
Linezolid + ertrapenem	1 (0.4%)
Linezolid before and after and clindamicina oral	1 (0.4%)
Pharmacol	1 (0.4%)
Only after surgery (n=15)	
Vancomycin + ceftazidime	9 (3.4%)
Vancomycin + aztreonam	1 (0.4%)
Ticoplanin + ceftazidime	1 (0.4%)
Ticoplanin + aztreonam	1 (0.4%)
Ticoplanin + meropenem	1 (0.4%)
Daptomicin + ertrapenem	1 (0.4%)
Linezolid + meropenem	1 (0.4%)

# El reimplante. ¿Qué profilaxis?

European Journal of Clinical Microbiology & Infectious Diseases  
<https://doi.org/10.1007/s10096-024-04838-3>

ORIGINAL ARTICLE



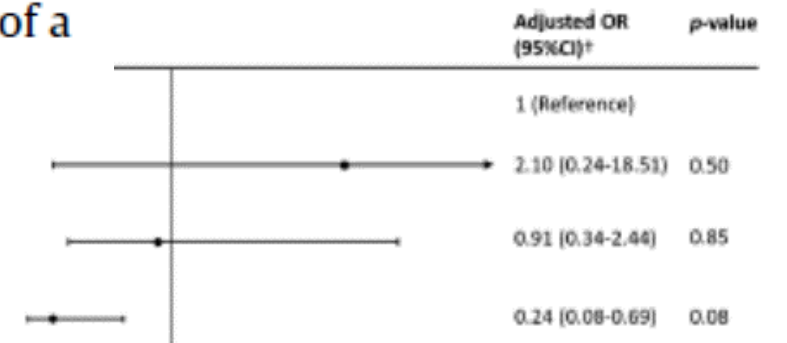
## Impact of antibiotic prophylaxis in second-stage surgery in joint prosthesis infection treated with two-stage exchange. A multicenter case-control study

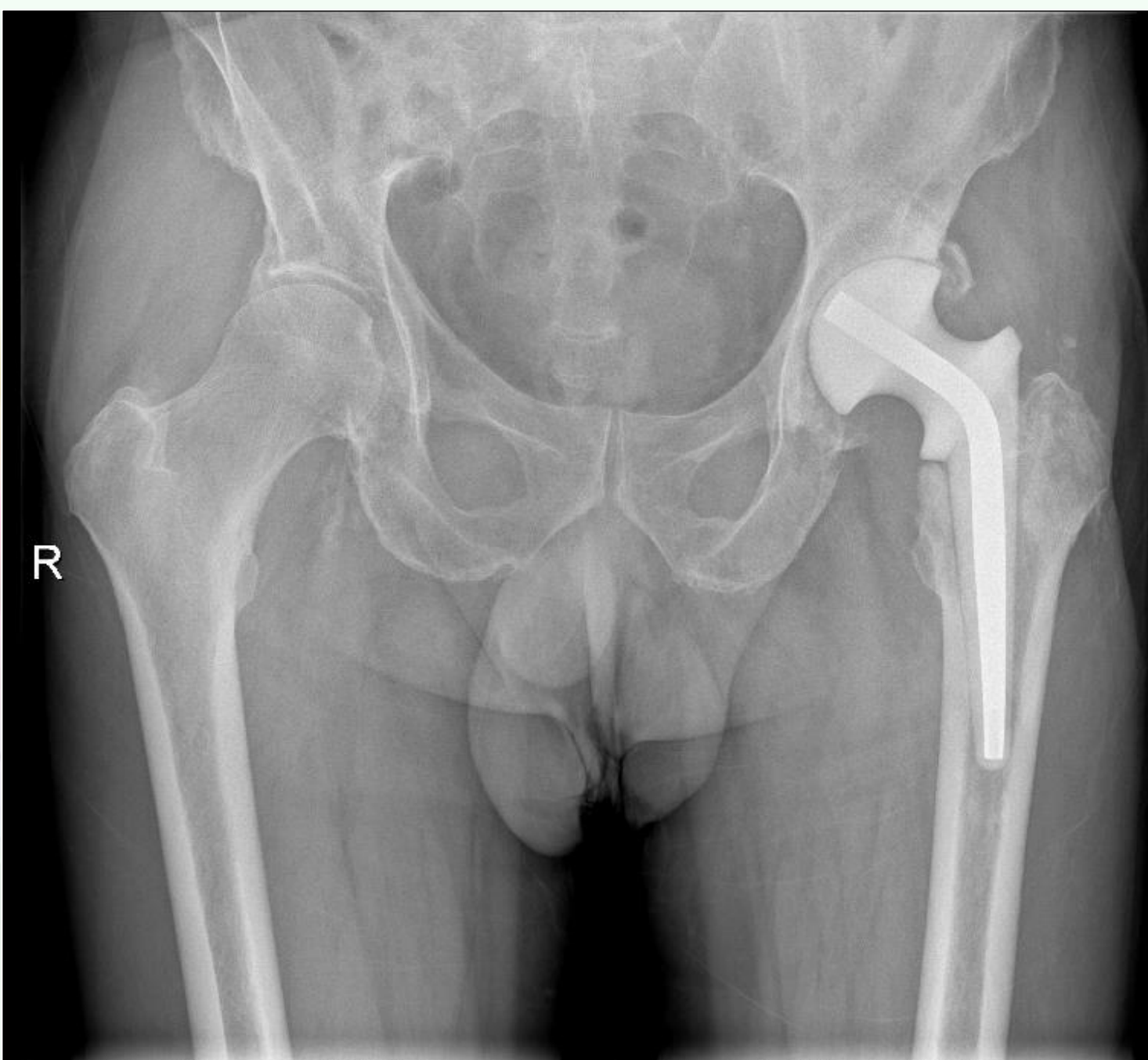
Jose M. Barbero Allen  
Dolors Rodríguez-Par  
Rosa Escudero-Sánchez  
Allcia Rico Nieto<sup>2,10,19</sup>  
Francisco José de Aba

*What is the best prophylaxis for the second-step surgery and how long should it be prescribed?*

- Wide-spectrum antibiotic prophylaxis including nosocomial microorganisms that may potentially cause superinfection of the new prosthesis is recommended for the second-step surgery of a 2-step exchange procedure (C-III).

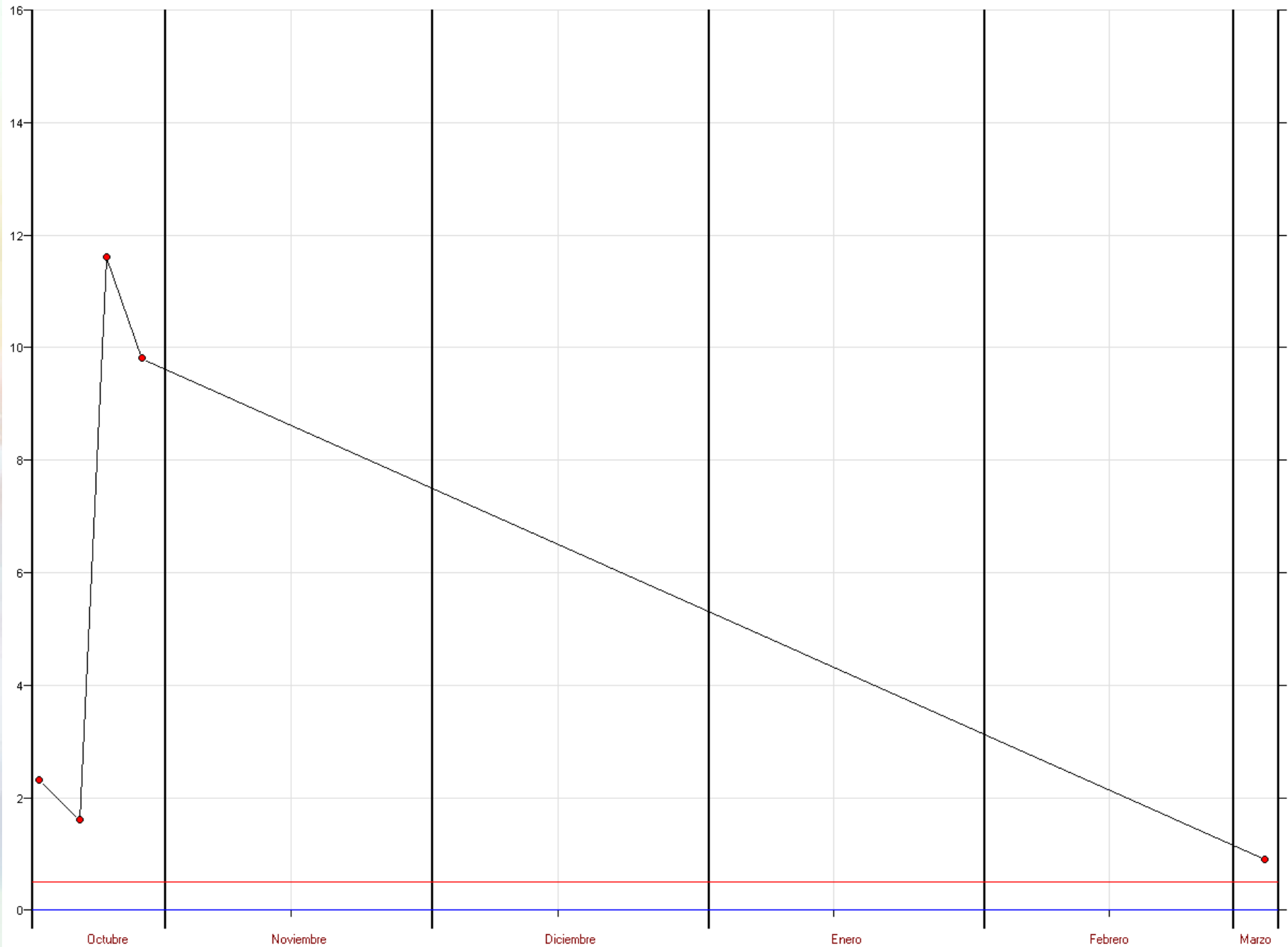
	Number of patients	Number of infections	OR (95%CI)
MR-/Ps+	4 (4.4)	2 (1.2)	2.78 (0.47-16.4)
MR+/Ps-	18 (20.0)	28 (16.3)	0.97 (0.41-2.28)
MR+/Ps+	35 (38.9)	91 (52.9)	0.30 (0.12-0.77)





