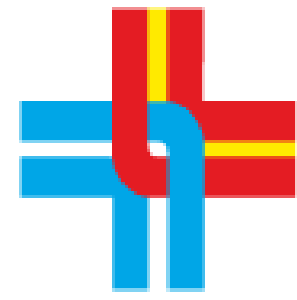


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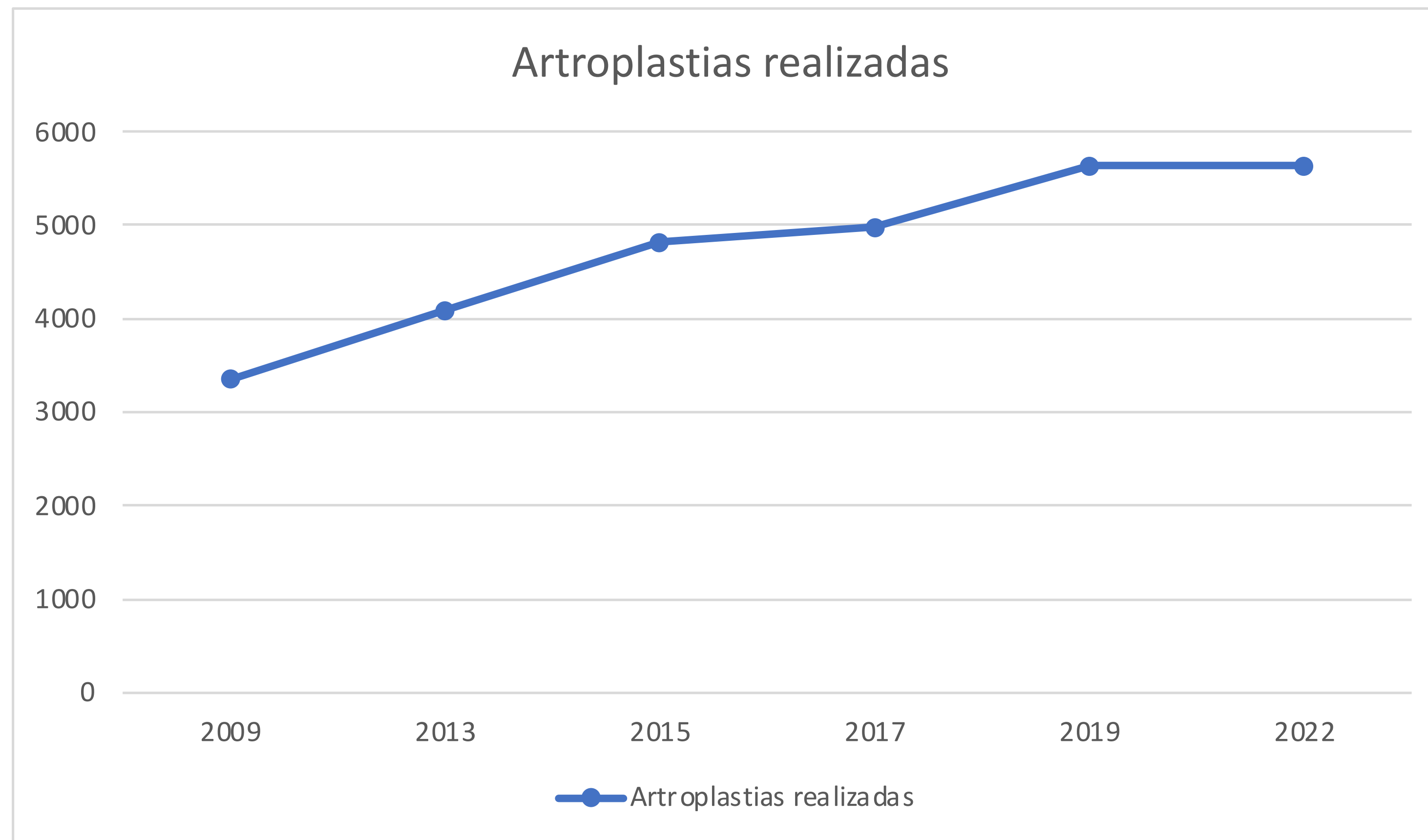


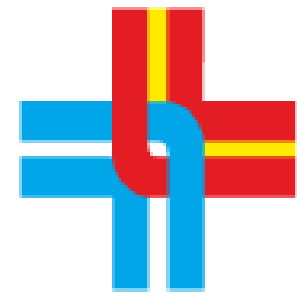
Manejo de la infección periprotésica aguda con retención del implante

