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International Society of
Arthroscopy, Knee Surgery and
Orthopaedic Sports Medicine

ANTIBIOTIC-LOADED BONE CEMENT WITH COLISTIN AND ERYTHROMYCIN DO NOT DECREASE CHRONIC TKA PJI AT A LONG-TERM

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DISCLOSURE



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The author declare that there is no conflict of interests.

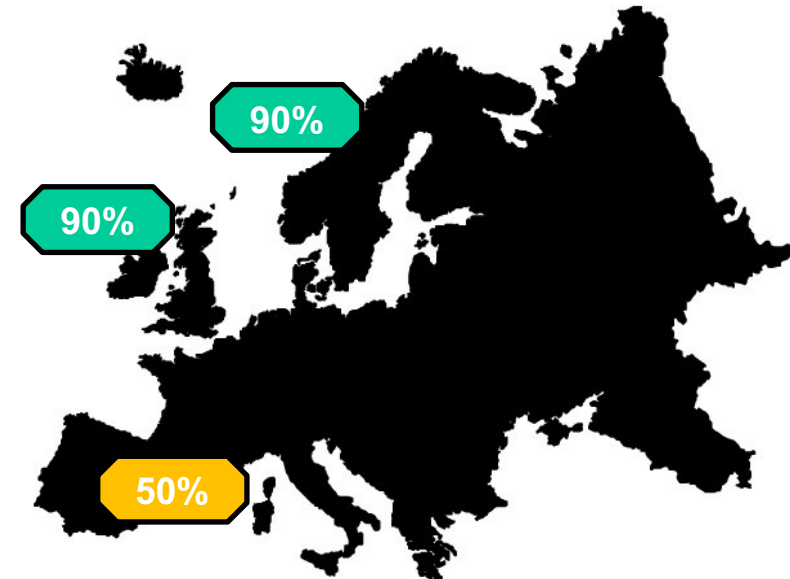
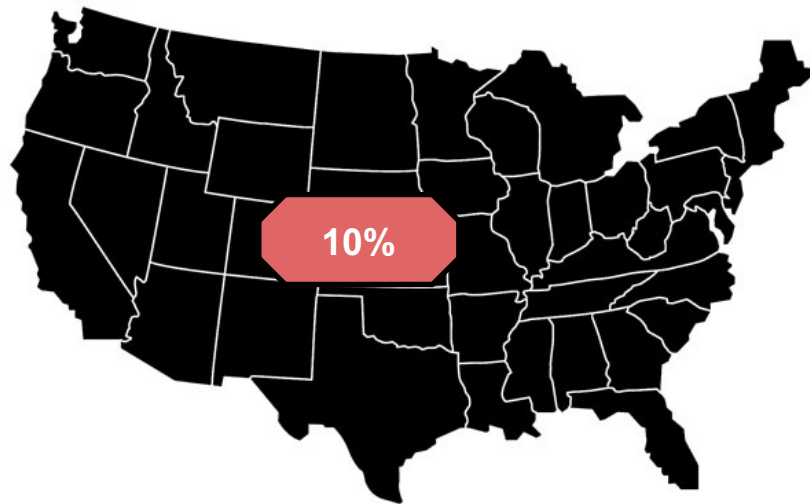


INTRODUCTION

Nowadays, the use of antibiotic-loaded cement in prosthetic revision surgery is globally accepted.

Its role as a prophylactic method to reduce prosthetic joint infection (PJI) is still controversial

Has been based on data from national registries and studies obtained over the past decades¹



¹ Zhang, Jin et al. 2019. "Antibiotic-Impregnated Bone Cement for Preventing Infection in Patients Receiving Primary Total Hip and Knee Arthroplasty: A Meta-Analysis." *Medicine (United States)* 98(49).



OBJECTIVE



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Evaluate if the **use of antibiotic-loaded cement** reduce the **infection rate** in primary total knee arthroplasty (TKA) in long term follow up.