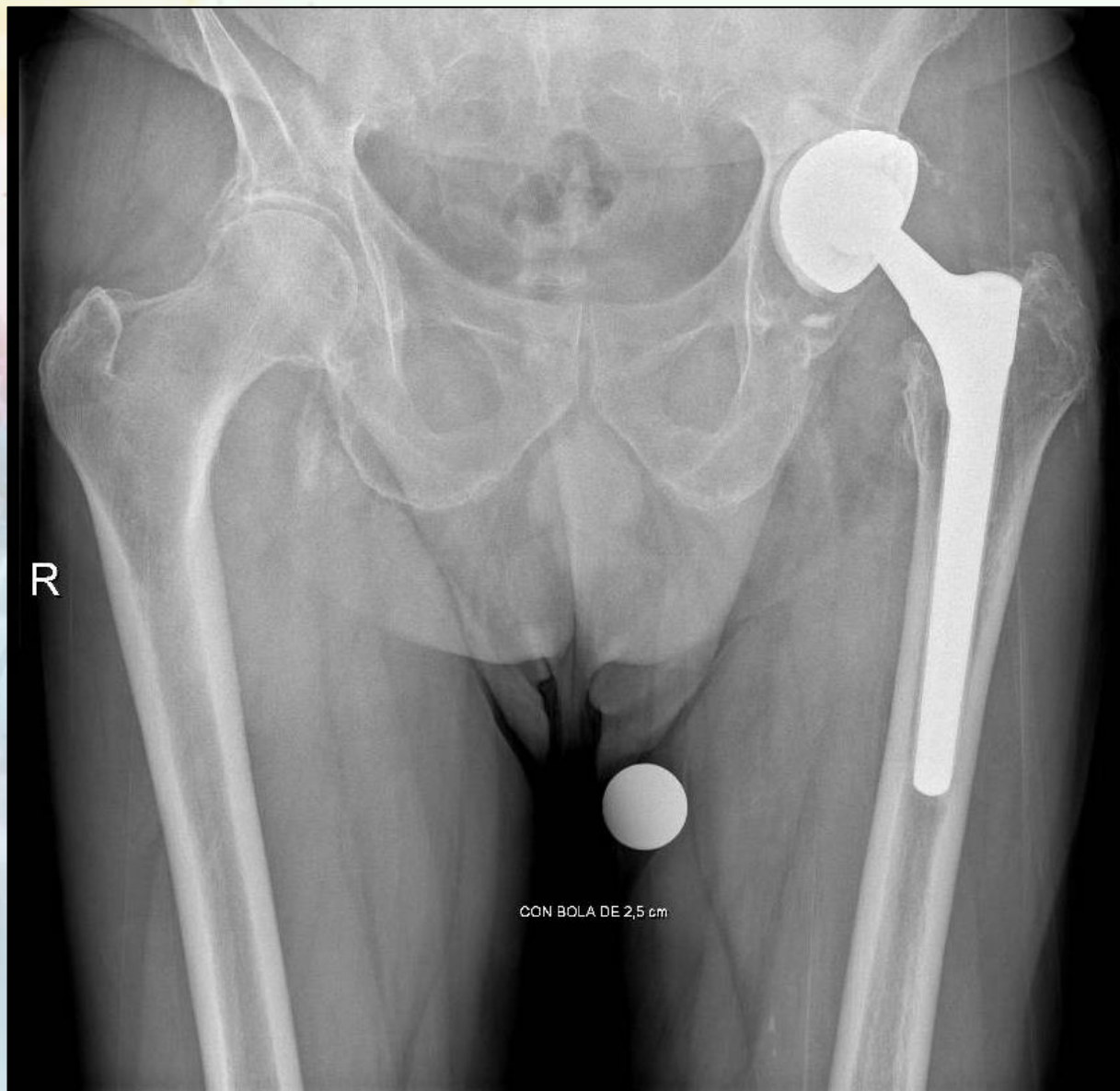
R

PCR





248827



# El valor de los CIOP

<b>33889181</b> <b>28/01/2025</b> <b>10:18:00</b> <b>TEJIDO</b> <b>ARTICULAR-</b> <b>SINOVIAL</b>	<b>33889177</b> <b>28/01/2025</b> <b>10:18:00</b> <b>TEJIDO</b> <b>ARTICULAR-</b> <b>SINOVIAL</b>	<b>33889173</b> <b>28/01/2025</b> <b>10:18:00</b> <b>TEJIDO</b> <b>ARTICULAR-</b> <b>SINOVIAL</b>	<b>33889182</b> <b>28/01/2025</b> <b>10:18:00</b> <b>LIQUIDO</b> <b>ARTICULAR</b>
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Staphylococcus  
epidermidis

# El valor de los CIOP

The Journal of Arthroplasty 39 (2024) 839–845



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Contents lists available at [ScienceDirect](https://www.sciencedirect.com)

## The Journal of Arthroplasty

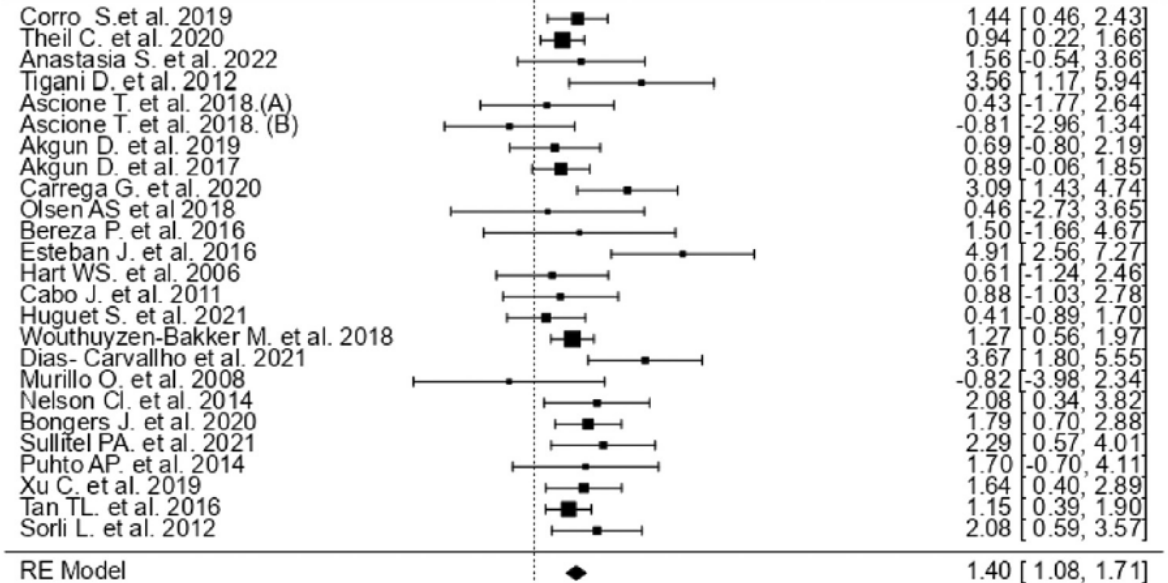
journal homepage: [www.arthroplastyjournal.org](http://www.arthroplastyjournal.org)



### Systematic Review and Meta-Analysis

## Impact of Positive Cultures During the Second St Exchange: Systematic Review and Meta-Analysis

Marta Sabater-Martos, MD <sup>a,\*</sup>, Laia Boadas, MD <sup>a</sup>, Rihard Tre André Grenho, MD <sup>c</sup>, Pablo Sanz-Ruiz, MD, PhD <sup>d</sup>, Leonard C Danguole Vaznaisiene, MD, PhD <sup>f</sup>, Matteo Ferrari, MD <sup>g</sup>, Alex



# Positive Culture During Reimplantation Increases the Risk of Subsequent Failure in Two-Stage Exchange Arthroplasty

Timothy I. Tan, MD, Miguel M. Gomez, MD, Jorge Manrique, MD, Javad Parvizi, MD, FRCs, and Antonia F. Chen, MD, MBA

**TABLE II Results**

Variable	Culture-Positive Group, N = 33	Culture-Negative Group, N = 234	OR (95% CI)	HR (CI)	P Value
Follow-up* (mo)	52.1 (0.2-130.4)	47.7 (3.7-162.9)	—	—	0.475
Treatment failure†	15 (45.5)	49 (20.9)	2.53 (1.13-5.64)	—	0.023
Reinfection†	13 (39.4)	46 (19.7)	2.32 (1.25-4.29)	—	0.007
Mortality†	2 (6.1)	3 (1.3)	1.89 (0.20-17.59)	—	0.571
Months to reinfection*	8.8 (0.2-57.7)	13 (0.3-67.1)	—	2.00 (1.05-3.82)	0.034

\*The values are given as the mean, with the range in parentheses. †The values are given as the number, with the percentage of the group in parentheses.

during reimplantation. The treatment failure rate did not differ ( $p = 0.73$ ) between cases with  $\geq 2$  positive cultures (36.4%) and 1 positive culture (50%).