Autor: Alejandro Spangenberg
Tutores: Gino Limongi / D.Guillermo

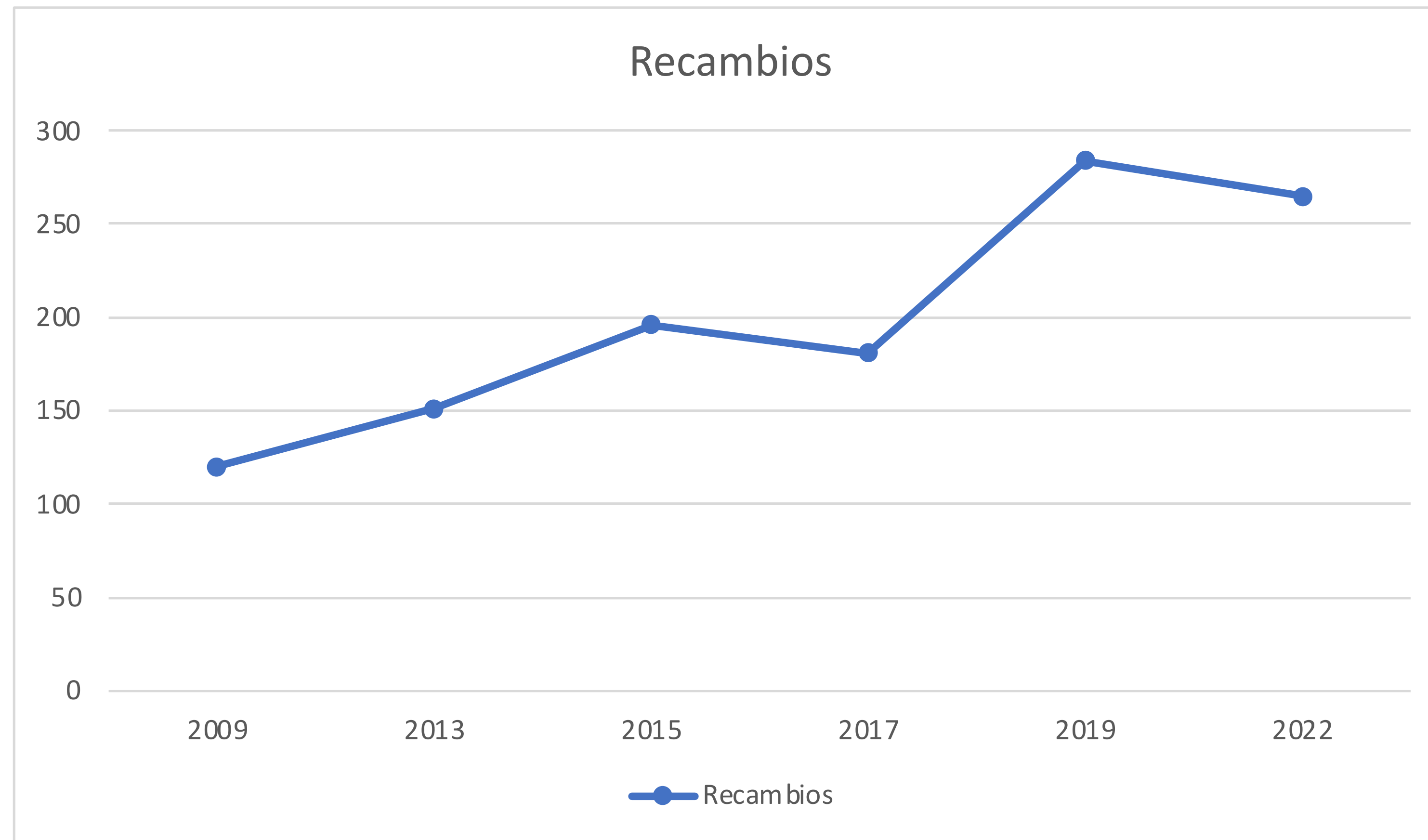


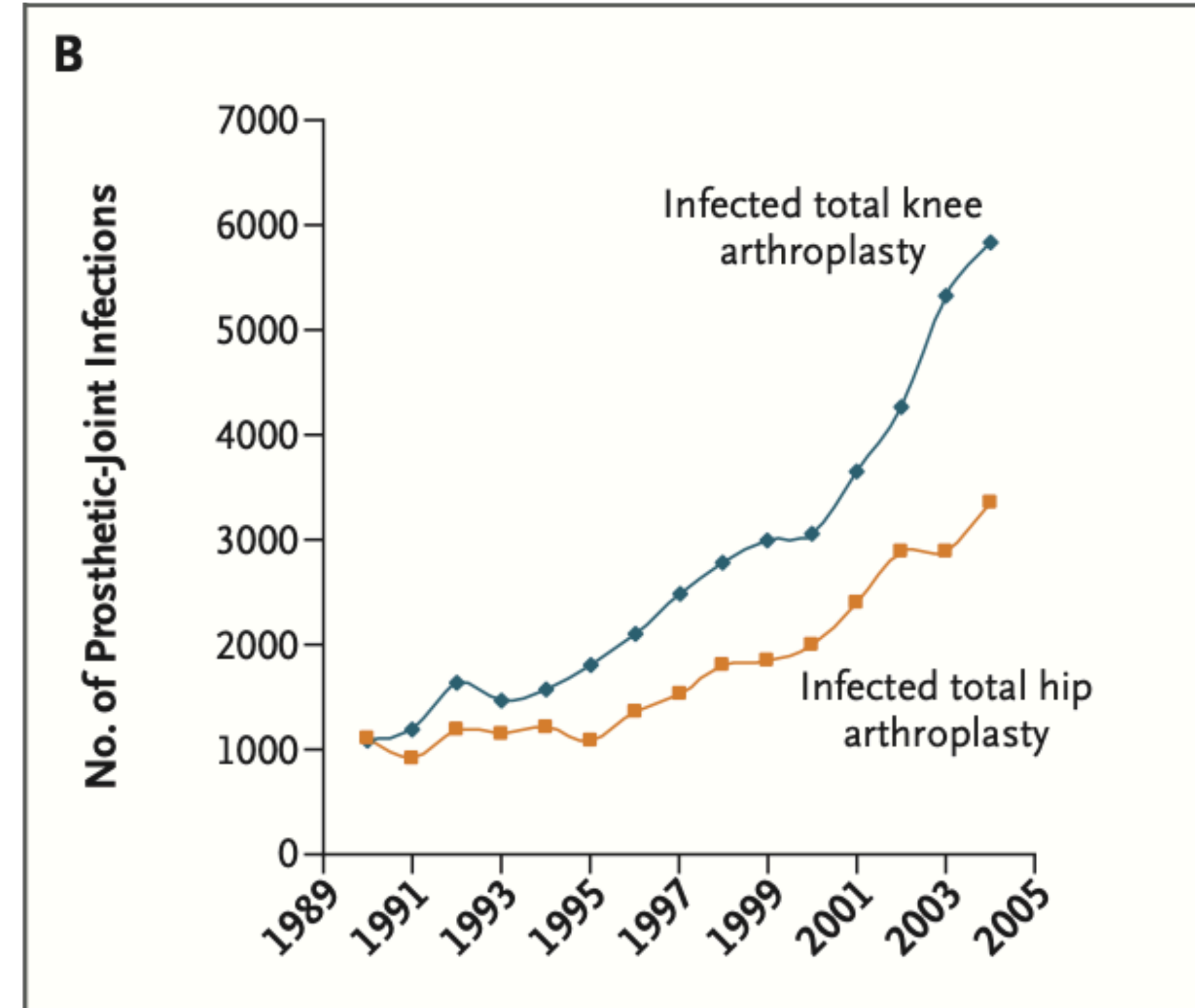
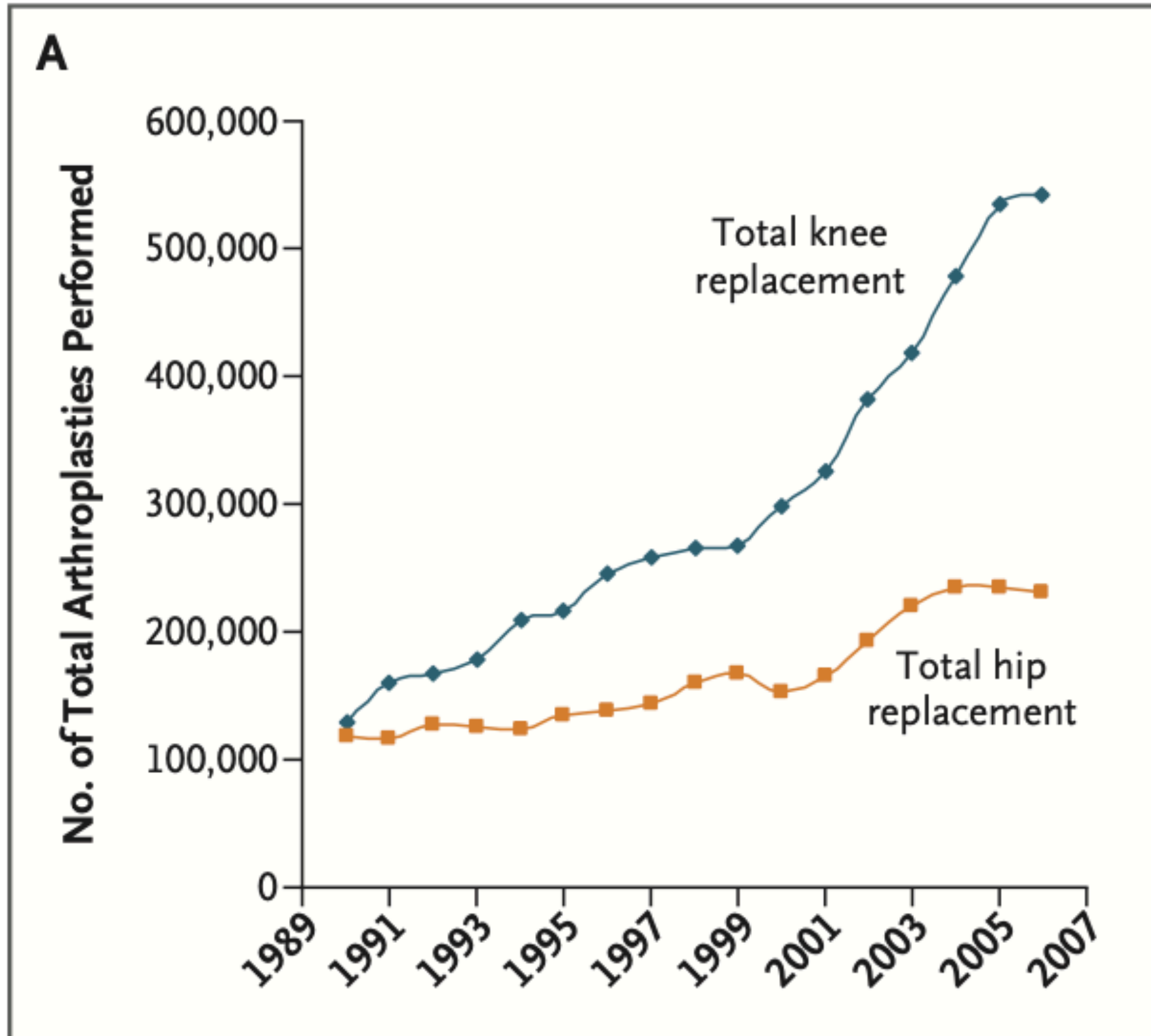
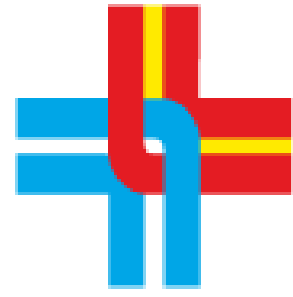
Introducción:





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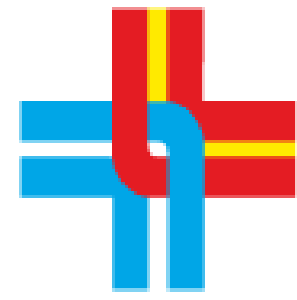




Infection Associated with Prosthetic Joints

Jose L. Del Pozo, M.D., Ph.D., and Robin Patel, M.D.

This Journal feature begins with a case vignette highlighting a common clinical problem. Evidence supporting various strategies is then presented, followed by a review of formal guidelines, when they exist. The article ends with the authors' clinical recommendations.



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Incidencia de infección



FONDO NACIONAL DE RECURSOS
Medicina Altamente Especializada

Segundo Consenso Internacional sobre Infecciones Musculoesqueléticas



EFORT open reviews

Periprosthetic joint infection: current concepts and outlook

2018

Directores:

Javad Parvizi, MD, FRCS

Thorsten Gehrke, MD

2018

Petra Izakovicova¹

Olivier Borens²

Andrej Trampuz³

2019

1,5 %

1,5 - 2 %

1 - 2 %

80-100 casos por año en Uruguay

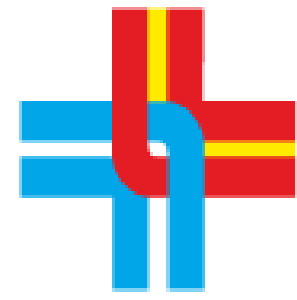
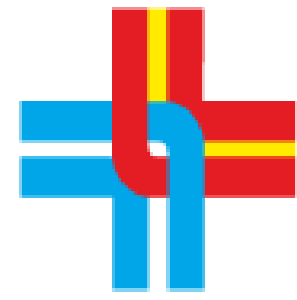


Table 2. Classification of periprosthetic joint infection (PJI)

	Acute PJI (immature biofilm)	Chronic PJI (mature biofilm)
Pathogenesis		
▪ Perioperative	< 4 weeks after surgery (early)	≥ 4 weeks after surgery (delayed/low grade)
▪ Haematogenous or 'per continuitatem'	< 3 weeks duration of symptoms	≥ 3 weeks of duration of symptoms
Clinical features	Acute pain, fever, red/ swollen joint, prolonged post-operative discharge (>7–10 days)	Chronic pain, loosening of the prosthesis, sinus tract (fistula)
Causative micro-organism	High-virulence: <i>Staphylococcus aureus</i> , gram-negative bacteria (e.g. <i>Escherichia coli</i> , <i>Enterobacter</i> , <i>Klebsiella</i> , <i>Pseudomonas aeruginosa</i>)	Low-virulence: Coagulase-negative staphylococci (e.g. <i>Staphylococcus epidermidis</i>), <i>Cutibacterium species</i>
Surgical treatment	Debridement and retention of prosthesis (change of mobile parts)	Complete removal of prosthesis (exchange in one or two stages)



Periprosthetic joint infection: current concepts and outlook

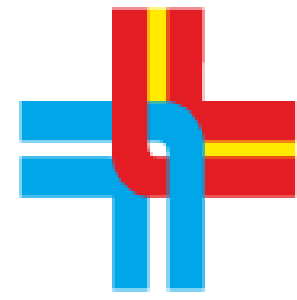


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Objetivo primario:

- Mostrar la eficacia del tratamiento de debridamiento, retención de implante y tratamiento antibiótico dirigido por 12 semanas en las infecciones agudas en los pacientes tratados por el equipo de infecciones de nuestro centro.

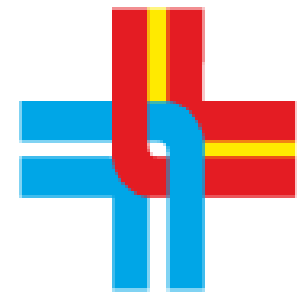


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Objetivos secundarios:

- Identificar factores de riesgo asociados a las infecciones protésicas.
- Identificar microorganismos más frecuentes de nuestro medio.
- Analizar posibles causas que predispongan a la falla del tratamiento de la infección.



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Material y Métodos:

- Infecciones agudas durante el período enero 2020 hasta diciembre 2021
- Diagnosticadas y tratadas por el equipo de infecciones de la Asociación Española
- El diagnóstico de esta fue realizado según los criterios de Parvizi.

The 2018 Definition of Periprosthetic Hip and Knee Infection:
An Evidence-Based and Validated Criteria

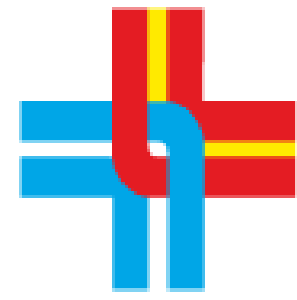
Javad Parvizi, MD ^{a,*}, Timothy L. Tan, MD ^a, Karan Goswami, MD ^a, Carlos Higuera, MD ^b,
Craig Della Valle, MD ^c, Antonia F. Chen, MD, MBA ^a, Noam Shohat, MD ^{a,d}

^a Rothman Institute, Thomas Jefferson University, Philadelphia, PA

^b Cleveland Clinic, Cleveland, OH

^c Rush University Medical Center, Chicago, IL

^d Sackler Faculty of Medicine, Tel Aviv University, Ramat Aviv, Israel



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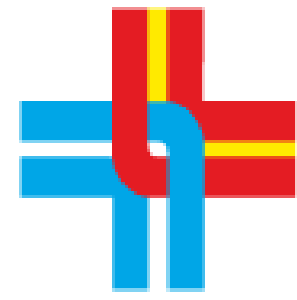
Criterios de inclusión y exclusión

Inclusión:

- Que hayan recibido tratamiento y control por parte del equipo de infecciones en por lo menos 4 oportunidades en 1 año
- Infecciones agudas

Exclusión:

- No haber realizado el seguimiento establecido por el equipo de infecciones
- Muerte por causa no relacionada al proceso infeccioso
- Tratamiento supresivo como método elegido para control de la infección



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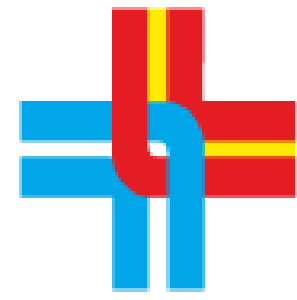


Los criterios utilizados fueron:

- clínicos
- quirúrgico
- no muerte causada por una condición directa de la infección
- no antibiotico supresivo

**Success After Treatment of Periprosthetic Joint Infection: A
Delphi-based International Multidisciplinary Consensus**

Claudio Diaz-Ledezma MD, Carlos A. Higuera MD,
Javad Parvizi MD, FRCS

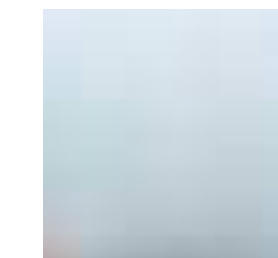


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Tratamiento:

- Limpieza quirúrgica
- Toma de 5 muestras para bacteriológico
- No recambio de partes móviles
- Colocación de drenaje aspirativo
- Inicio de atb empírico
- Se autoriza a retomar a la marcha a las 24hs
- 12 semanas de tto atb