Use of antibiotic-loaded cement reduce the infection rate in primary TKA



MATERIALS AND METHODS

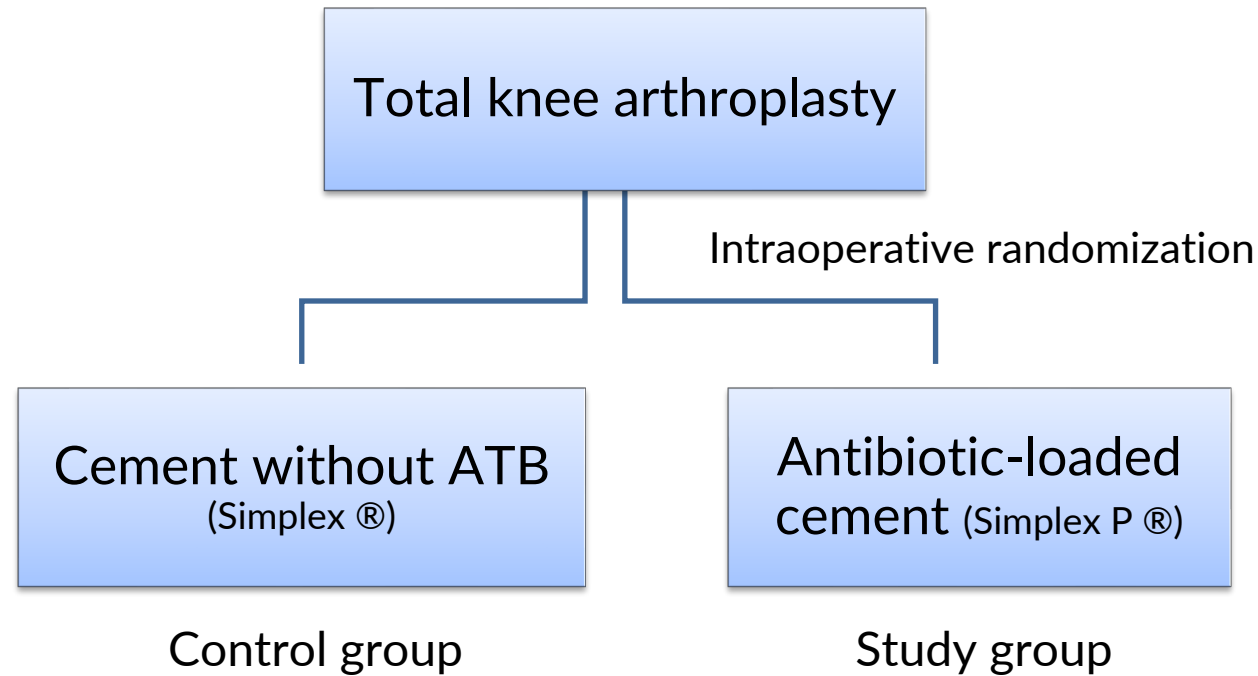
Prospective randomized study

Single center

TKA performed between 2005 and 2010

Exclusion criteria

- History of infection in the knee
- History of allergy to one or both ATBs

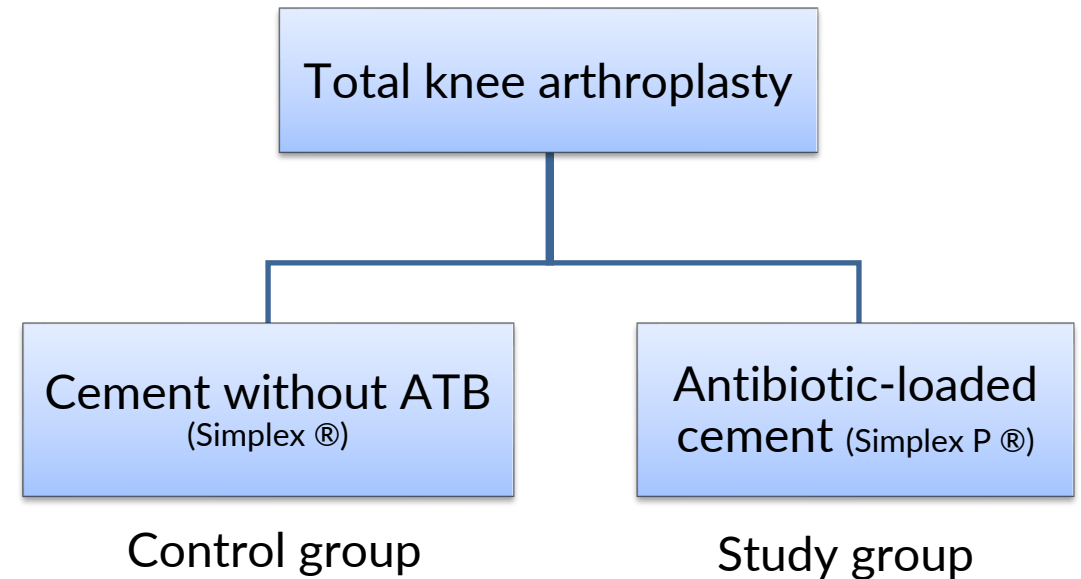


0.5 g of erythromycin + 3M units of colistin in 40 g of cement

DIAGNOSIS OF PROSTHETIC JOINT INFECTION (PJI)