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## The Journal of Arthroplasty

journal homepage: [www.arthroplastyjournal.org](http://www.arthroplastyjournal.org)

## Complications - Infec Do Positive Cul Risk for Reinfec Infection?

C. Theil, MD<sup>\*</sup>, Sophie  
J. Schwarze, MD, B.

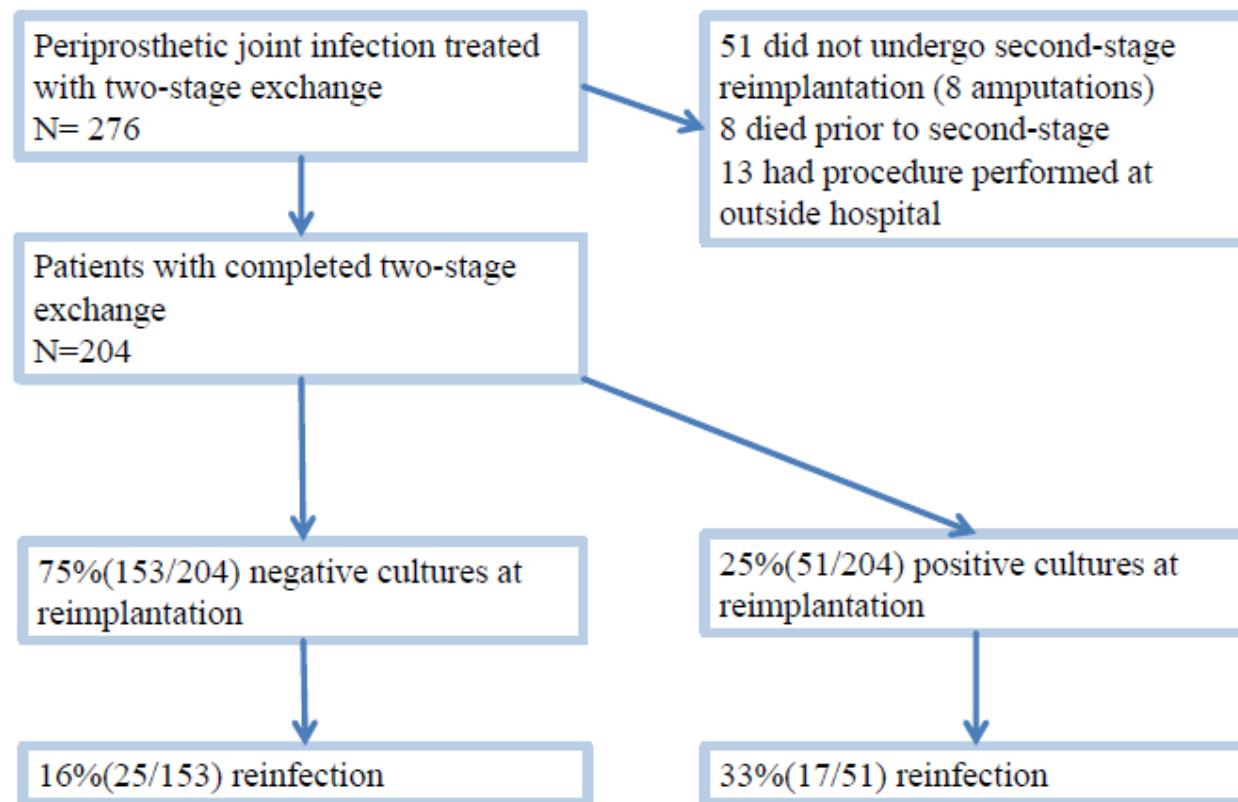


Fig. 1. flow diagram showing inclusion and exclusion of patients.

months (IQR 5–19). Patients with a single positive culture during reimplantation surgery had a significantly higher risk for reinfection as well (HR 2.421 (95% CI 1.139–5.143),  $P = .021$ ). Furthermore, a



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## Review

### Positive Culture During Reimplantation Increases the Risk of Reinfection in Two-Stage Exchange Arthroplasty Despite Administering Prolonged Antibiotics: A Retrospective Cohort Study and Meta-Analysis

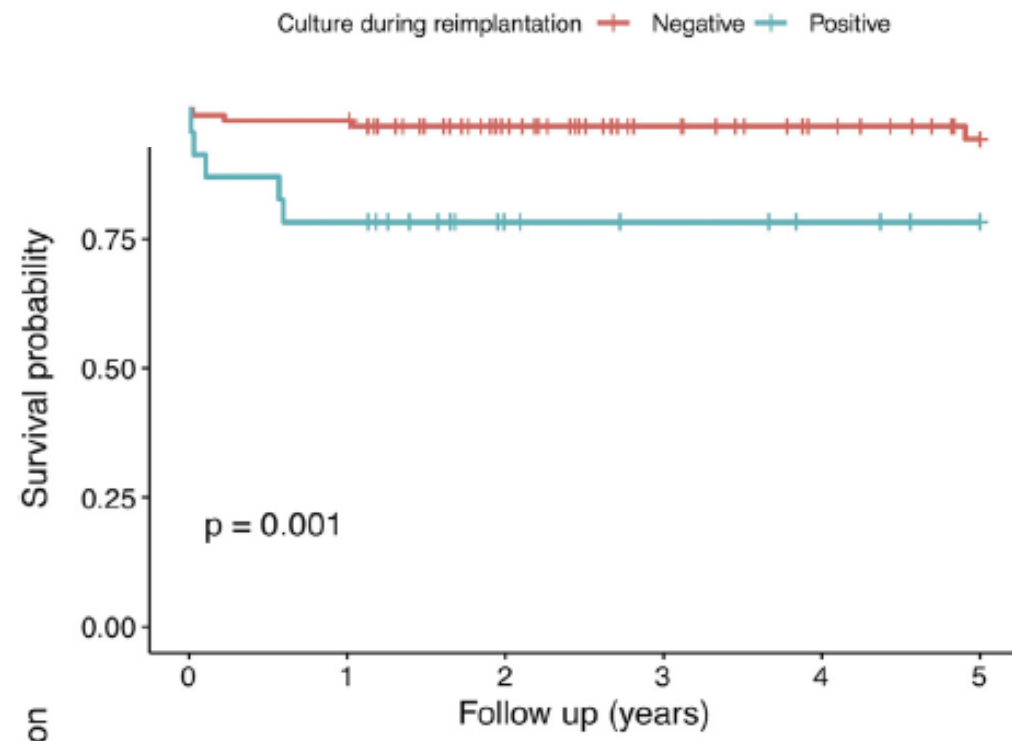


Chi Xu, MD <sup>a</sup>, Timothy L. Tan, MD <sup>b</sup>, Ji-Ying Chen, MD <sup>a,\*</sup>

<sup>a</sup> Department of Orthopaedic Surgery, General Hospital of People's Liberation Army, Beijing, People's Republic of China

<sup>b</sup> Department of Orthopaedic Surgery, Rothman Institute at Thomas Jefferson University, Philadelphia, PA

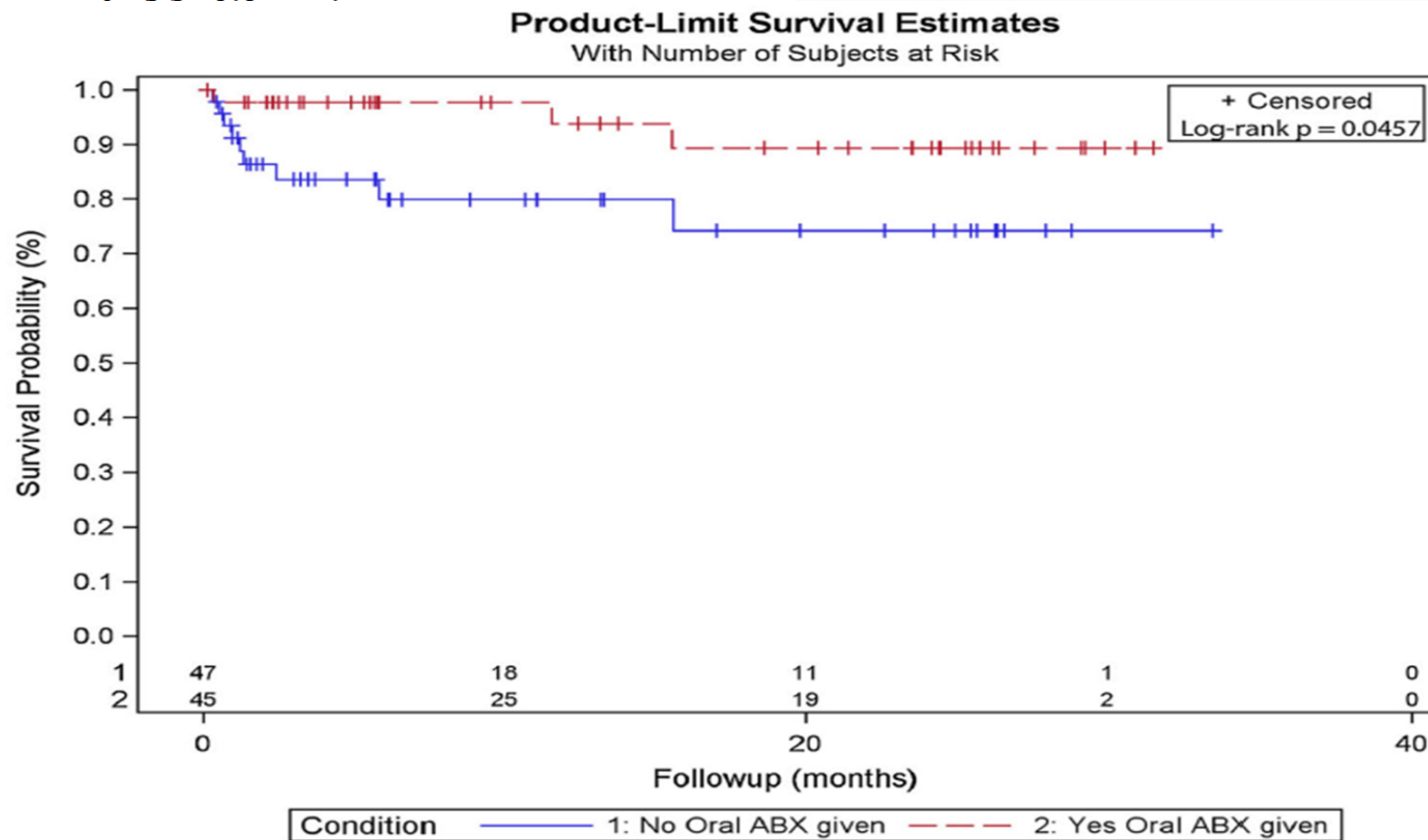
2012 to 2016. Of them, 23 had positive culture during reimplantation and were treated with 2 weeks of intravenous and 4 weeks of oral antibiotics following reimplantation. All patients had a minimum follow-