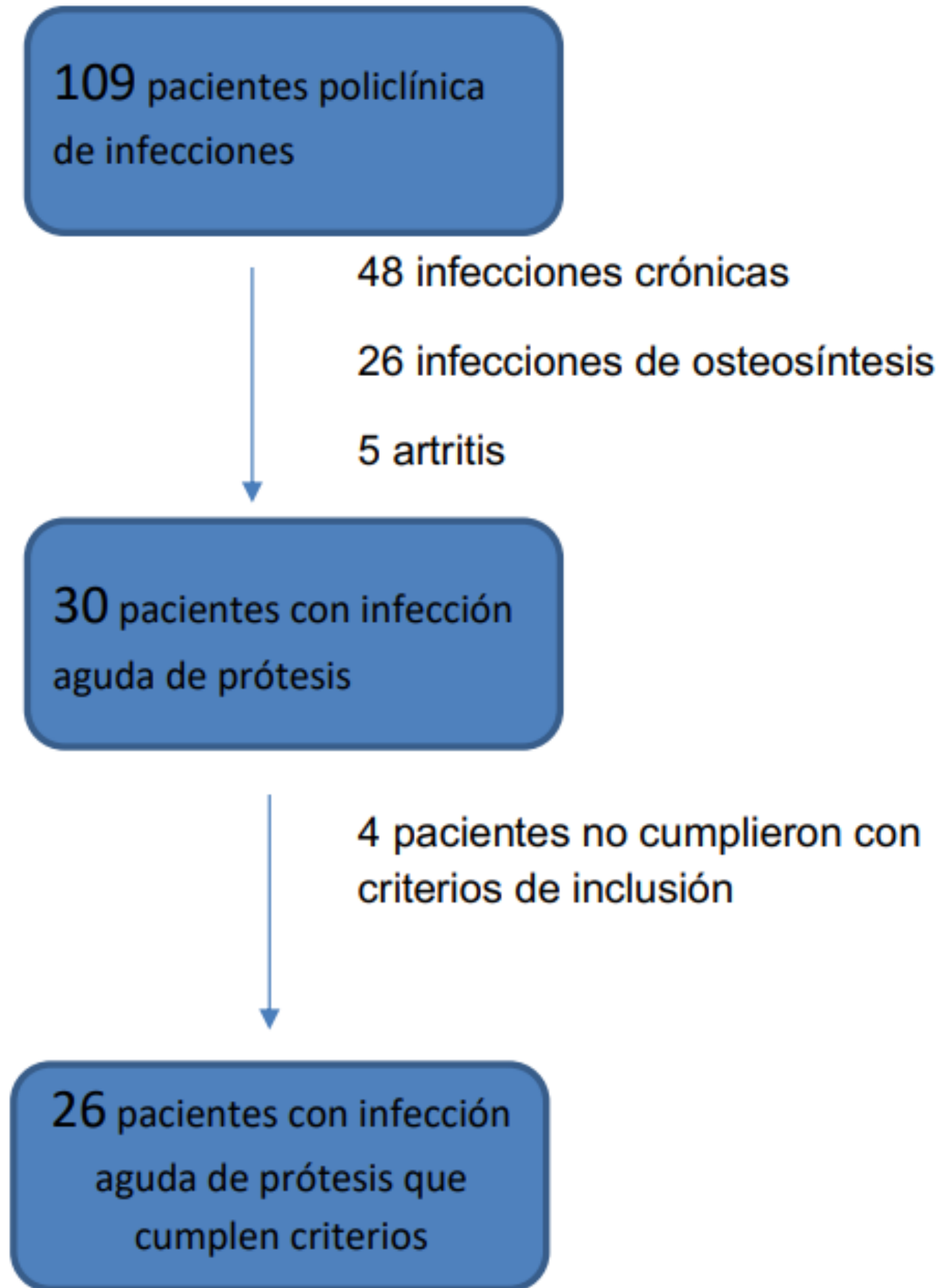
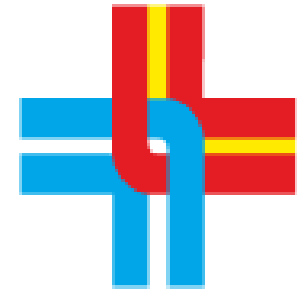
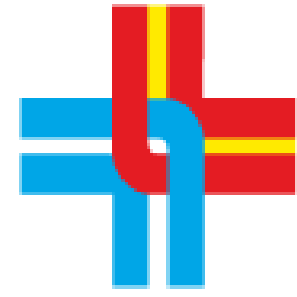
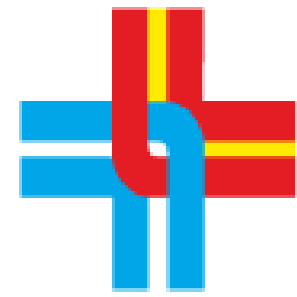


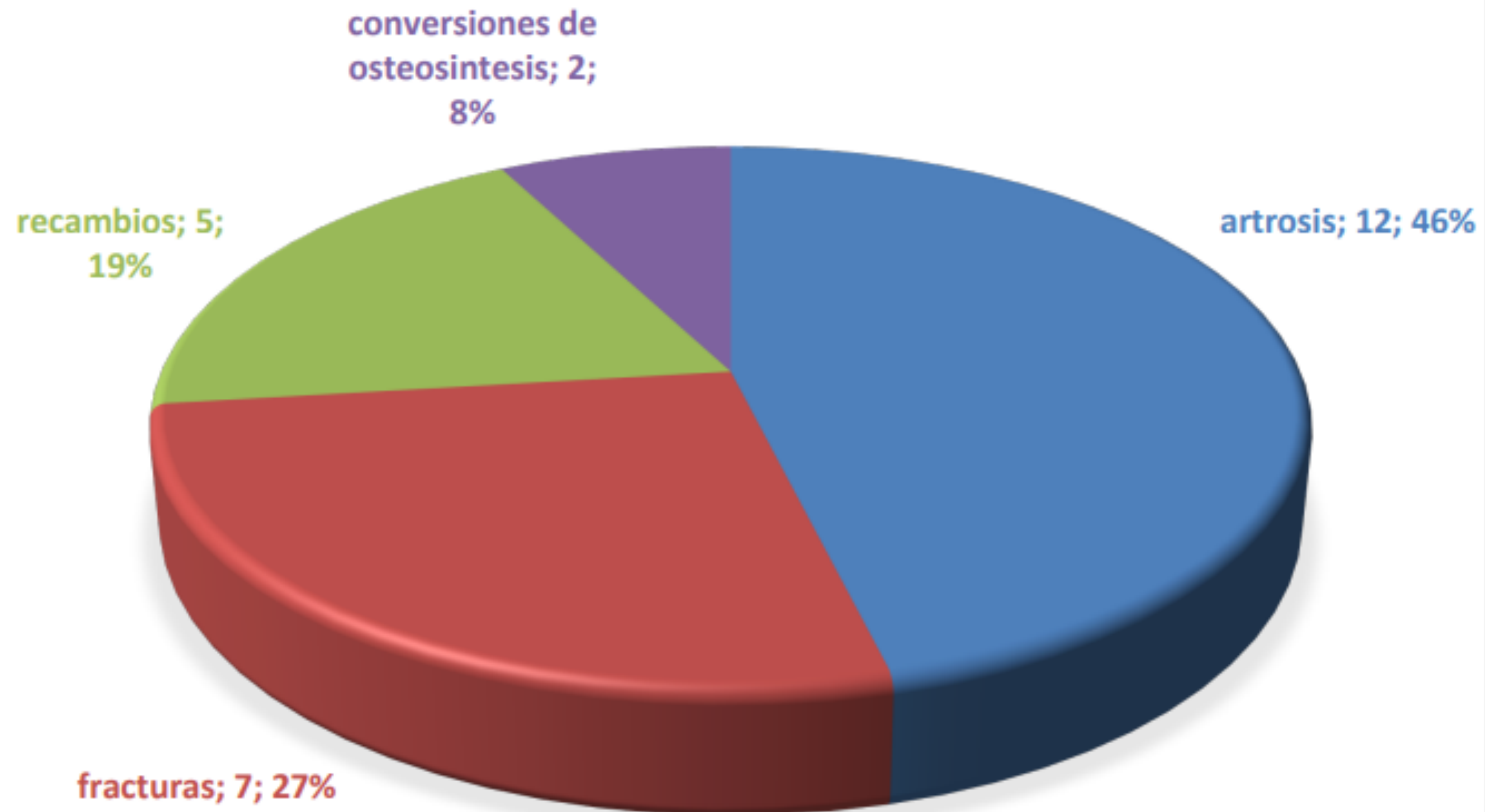
Figura 1: flujograma de pacientes

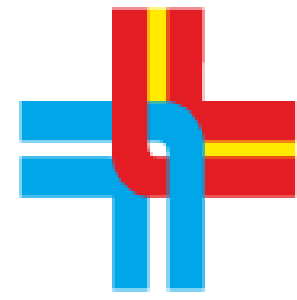


Características	
Sexo (femenino)	65% (17)
Edad (promedio)	75 (61-91)
HTA	65% (17)
IRA	0,04% (1)
Obesidad	46% (12)
Tabaquismo	27% (7)
DM	19% (5)