## The Mark Coventry, MD, Award: Oral Antibiotics Reduce Reinfection After Two-Stage Randomized Controlled Trial






Jonathan M. Frank MD, Erdan Kayupov MS  
John Segreti MD, Erik Hansen MD, Curtis H  
Katherine Belden MD, Brian Roslund Pharm  
Javad Parvizi MD, Craig J. Della Valle MD,  
The Knee Society Research Group

Published online: 7 July 2016  
© The Association of Bone and Joint Surgeons® 2016



A log-rank survival curve for oral antibiotics versus control for all spacers used is shown. ABX = antibiotics

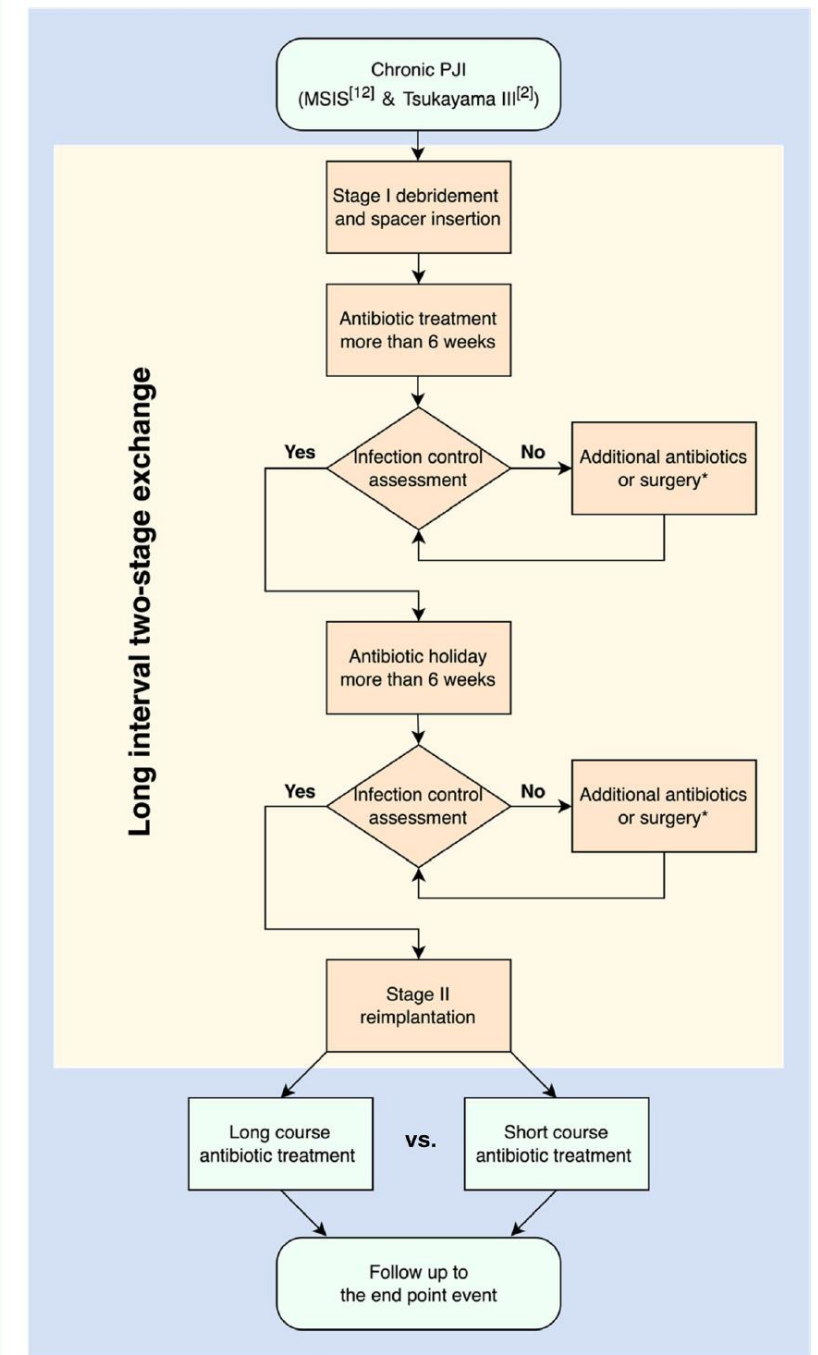
# Can “LITE” Procedure Combined With a Short Course Antibiotic Treatment Be Effective in Treating the Chronic PJI?—A Prospective Randomized Controlled Trial

Yang Chen<sup>1,2,3</sup> | Haiqi Ding<sup>1,2,3</sup> | Qijin Wang<sup>1,2,3</sup> | Zida Huang<sup>1,2,3</sup>  | Chaofan Zhang<sup>1,2,3</sup>  | Wenbo Li<sup>1,2,3</sup>  | Yansheng Lin<sup>4</sup> | Yufeng Guo<sup>4</sup> | Xinyu Fang<sup>1,2,3</sup>  | Wenming Zhang<sup>1,2,3</sup> 

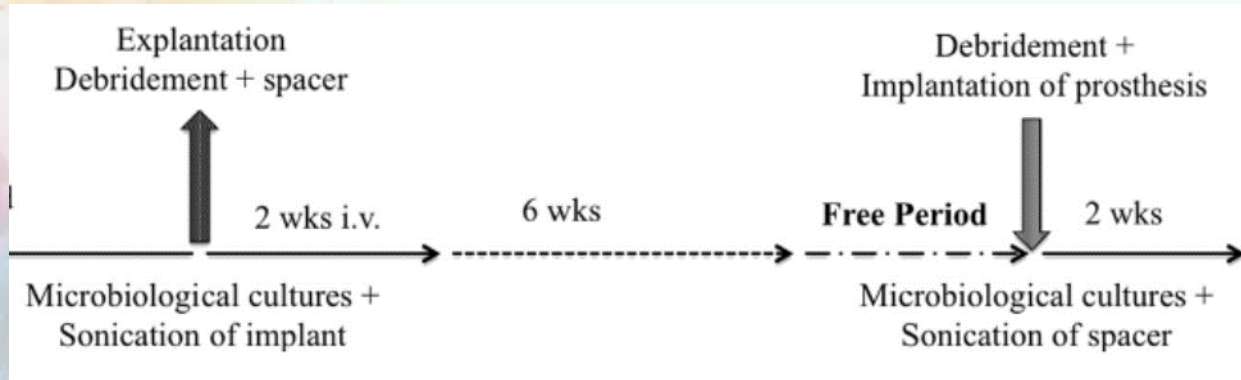
<sup>1</sup>Department of Orthopaedic Surgery, National Regional Medical Center, Binhai Campus of the First Affiliated Hospital, Fujian Medical University, Fuzhou, China | <sup>2</sup>Department of Orthopedic Surgery, The First Affiliated Hospital of Fujian Medical University, Fuzhou, China | <sup>3</sup>Fujian Provincial Institute of Orthopedics, The First Affiliated Hospital, Fujian Medical University, Fuzhou, China | <sup>4</sup>Department of Orthopedic Surgery, Changtai County Hospital, Zhangzhou, China

**TABLE 3** | Evaluation of the efficacy of “LITE” procedure in combination with antibiotics.

	Short course group (n = 30)	Long course group (n = 30)	Statistic value	p
Antibiotic-related complications, n (%)	0 (0)	6 (20)	N/A	0.024
Abnormal liver function, n (%)	0 (0)	6 (20)		
Hematopoietic dysfunction, n (%)	0 (0)	1 (3.3)		
Uncontrolled infection or reinfection, n (%)	1 (3.3)	1 (3.3)	N/A	1.000



# El reimplante



The Journal of Arthroplasty 34 (2019) 704–709

Contents lists available at [ScienceDirect](https://www.sciencedirect.com)

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The Journal of Arthroplasty

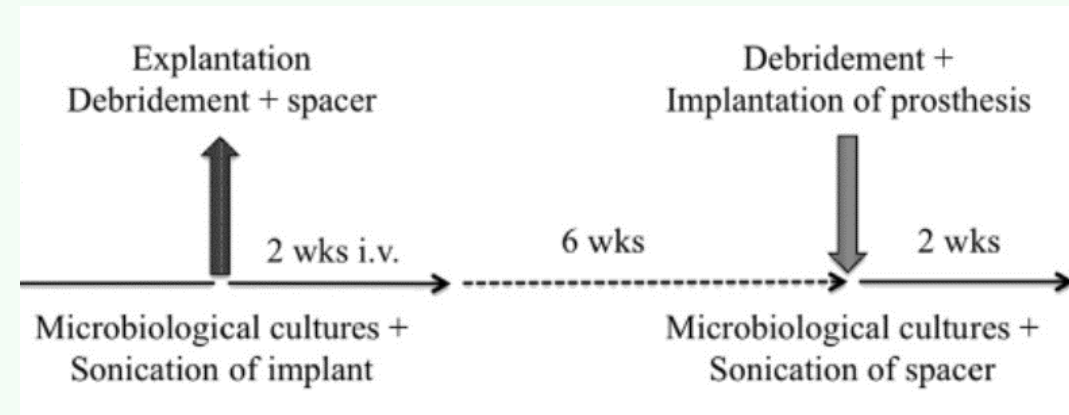
journal homepage: [www.arthroplastyjournal.org](http://www.arthroplastyjournal.org)

Complications - Infection

Continuous Antibiotic Therapy Can Reduce Recurrence of Prosthetic Joint Infection in Patients Undergoing 2-Stage Exchange

Tiziana Ascione, MD <sup>a,\*</sup>, Giovanni Balato, MD, PhD <sup>b</sup>, Massimo Mariconda, MD <sup>b</sup>, Renato Rotondo, MD <sup>c</sup>, Andrea Baldini, MD <sup>d</sup>, Pasquale Pagliano, MD <sup>a</sup>

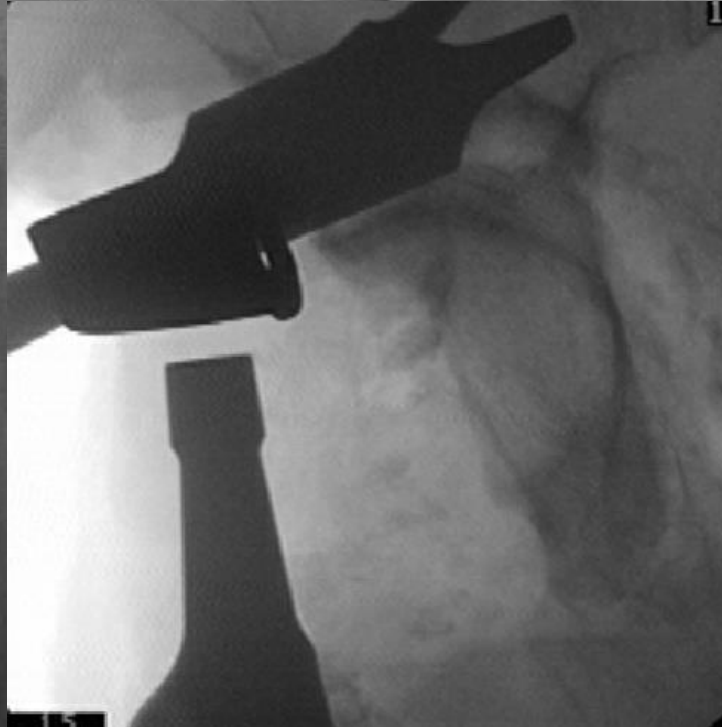
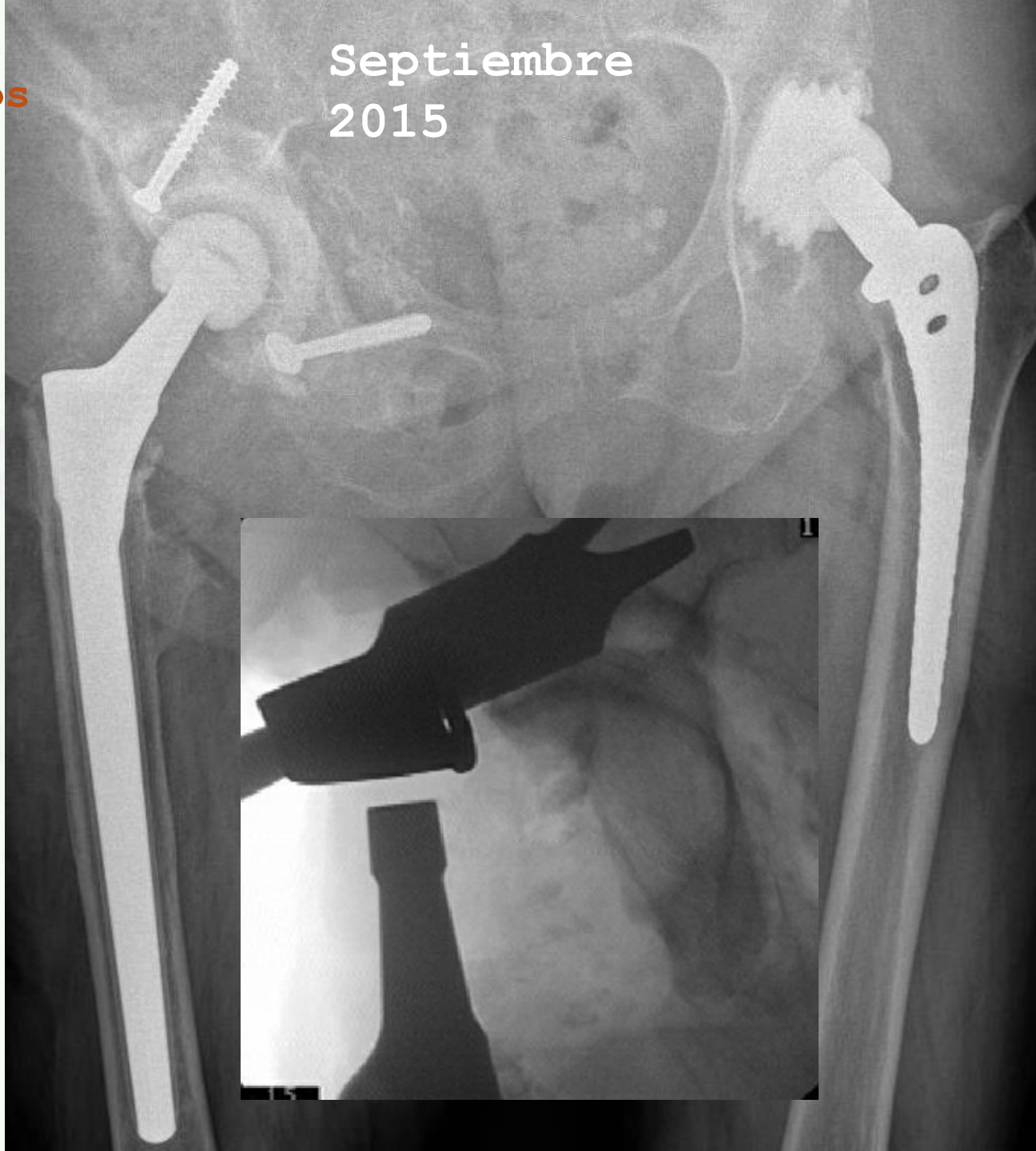