CAUSAS

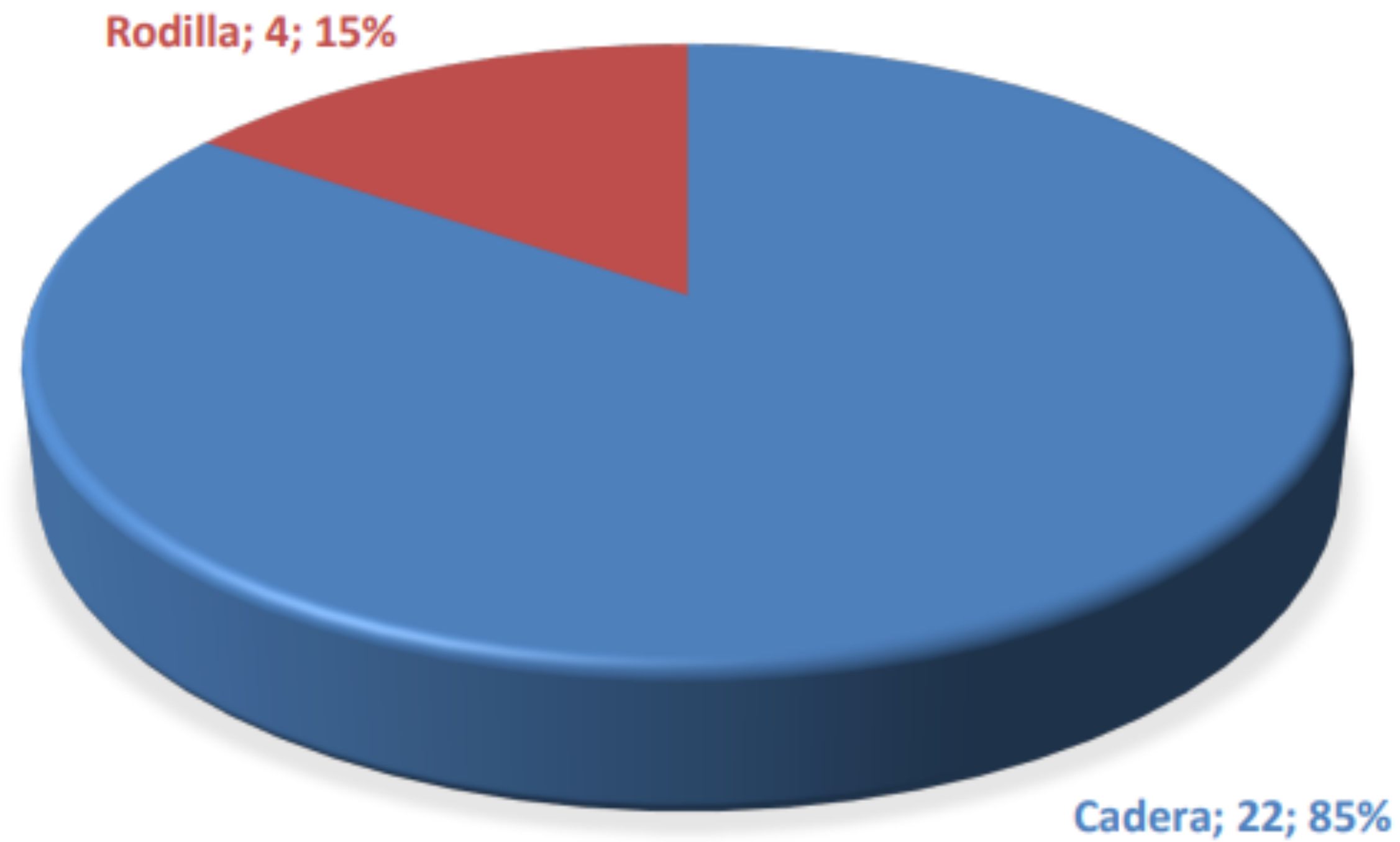


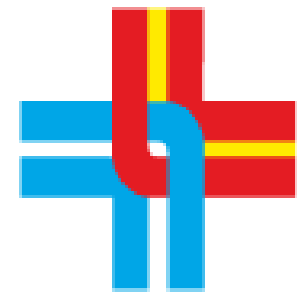


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ARTICULACIÓN





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DIAGNOSTICO

20 dias

Minimo de 7 y máximo de 30

LIMPIEZA QUIRURGICA

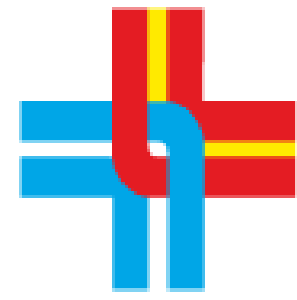
21 dias

Minimo de 7 y máximo de 30

PCR

132 mg/l

Un 20% menos de 20 mg/L

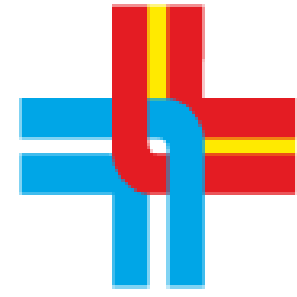


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Microorganismos



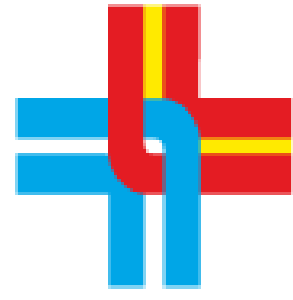


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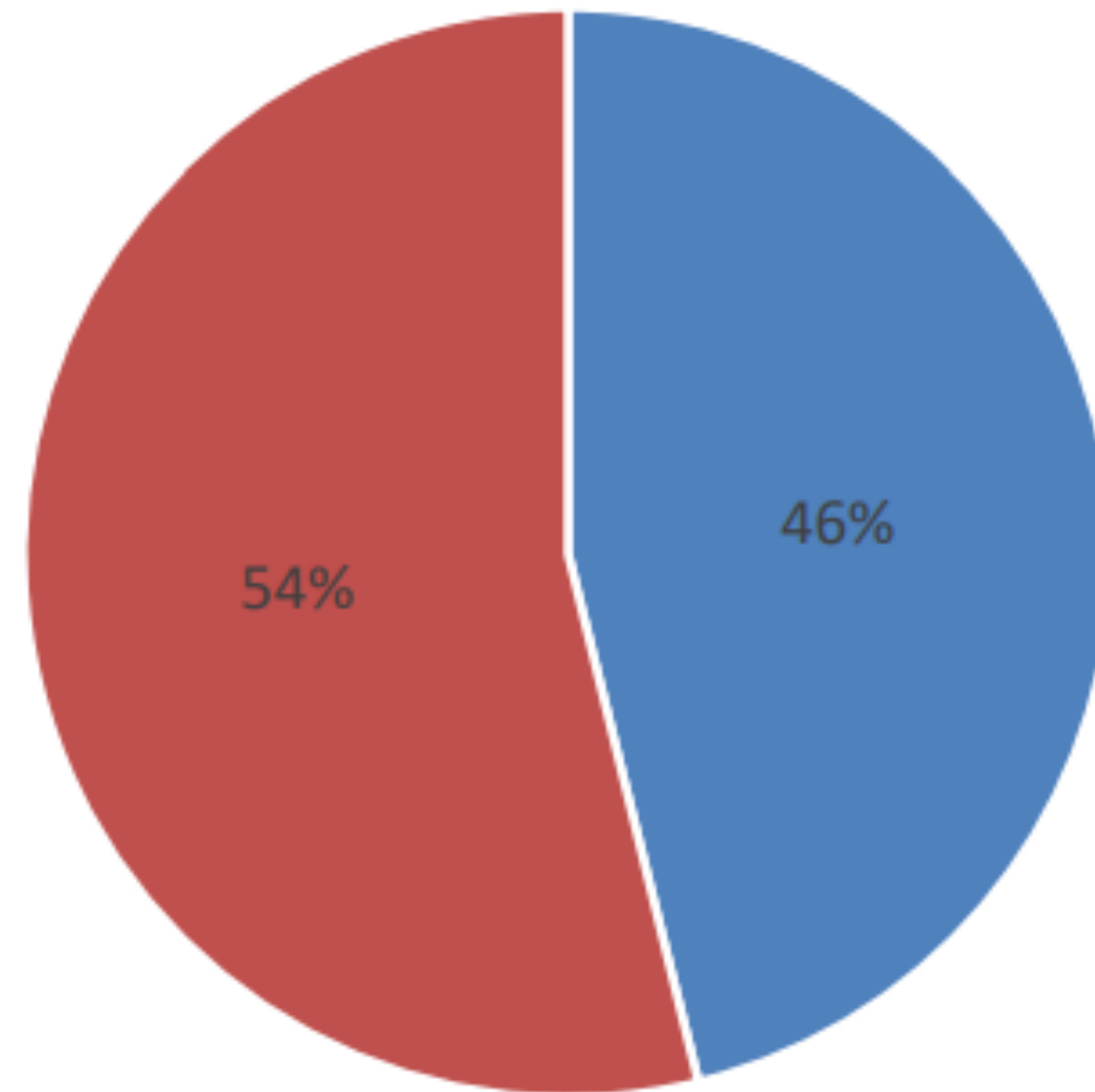
MICROORGANISMO	TOTAL	PORCENTAJE	GRAM + o -
<i>Staphylococcus aureus</i>	8	22%	+
<i>Staphylococcus epidermidis</i>	6	16,2%	+
<i>Pseudomona aeruginosa</i>	5	13,5%	-
<i>Escherichia coli</i>	3	8,1%	-
<i>Acinetobacter Baumanni</i>	2	5,6%	-
<i>Enterococcus faecalis</i>	2	5,6%	+
<i>Acinetobacter haemolyticus</i>	2	5,6%	-
<i>Klebsiella pneumoniae</i>	2	5,6%	-
<i>Morganella morgani</i>	1	2,7%	-
<i>Staphylococcus dysgalactiae</i>	1	2,7%	+
<i>Clostridium perfringens</i>	1	2,7%	+
<i>Corynebacterium</i>	1	2,7%	+
<i>Staphylococcus.capitis</i>	1	2,7%	-
<i>Enterobacter cloacae</i>	1	2,7%	-



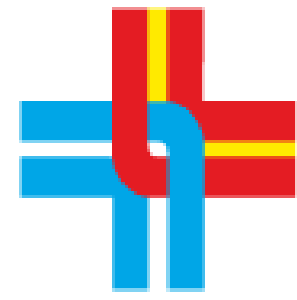
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Eficacia del tto



■ Fracaso de tto ■ Exito de tto

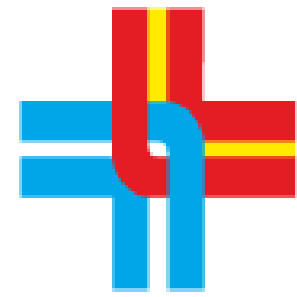


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Discusión:

- Factores de riesgo
- Microorganismos
- Efectividad del tratamiento

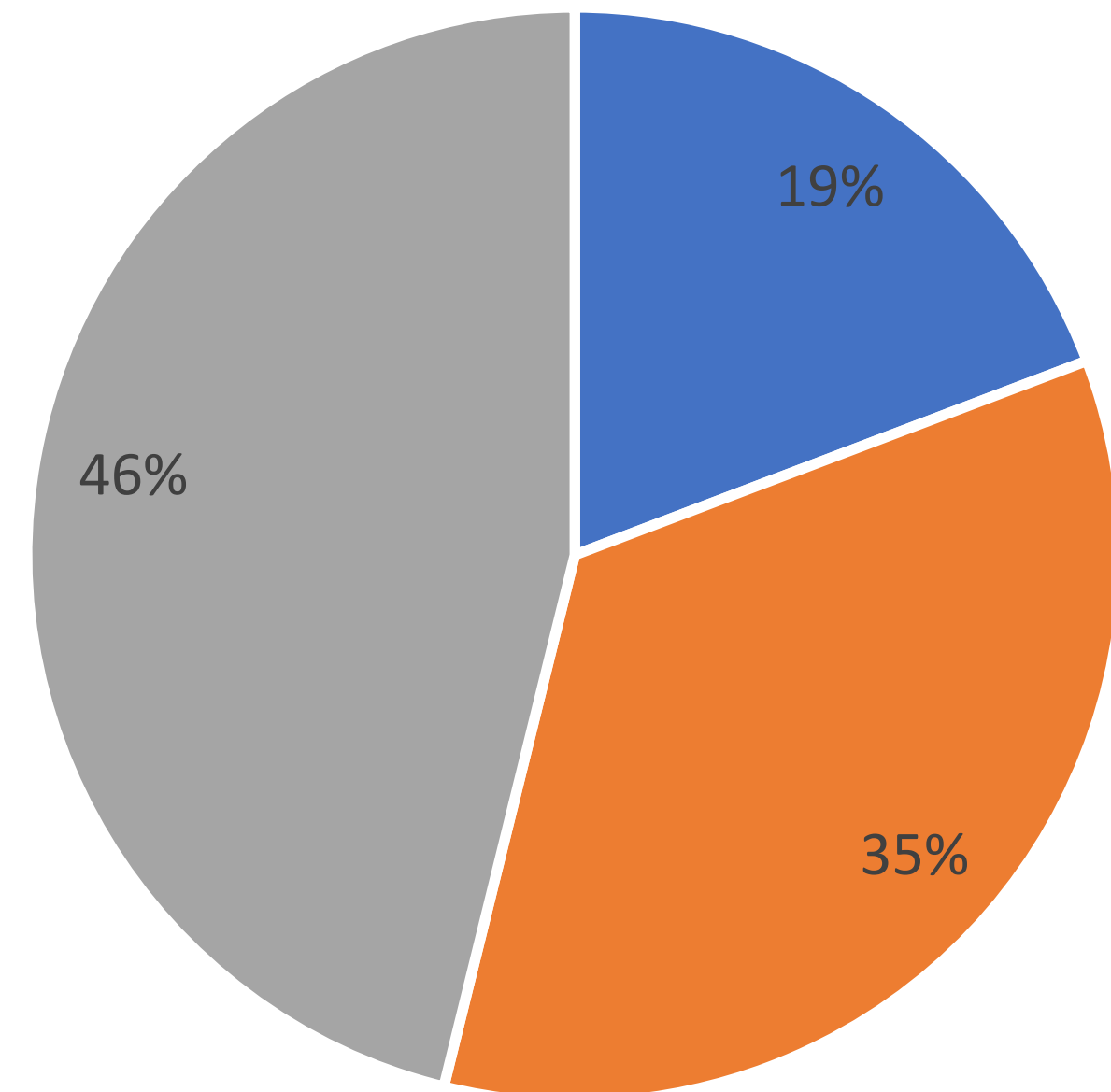


Fac

Obesidad:

Asociación

Peso



■ normopeso ■ sobrepeso ■ obesidad

Interaction of obesity with smoking and inflammatory arthropathies increases the risk of periprosthetic joint infection: a propensity score matched study in a Chinese Han population

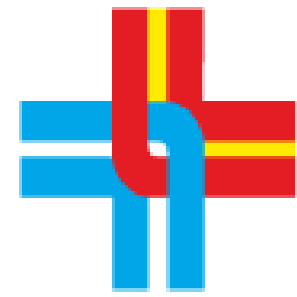
Xu C, Guo H, Wang Q et al. [See more](#)

Journal of Hospital Infection, (2019), 222-228, 101(2)

Patients' risk factors for periprosthetic joint infection in primary total hip arthroplasty: a meta-analysis of 40 studies

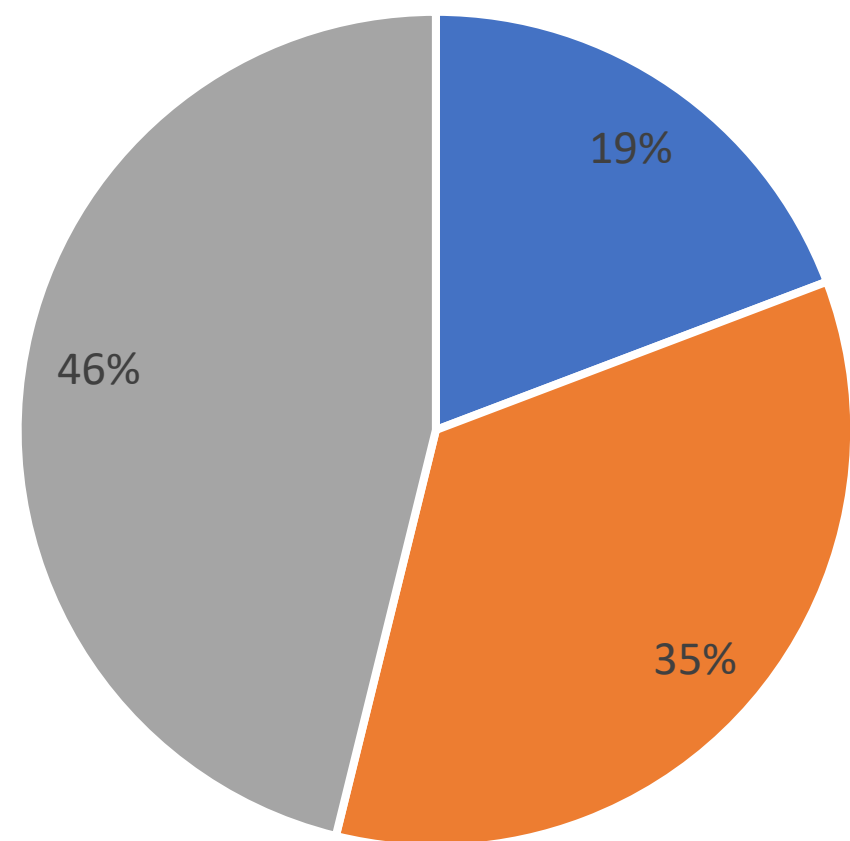
Xiaolei Ren[†], Lin Ling[†], Lin Qi, Zhongyue Liu, Wenchao Zhang, Zhimin Yang, Wanchun Wang, Chao Tu* and Zhihong Li*



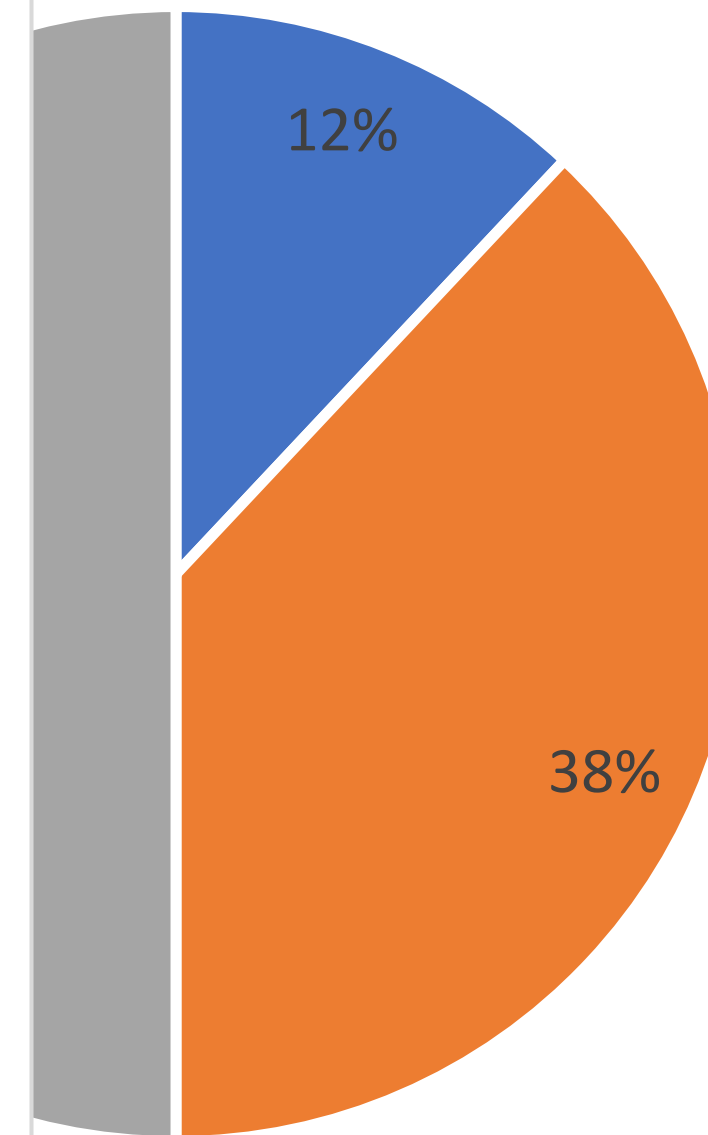


Peso rodillas FNR

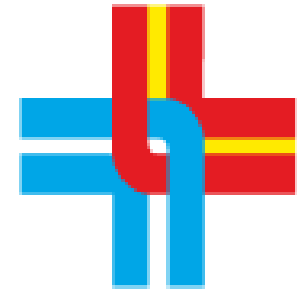
Peso



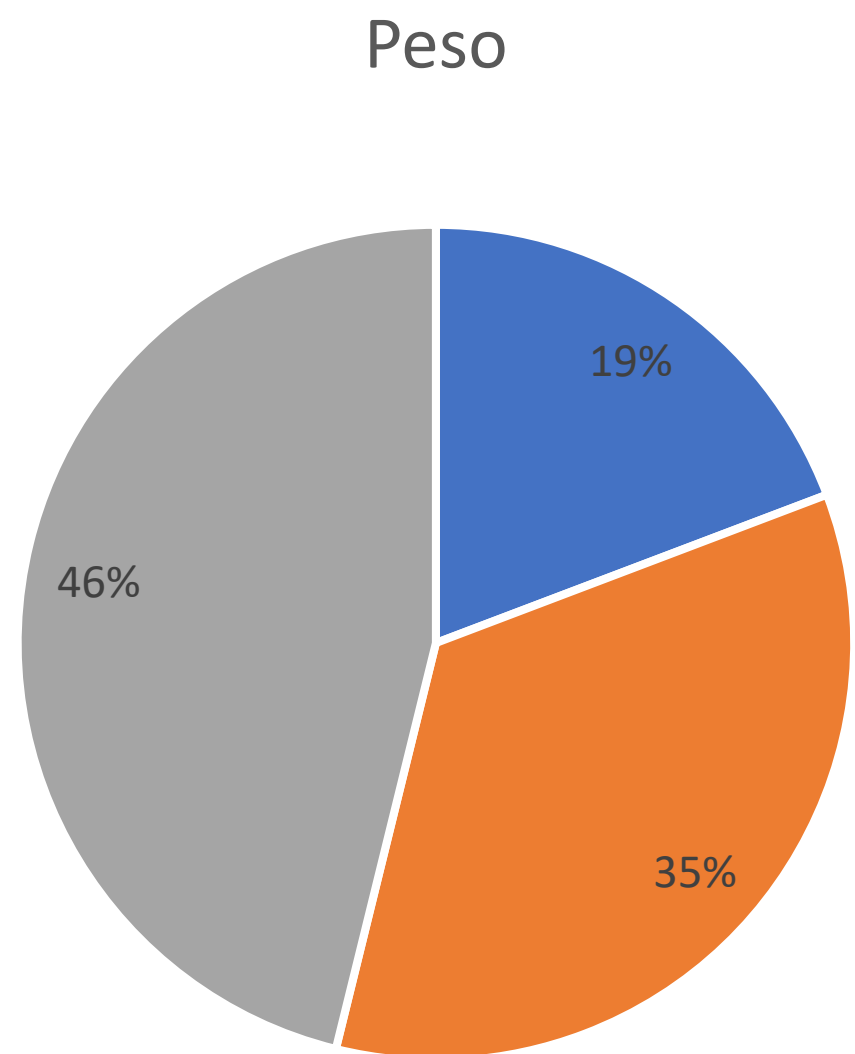
■ normopeso ■ sobrepeso ■ obesidad



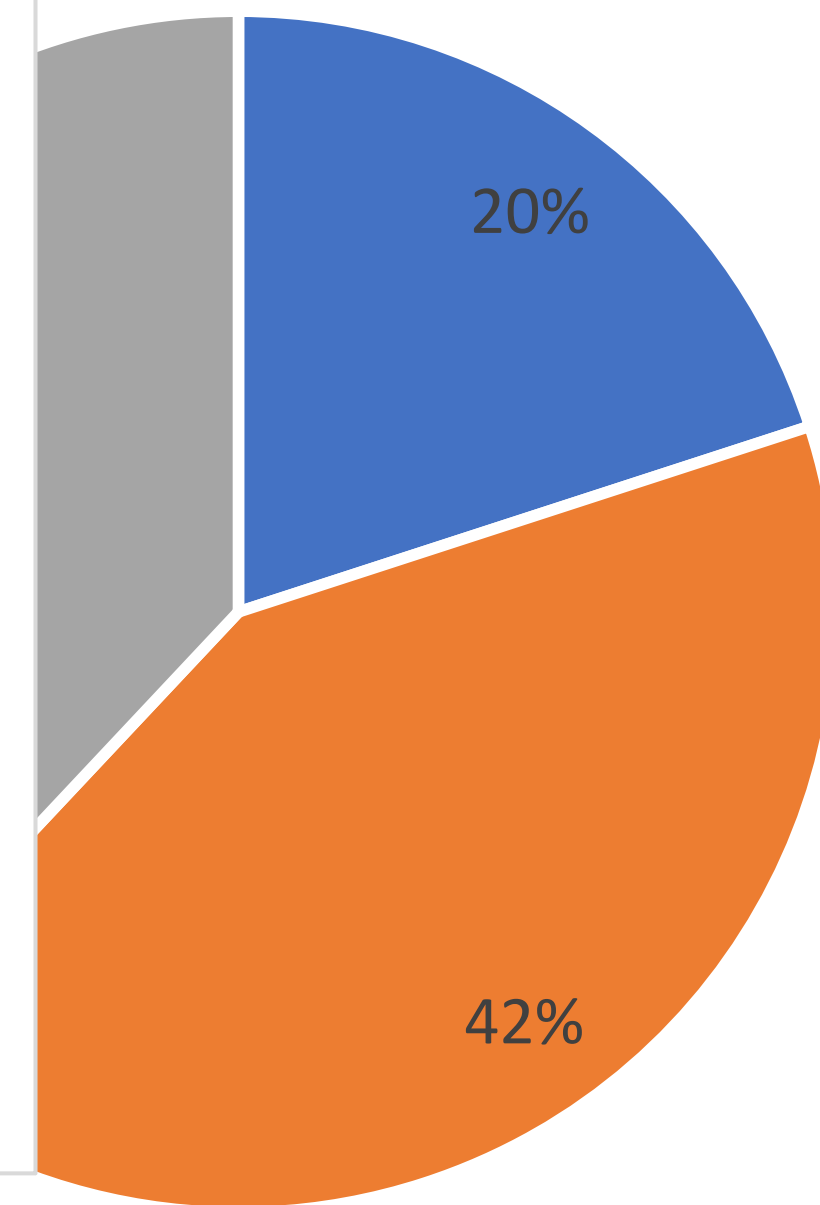
■ normopeso ■ sobrepeso ■ obesidad



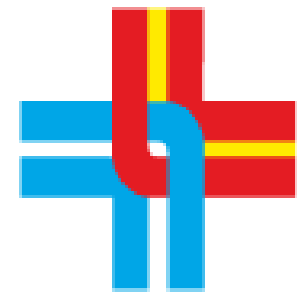
Peso caderas FNR



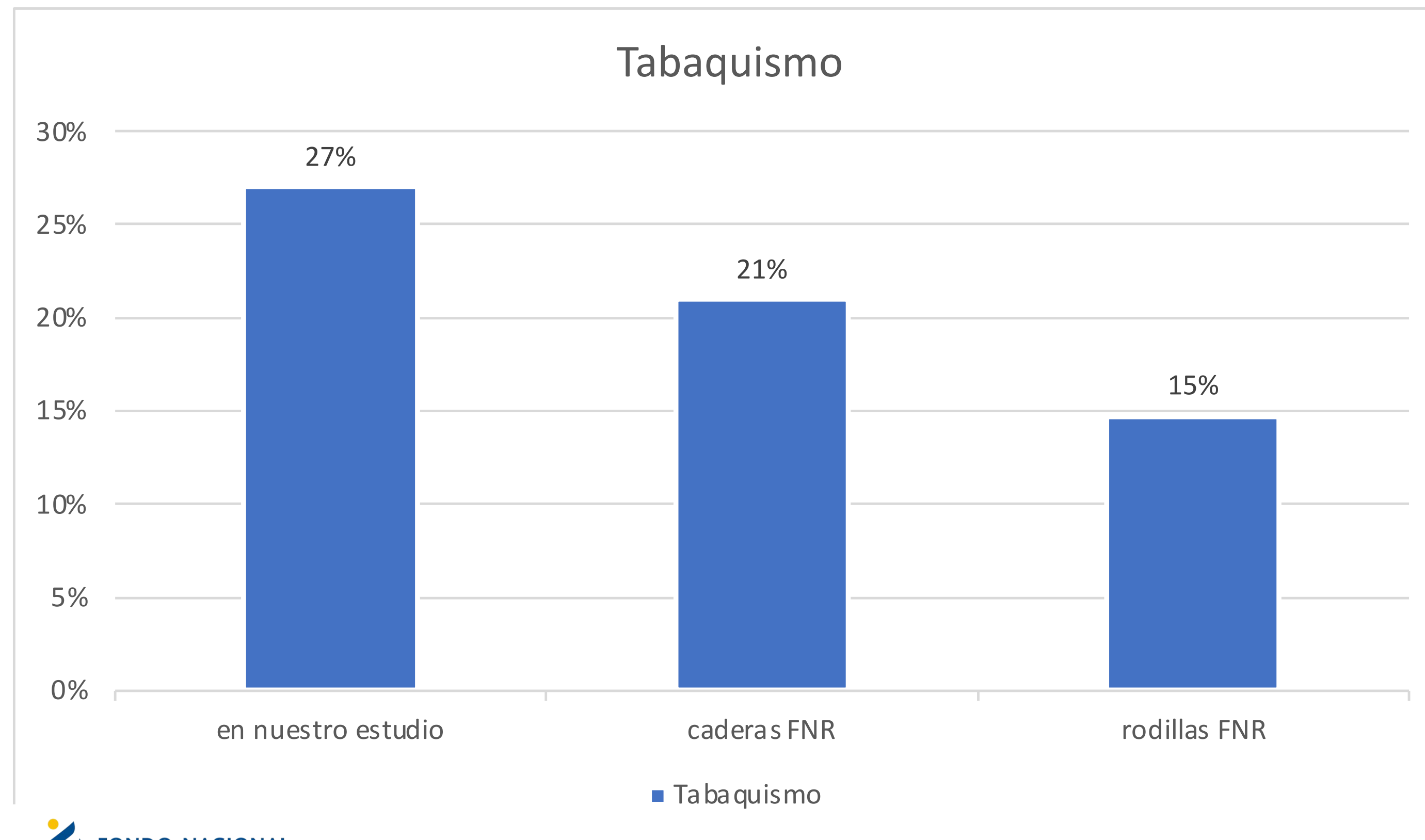
■ normopeso ■ sobrepeso ■ obesidad

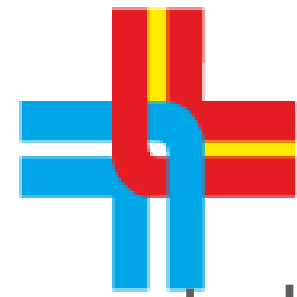


■ normopeso ■ sobrepeso ■ obesidad



Tabaquismo: aumento de 3 veces en riesgo de infección y se recomienda abstinencia de 4 semanas previo a la cirugía

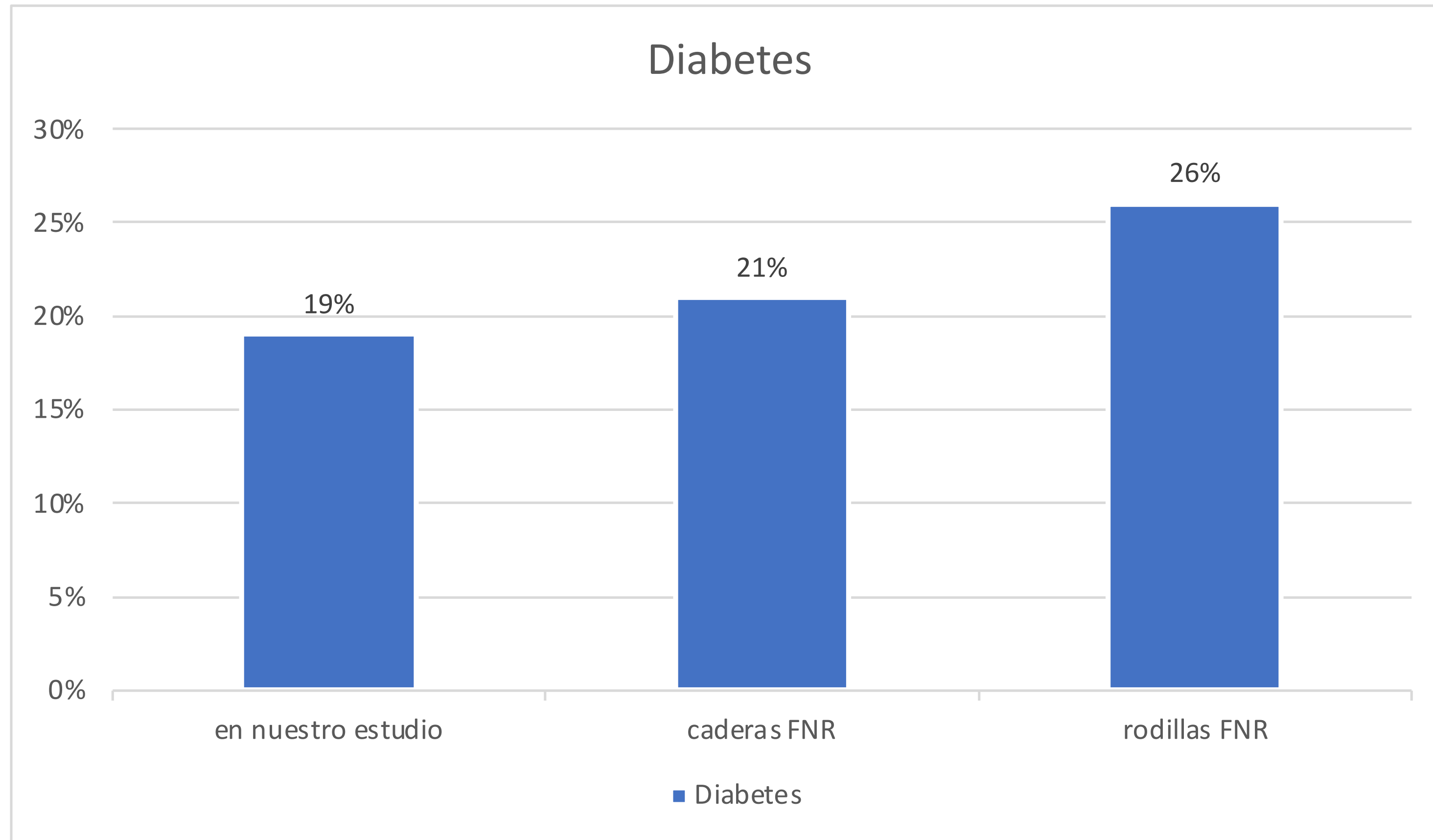




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Diabetes: aumenta hasta 3 veces el riesgo de infección, hb glicosilada por encima de 7.5 valor de referencia para aumento del riesgo



Proceedings of AAHKS

Is There a Threshold Value of Hemoglobin A1c That Predicts Risk of Infection Following Primary Total Hip Arthroplasty?