M 63 años

Septiembre  
2015

479410



M 69 años

Marzo  
2021

479410

**Cultivos (-)**

Desde  
Girdlestone

**PCR y VSG (-)**  
) siempre



M 69 años

479410



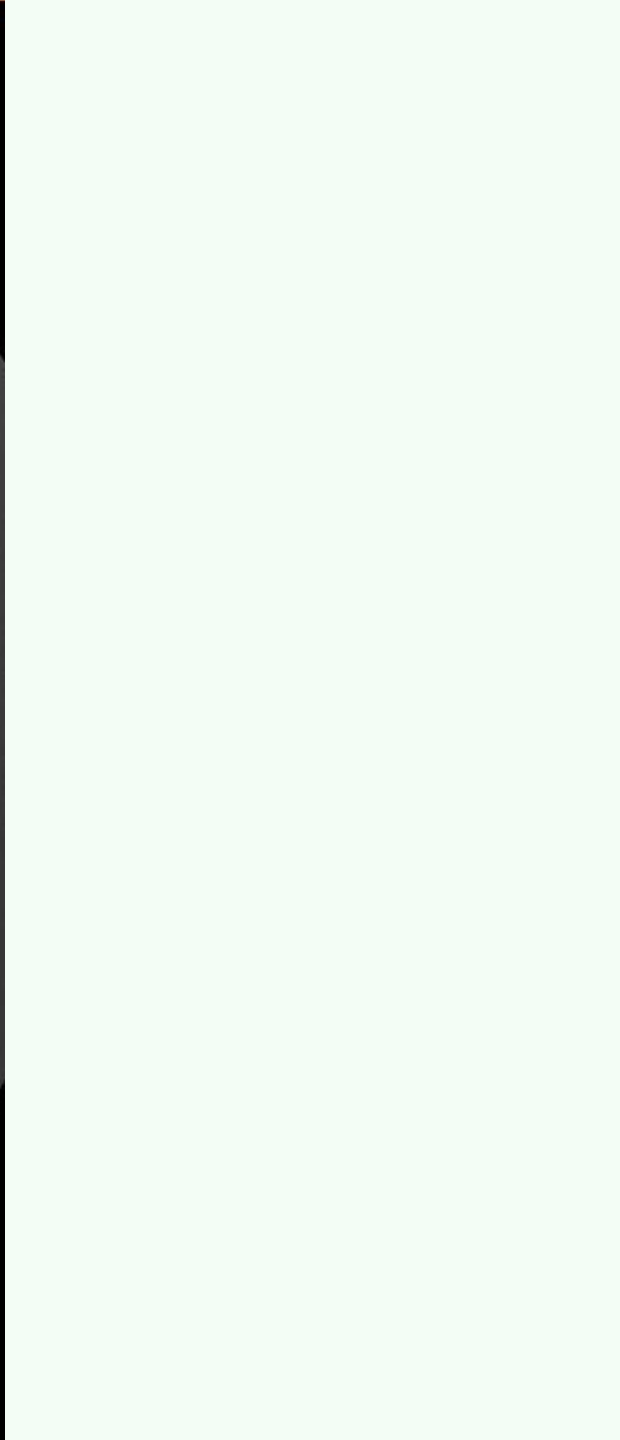
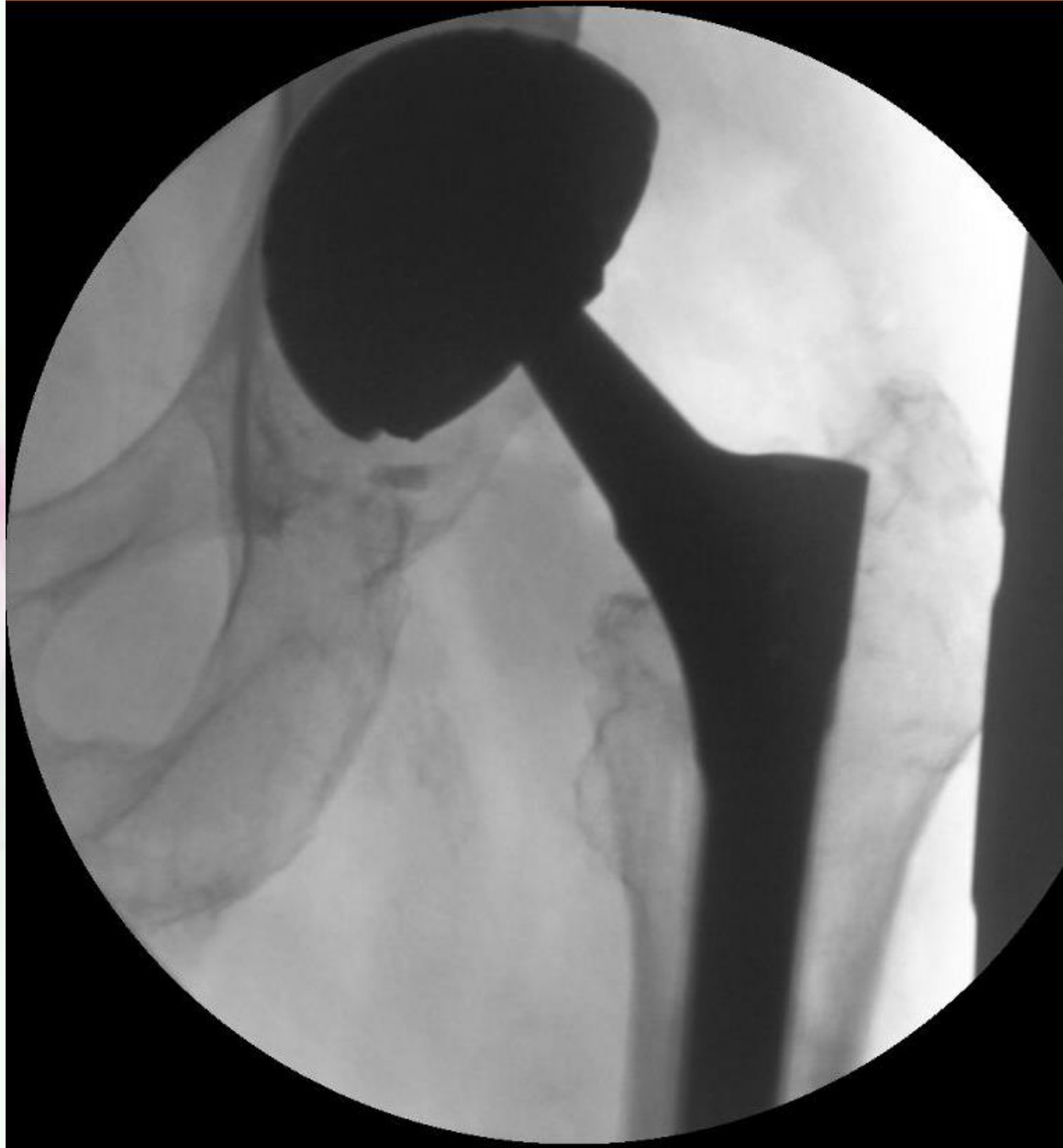
**Factores de riesgo cardiovascular:** Exfumador. Hipercolesterolemia. Hipertensión arterial.

**Antecedentes personales:** Prótesis de cadera complicada con infección. Adenocarcinoma de próstata intervenido quirúrgicamente. Pólipos colónicos. Sin alergias medicamentosas conocidas. Adenocarcinoma de pulmón intervenido. (Lobectomía inferior derecha).

**Antecedentes familiares:** sin interés.

**Historia cardiovascular:** Sustitución valvular aórtica con prótesis mecánica (Bjork Monostrut) en septiembre de 1989 por doble lesión aórtica con insuficiencia predominante. En postoperatorio de segunda intervención por infección protésica de cadera, episodio de fibrilación auricular que revirtió farmacológicamente con amiodarona endovenosa. Ablación de flutter en 2017. Diagnosticado posteriormente de disfunción protésica por lo que fue reintervenido en Julio de 2020 mediante implante de bioprótesis Perceval. Toracocentesis evacuadora de 1700 ml en postoperatorio. En la revisión practicada refiere encontrarse estable tras cirugía de cadera izquierda. Síndrome del túnel del Carpo bilateral. En tratamiento con Amoxicilina.

**Medicación habitual:** Lixiana 30 mg (0-1-0), amlodipino 5 mg (0-0-1), parapres 32 mg (1/2-0-0), Zarator 20 mg (0-0-1), emconcor 2,5 mg (0-1/2-0), dilutol 5 mg (1/2-0-0).



## Ingresa por fractura de cadera

Le ponen pañal porque le duele que le pongan la cuña

No le ponen sus gafas porque está encamada

Evita orinar porque le da vergüenza

Se desorienta

Hace una retención aguda de orina

Le dan neurolépticos

Infección de orina

Se queda muy sedada

Fracaso renal agudo

Le cuesta ingerir líquidos

Sepsis de origen urinario

Se broncoaspira

Tiene una hiperpotasemia

Insuficiencia respiratoria por neumonía aspirativa

Sufre una arritmia cardíaca

**EXITUS**

Sangrado femoral. 1,  
Carga

REVIEW ARTICLE

C. Corey Hardin, M.D., Ph.D., *Editor*

## Periprosthetic Joint Infection

Robin Patel, M.D.

- *Mortality at 5 years after hip PJI is 21% (4 times as high as age-based rates).*
- *10 years is 45% (vs. 29% in patients with noninfected total hip arthroplasties).*
- *Two-stage revisions, 1-year mortality is 13% for total hip arthroplasties and 9% for total knee arthroplasties.*





**HK67: Is there a role for sub radical exchange (leaving some implants) arthroplasty in patients with chronic PJI?**

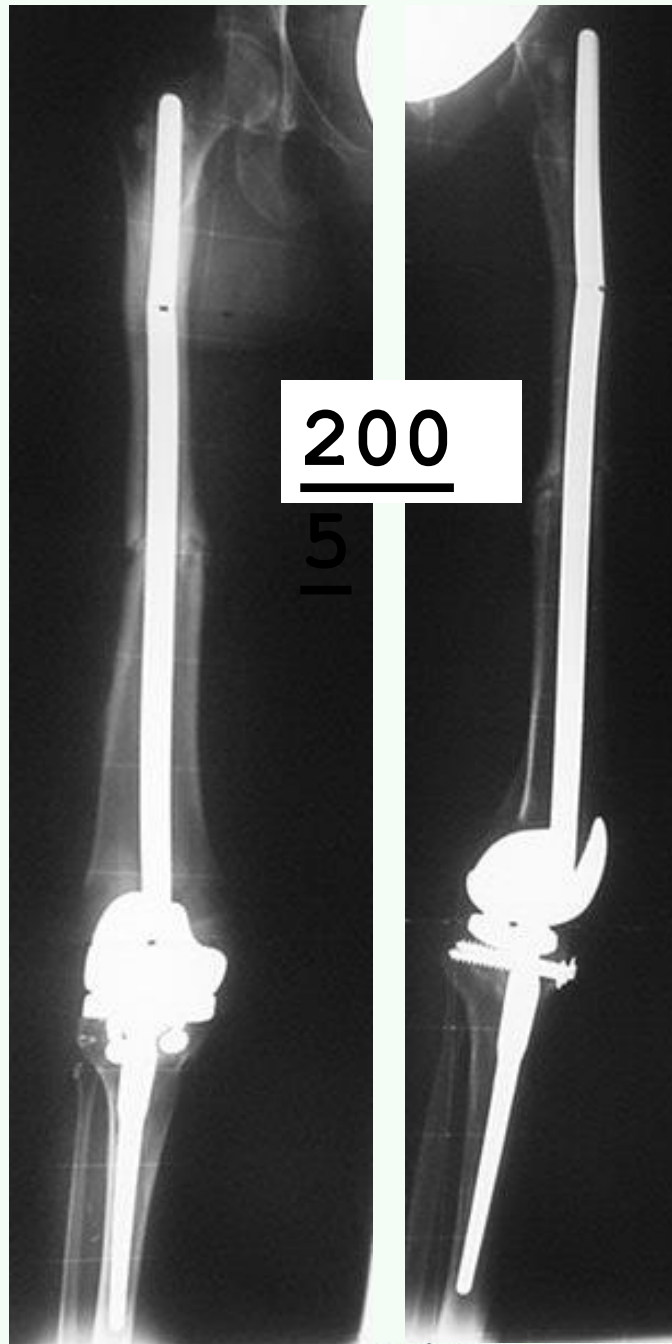
Adolph V. Lombardi, Jr., MD, FACS; Walter Ricioli, Jr, MD; Baochao Ji, MD, PhD; Ireneusz Babiak, MD, PhD, Erik N. Hansen, MD, Victor M. Ilizaliturri Sánchez, MD; Ali Parsa, MD, Ivan De Martino, MD