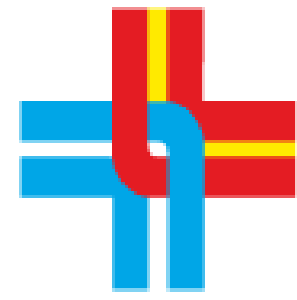
Jourdan M. Cancienne, MD, Brian C. Werner, MD, James A. Browne, MD *

Department of Orthopaedic Surgery, University of Virginia Health System, Charlottesville, Virginia

The Journal of Arthroplasty Vol. 24 No. 6 Suppl. 1 2009

Morbidly Obese, Diabetic, Younger, and Unilateral Joint Arthroplasty Patients Have Elevated Total Joint Arthroplasty Infection Rates

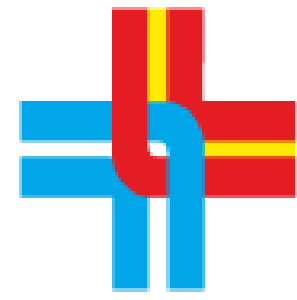
Robert A. Malinzak, MD, Merrill A. Ritter, MD, Michael E. Berend, MD, John B. Meding, MD, Emily M. Olberding, MD, and Kenneth E. Davis, MS



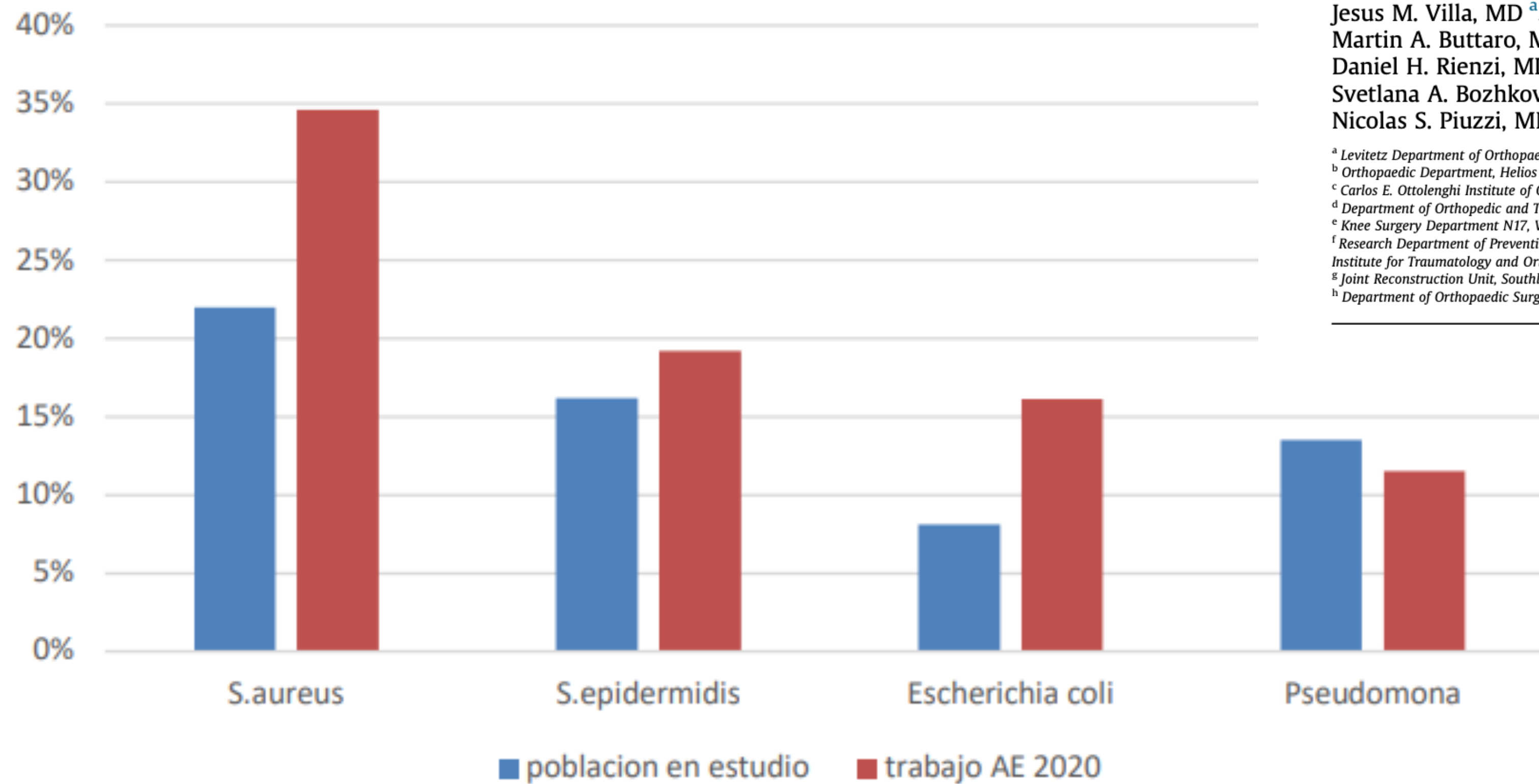
Microorganismos

- Virulencia del mismo
- Identificación precoz
- Perfil de sensibilidad





Microorganismos



International Organism Profile of Periprosthetic Total Hip and Knee Infections

Jesus M. Villa, MD ^a, Tejbir S. Pannu, MD, MS ^a, Ibrahim Theeb, MD ^b, Martin A. Buttaró, MD ^c, Jose I. Oñativia, MD ^c, Lisandro Carbo, MD ^c, Daniel H. Rienzi, MD ^d, Jose I. Fregeiro, MD ^d, Nikolai N. Kornilov, MD, PhD ^e, Svetlana A. Bozhkova, MD, PHD ^f, Nemandra A. Sandiford, MD ^g, Nicolas S. Piuzzi, MD ^h, Carlos A. Higuera, MD ^{a,*}, Daniel O. Kendoff, MD ^b

^a Levitz Department of Orthopaedic Surgery, Cleveland Clinic Florida, Weston, FL

^b Orthopaedic Department, Helios Klinikum, Berlin, Germany

^c Carlos E. Ottolenghi Institute of Orthopaedics and Traumatology, Hospital Italiano de Buenos Aires, Buenos Aires, Argentina

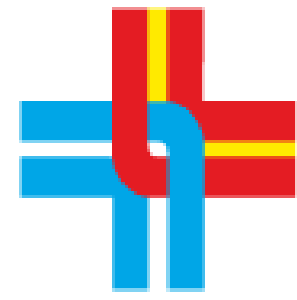
^d Department of Orthopedic and Traumatology, Hospital Asociación Española, Montevideo, Uruguay

^e Knee Surgery Department N17, Vreden Russian Research Institute for Traumatology and Orthopaedics, St. Petersburg, Russia

^f Research Department of Prevention and Treatment of Wound Infection and Department of Clinical Pharmacology, Vreden Russian Research Institute for Traumatology and Orthopaedics, St. Petersburg, Russia

^g Joint Reconstruction Unit, Southland Hospital, Invercargill, New Zealand

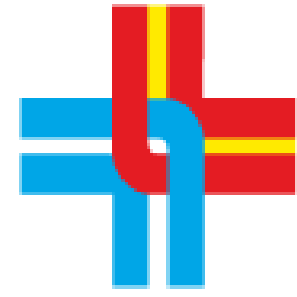
^h Department of Orthopaedic Surgery, Cleveland Clinic, Cleveland, OH



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- Todos los casos de S.Aureus eran sensibles a meticilina
- En 17 de 24 casos existía la posibilidad de administración de antibióticos via oral
- En el 58% los casos existía resistencia a por lo menos 1 antibiótico
- Aumento de gram -



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Eficacia del tratamiento

- Identificación del microorganismo
- LQ adecuada
- Tratamiento antibiótico precoz dirigido

Acta Orthopaedica 2014; 85 (6): x-x

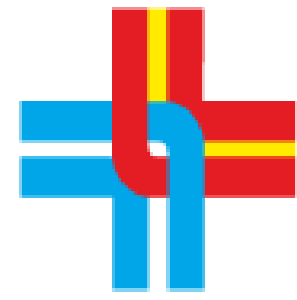
1

The role of microbial biofilms in prosthetic joint infections

A review

Herbert O Gbejuade^{1,2}, Andrew M Lovering³, and Jason C Webb^{1,2}

¹Avon Orthopedic Centre, Southmead Hospital; ²University of Bristol; ³Microbiology Department, Southmead Hospital, Bristol, UK.
Correspondence: gbej1@yahoo.com
Submitted 2013-06-25. Accepted 2014-06-03



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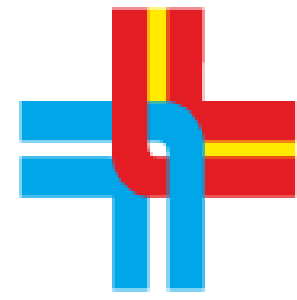


Los criterios utilizados fueron:

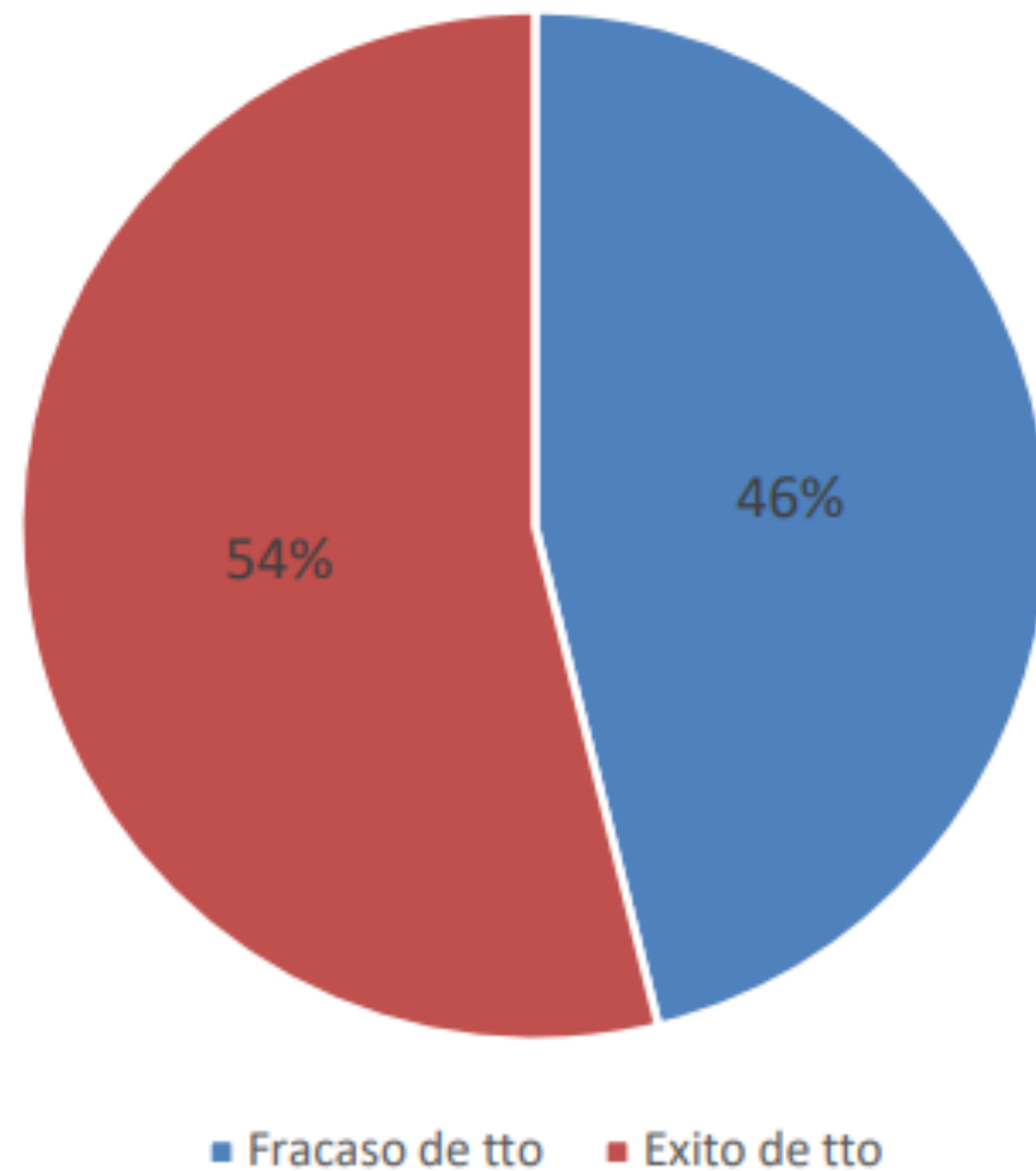
- clínicos
- quirúrgico
- no muerte causada por una condición directa de la infección
- no antibiotico supresivo