**Response/Recommendation:** Sub-radical exchange arthroplasty, that is, leaving parts of implants in place, may be considered during management of patients with chronic periprosthetic joint infections when a component is proven to be well-fixed and its removal precludes opportunity for future reconstruction.

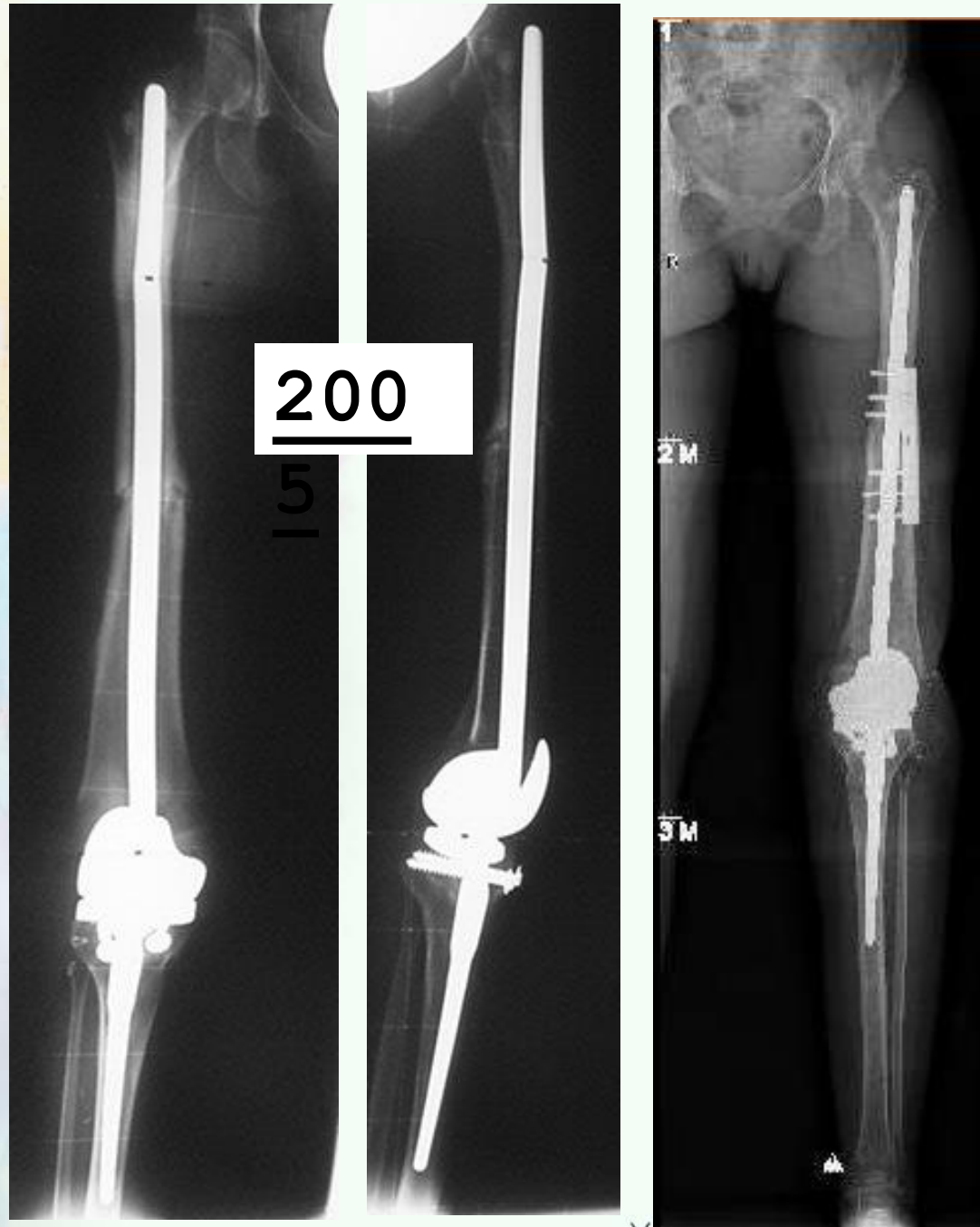
**Level of Evidence:** Moderate

The success rate for patients treated with two-stage partial exchange was significantly higher at a longer final follow-up ( $P=0.0051$ ), with 88.3% free of re-infection at a mean of 4.6 years compared with 79.5% at 3.6 years for patients undergoing one-stage partial exchange. However, the higher eradication rate must be balanced with the substantial complications observed between the two stages and the interval mean duration of 18.1 weeks, extending up to 96 weeks, and the burden and impact of those factors on the patient's quality of life.

**M 46**



1994 (Otro centro) →  
Dos tiempos



1994 (Otro centro) → OS de tercio distal de fémur izquierdo resección y colocación de prótesis de rodilla → Infección de la prótesis → recambio en dos tiempos (sin conseguir la curación).

2005 (CUN ) → Dos tiempos (tampoco resolvió la infección)



2022





INTERNATIONAL  
CONSENSUS MEETING (ICM)



**HK66: Should all foreign material be removed during resection arthroplasty for patients with chronic periprosthetic joint infection (PJI)?**

Pablo Sanz-Ruiz, Ernesto Muñoz-Mahamud, Mohammadmahdi Sarzaem, Julian Guerra-Perez, Christian Hipfl, Stergios Lazarinis, Thorsten Gehrke, José M<sup>a</sup> Lamo-Espinosa.

**Response/Recommendation:**

Yes, whenever possible. Complete surgical debridement of the joint with removal of all components and implants should be ultimate goal in patients with chronic PJI. However, there may be specific situations where the morbidity associated with the removal of well-integrated components (usually revision components) outweighs the benefits of their removal. In these specific cases, and in the absence of concrete evidence, retaining parts of implants may be acceptable.

**Level of Evidence:** Limited

R





**Title:** Partial Two-Stage Exchange for Chronic Periprosthetic Joint Infection after Total Hip Arthroplasty: A Comprehensive Meta-Analysis

**Results:** Thirteen studies with a total of 239 patients were included. The pooled Infection eradication rate of patients was 88% [95% CI: 77-92%], while the treatment failure rate was 14% [95% CI: 8-17%]. The stability of the implant was achieved in 89% of patients [95% CI: 85-93%], while functional scores improved on average by 37.77 points with a 95% CI of 12.84-62.70. Complication rates related to infection,



The success rate for patients treated with two-stage partial exchange was significantly higher at a longer final follow-up ( $P=0.0051$ ), with 88.3% free of re-infection at a mean of 4.6 years compared with 79.5% at 3.6 years for patients undergoing one-stage partial exchange. However, the higher eradication rate must be balanced with the substantial complications observed between the two stages and the interval mean duration of 18.1 weeks, extending up to 96 weeks, and the burden and impact of those factors on the patient's quality of life.