**Success After Treatment of Periprosthetic Joint Infection: A
Delphi-based International Multidisciplinary Consensus**

Claudio Diaz-Ledezma MD, Carlos A. Higuera MD,
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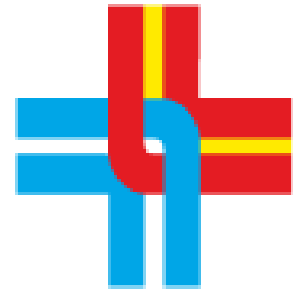


Eficacia del tto

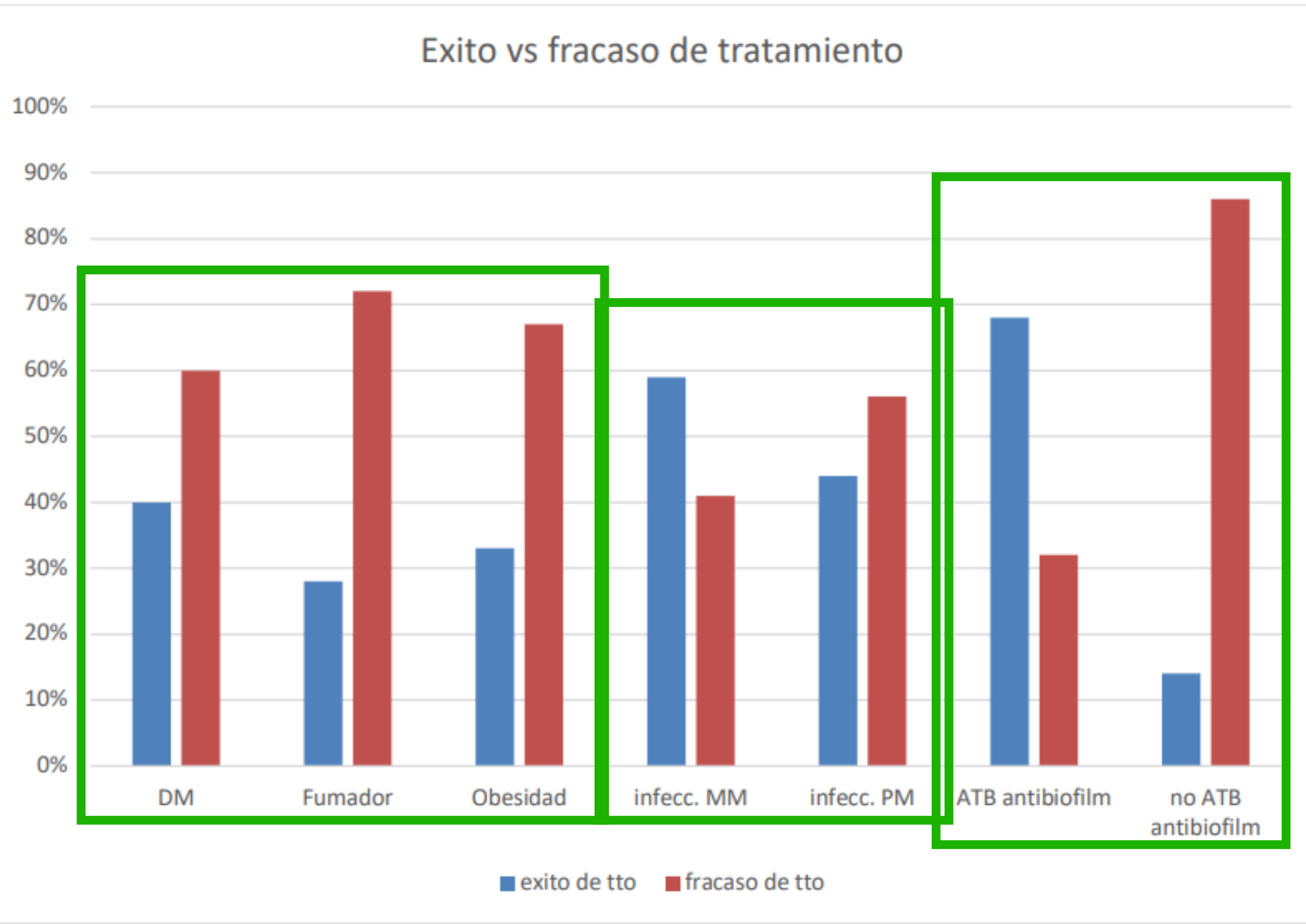


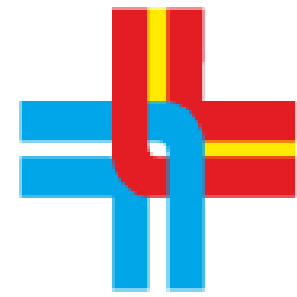
- 6 espaciadores de cadera o rodilla
- 4 Girdlestone
- 2 tratamiento supresivo

1 fallecimiento y 1 amputación suprapatelar



Exito vs fracaso de tratamiento





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Online Submissions: <http://www.wjgnet.com/esps/>
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DOI: 10.5312/wjo.v5.i5.667

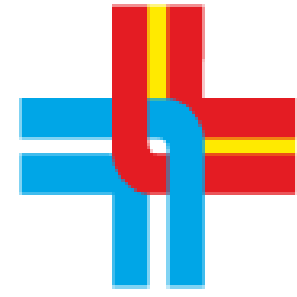
World J Orthop 2014 November 18; 5(5): 667-676
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REVIEW

Treatment of acute periprosthetic infections with prosthesis retention: Review of current concepts

Jesse WP Kuiper, Robin Tjeenk Willink, Dirk Jan F Moojen, Michel PJ van den Bekerom, Sascha Colen

- 9 publicaciones
- Menos de 1 mes cirugía
- 55% de efectividad de promedio
- Tasas entre 31-78%



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■ **HIP**

Outcomes following debridement, antibiotics and implant retention in the management of periprosthetic infections of the hip

A REVIEW OF COHORT STUDIES

S-T. J. Tsang,
J. Ting,
A. H. R.W. Simpson,
P. Gaston

*From University of
Edinburgh,
Edinburgh, United
Kingdom*

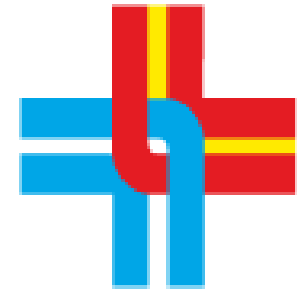
Aims

The aims of the study were to review and analyse the reported series of debridement, antibiotics and implant retention (DAIR) in the management of infected total hip arthroplasties (THAs) to establish the overall success and the influencing factors.

Patients and methods

Using a standardised recognised study protocol, meta-analysis of observational studies in epidemiology guidelines, a comprehensive review and analysis of the literature was performed. The primary outcome measure was the success of treatment. The search strategy and inclusion criteria which involved an assessment of quality yielded 39 articles for analysis, which included 1296 patients.

- 1296 pacientes multiples estudios
- Menos de 1 mes cirugía
- 73% de efectividad



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Irrigation and Debridement with Component Retention for Acute Infection After Hip Arthroplasty

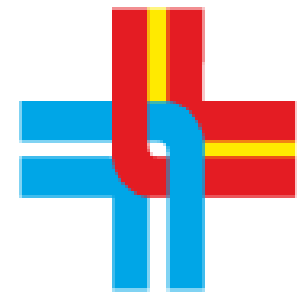
Improved Results with Contemporary Management

Andrew J. Bryan, MD, Matthew P. Abdel, MD, Thomas L. Sanders, MD, Steven F. Fitzgerald, MD, Arlen D. Hanssen, MD, and
Daniel J. Berry, MD

Investigation performed at the Mayo Clinic, Rochester, Minnesota

NO COMPARABLE

- 90 pacientes
- Menos de 1 mes cirugía
- Tto supresivo
- 83% de efectividad



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Success Rates of Debridement, Antibiotics, and Implant Retention in 230 Infected Total Knee Arthroplasties: Implications for Classification of Periprosthetic Joint Infection

Mark F. Zhu, MBChB ^{a, b, *}, Katy Kim, MBChB ^{a, b}, Alana Cavadino, PhD ^a,
Brendan Coleman, FRACS ^c, Jacob T. Munro, FRACS ^{a, d},
Simon W. Young, MD, FRACS ^{a, b}

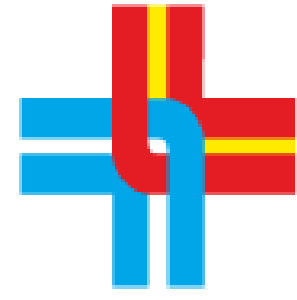
^a School of Medicine, Faculty of Medical and Health Sciences, University of Auckland, Auckland, New Zealand

^b Department of Orthopaedic Surgery, North Shore Hospital, Auckland, New Zealand

^c Department of Orthopaedic Surgery, Middlemore Hospital, Auckland, New Zealand

^d Department of Orthopaedic Surgery, Auckland City Hospital, Auckland, New Zealand

- 83 pacientes
- Menos de 1 mes cirugía
- 67% de efectividad



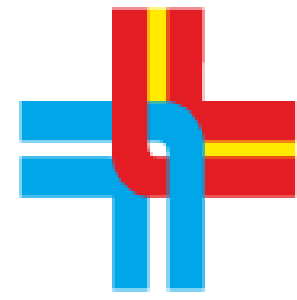
ASO
PRIME



Debilidades

Fortaleza



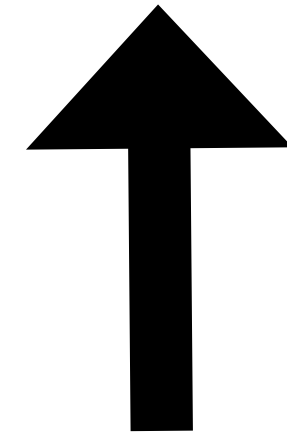


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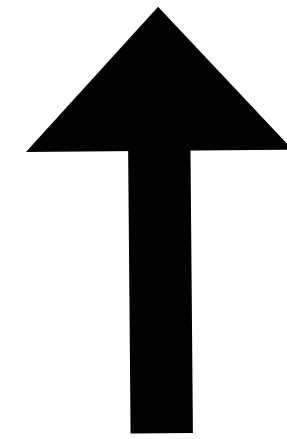


Conclusiones

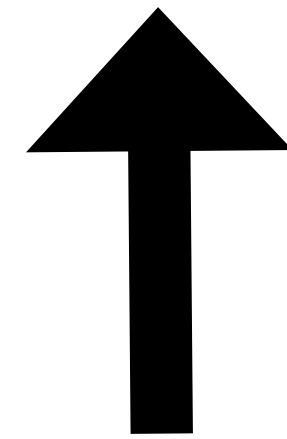
Factores de riesgo



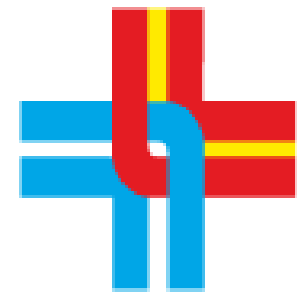
DIABETES



HTA



SOBREPESO/OBESIDAD

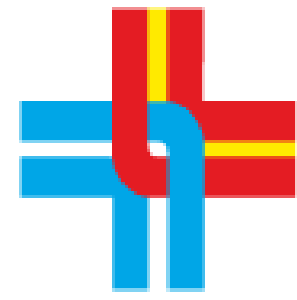


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Conclusiones

- Aumento de los gram negativos y microorganismos con resistencia a antibióticos vía oral.
- Similitud con las tasas internacionales publicadas y continúa siendo el tratamiento recomendado para este tipo de infecciones.
- La disponibilidad de **CIPROFLOXACINA Y RIFAMPICINA.**



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ACIA