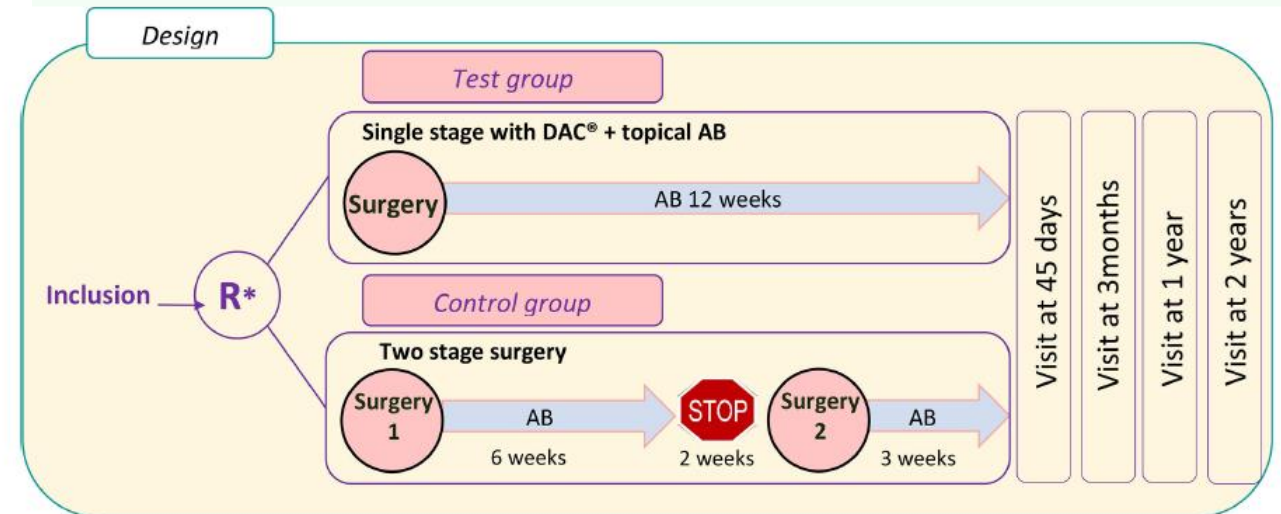
# Lo que viene

Open access

Protocol

## BMJ Open Single-stage surgery with antibiotic-loaded hydrogel-coated implants versus two-stage surgery for chronic periprosthetic hip joint infection in French tertiary referral hospitals: the SINBIOSE-H non-inferiority, randomised, controlled trial study protocol

Bertrand Boyer <sup>1,2</sup>, Celine Cazorla,<sup>3,4</sup> Anne Carricajo,<sup>5</sup> Céline Chapelle,<sup>8,9</sup> Emilie Presles,<sup>10</sup> Paul Zufferey <sup>11</sup> E



**Figure 1** SINBIOSE-H protocol. AB, antibiotics; DAC, Defensive Antiadhesive Coating; \*R, randomisation the day before surgery.

# Lo que viene

TABLE 1 Investigator-initiated trials in PJI management<sup>a</sup>

Trial name	Phase	Surgical strategy	Intervention	Status	Key outcome measure	Key results
ROADMAP	3	DAIR vs revision for late acute PJI	Multiple interventions: surgical strategy comparison, 6 vs 12 weeks of antibiotics for single stage, extended vs no prophylaxis post-second stage, rifampicin vs non-rifampicin regimens	First patient recruited in March 2025	Treatment success at 12 months (composite of survival, clinical cure, antibiotic discontinuation, prosthesis retention)	Not yet available
SOLARIO	3	All surgical strategies with complete source control	Short ( $\leq 7$ days) vs long ( $\geq 4$ weeks) systemic antibiotics with local antibiotic therapy for bone and joint infections including PJI	Completed 2024	Treatment failure within 12 months after surgery	Short course non-inferior to long course; better safety profile (82.8% vs 54.1% adverse-event free at 6 weeks). Results are aggregate for all orthopedic infections; PJI-specific results not yet published
RiCOTTA	3	DAIR only	Monotherapy vs combination therapy with rifampicin	Recruiting (66 patients enrolled as of April 2025)	Treatment success at 15 months after DAIR	Not yet available
RIFAMAB	3	DAIR only	Rifabutin vs rifampicin for staphylococcal PJI	Recruiting (10/30 sites as of December 2024)	Treatment failure within 1 year	Not yet available
OPTION	3	One-stage vs two-stage revision	One-stage vs two-stage exchange arthroplasty	Ongoing (completion December 2025)	Treatment success at 1 year (absence of reoperation for PJI)	Interim analysis: 98% vs 94% success; no significant difference between groups
CORGI	2	Two-stage revision (post-reimplantation phase)	Omadacycline vs standard-of-care oral antibiotics for bone and joint infections including PJI	Recruiting (primary completion December 2025)	Treatment success at 2 weeks post-therapy completion	Interim safety data: 59 patients enrolled (only 5% PJI, 88% diabetic foot infections)
LITE	3	Two-stage revision (LITE procedure)	Short course (2 weeks) vs long course (12 weeks) antibiotics post-reimplantation	Completed	Infection control rate (composite of clinical cure and antibiotic discontinuation) at 24 months	Identical infection control rates (96.7% vs 96.7%); the short course had fewer complications and lower costs
ProHipQ-OA	3	Primary THA for osteoarthritis	Single vs multiple dose antibiotic prophylaxis in primary THA	Ongoing	PJI incidence at 90 days	Not yet available
ProHipQ-F	3	Primary THA for fractures	Single vs multiple dose antibiotic prophylaxis in fracture-related THA	Ongoing	PJI incidence at 90 days	Not yet available
TKA Antibiotic Prophylaxis	3	Primary TKA	Single vs multiple dose antibiotic prophylaxis in elective TKA	Ongoing	PJI incidence at 90 days	Not yet available

<sup>a</sup>PJI, prosthetic joint infection; DAIR, Debridement, antibiotics, implant retention; THA, total hip arthroplasty; TKA, total knee arthroplasty.

# Lo que viene

TABLE 2 Industry-sponsored trials in PJI management<sup>a</sup>

Trial name	Phase	Surgical strategy	Intervention	Status	Key outcome measure	Key results	R
VT-X7 APEX	1	Two-stage revision	Novel vancomycin-tobramycin delivery system vs standard antibiotic-loaded cement spacers	Completed	Safety and efficacy in two-stage exchange	Demonstrated safety	(C)
VT-X7 APEX-2	2	Two-stage revision	Vancomycin-tobramycin delivery system	Recruiting (began early 2023)	Safety and treatment efficacy compared to the SoC	Demonstrated safety; three device-related complications and three cases of acute kidney injury in the experimental group. Treatment efficacy not available.	(C)
PLG0206	1b	DAIR only	Engineered antibacterial peptide as surgical irrigation in addition to systemic antimicrobials	Completed	Safety and tolerability	93% (13/14) infection-free at 180 days; no treatment-related serious adverse events	(C)
TRL1068 Phase 1	1	Two-stage revision	Monoclonal antibody for biofilm disruption in addition to SoC antimicrobials	Completed	Safety and bacterial elimination	Complete bacterial elimination in 3/11 treated patients; all remained infection-free through 169 days	(C)
TRL1068 Phase 2	2	DAIR only	Monoclonal antibody for biofilm disruption with the DAIR procedure	Site initiation to begin in May 2025	Efficacy and safety with the DAIR procedure	Not yet available	(C)
TNP-2092 Tissue Distribution	1	Primary arthroplasty	Tissue distribution and pharmacokinetics in primary arthroplasty	Completed	Bone and synovial fluid concentrations	Achieved concentrations exceeding the minimum biofilm bactericidal concentration for <i>S. epidermidis</i>	(C)
TNP-2092 Cohort study	1	Not applicable	Dose escalation study in healthy Chinese participants	Completed	Safety and pharmacokinetics	Safe and well-tolerated up to 400 mg IV; comparable pharmacokinetics to the US population	(C)
Afabicin Phase 2	2	Not specified (bone and joint infections)	Afabicin vs standard of care for staphylococcal bone and joint infections	Ongoing	Safety, tolerability, and efficacy	Preliminary: Safety demonstrated. All 20 patients (17 afabicin, 3 SoC) were treatment responders at the end of the treatment	(C)
PhagoDAIR	2	DAIR only	Anti-Staphylococcal bacteriophages for <i>S. aureus</i> PJI with DAIR	Study status uncertain due to Phaxiam bankruptcy	Clinical control of infection at week 12	80% infection control rate in the first 20/64 patients	(C)
GLORIA	2	DAIR only	Anti-Staphylococcal bacteriophages for <i>S. aureus</i> PJI with DAIR	Study status uncertain due to Phaxiam bankruptcy	Clinical cure and safety up to 3 months	Not yet available	(C)

<sup>a</sup>DAIR = debridement, antibiotics, and implant retention; THA = total hip arthroplasty; TKA = total knee arthroplasty; PJI = prosthetic joint infection; SoC = standard of care.

# Lo que viene






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REVIEW

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## Current treatments for biofilm-associated periprosthetic joint infection and new potential strategies

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*Review*

## Unconventional Therapies in Periprosthetic Joint Infections: Prevention and Treatment: A Narrative Review

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# Conclusiones (opinables)

- 1T = 2T en casos seleccionados.
- Opción de recambio parcial.
- Cemento con antibiótico en 1T.
- 4 semanas de ATB sistémico (4-5 días iv); ¿7-14 días?  
¿ninguno?
- Dalbavancina 3 gr / delafloxacino.
- No vacaciones antibióticas (programar 2T al alta del 1T).
- Profilaxis ATB 2T con antiestafilococo meticilin-resistente + antipseudomonas.
- ¿Profilaxis ATB oral postoperatoria? Siempre? si CIOP +? Cuanto tiempo?

# Conclusiones (no opinables)

Manejo multidisciplinar mejora resultados







microorganisms



Article

## The Impact of Antibiotic Therapy Options and Multidisciplinary Approach in Prosthetic Joint Infections

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# Conclusiones (no opinables)

Manejo multidisciplinar mejora resultados



microorganisms



Article

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**Table 6.** Treatment outcomes according to team

	<b>MDT</b>	<b>Orthopedic Team</b>
	n = 36	n = 33
Mean age ( $\pm$ SD)	67.1 $\pm$ 11.8	71.7 $\pm$ 11.1
ASA Score	2.5 $\pm$ 0.7	2.7 $\pm$ 0.7
Cure Rate		
DAIR	7/7 (100%)	10/21 (47.6%)
One-stage	9/10 (90%)	3/3 (100%)
Two-stage	12/19 (63.2%)	6/9 (66.7%)



Moltes ' gràcies