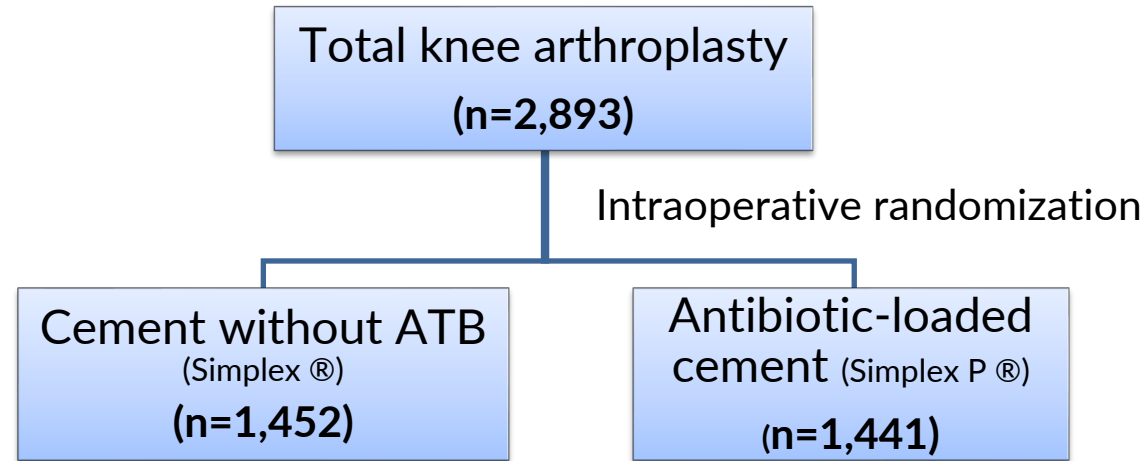
*Zimmerli criteria (*Prosthetic-Joint Infections. NEJM. 2004*)

- Sinus tract.
- Purulent discharge.
- Synovial Fluid: ≥ 1.700 PMN/mm³ or $> 65\%$ PMN.
- ≥ 2 positive cultures (x3 intraoperative tissue specimens).
 - Histopathological studies ≥ 5 PMN/view



¹ Zimmerli W, Trampuz A, Ochsner PE. Prosthetic-joint infections. *N Engl J Med* 2004;351(16):1645–1654.

RESULTS



8,7 years follow up

53 deep infections of 2893 TKA

Rate of deep infection 1.8% (95% [CI], 0.8% to 2.1%).

	Deep infection (n=53)	No deep infection (n=2840)
Control Group (n=1452)	29	1423
Study group (n=1441)	24	1417

p=0.58



RESULTS

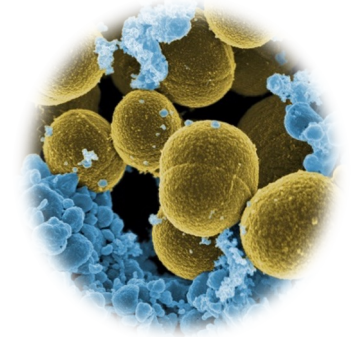


Risk factor	Deep infection (n=53)	No deep infection (n=2840)	P value
Age † (yr.)	72.15 ± 7.43	72.7 ± 7.18	0.73
Gender (M/F) (%)	21/32 (40/60)	628/2198 (23/73)	0.004
Weight † (kg)	83.64 ± 14.43	76.85 ± 15.41	0.003
Height † (cm)	1.62 ± 0.10	1.57 ± 0.09	0.08
BMI	31.92 ± 8.93	31.67 ± 5.61	0.954
Diabetic patients (no, %)	14 (26)	481 (17)	0.09
Operating time of >125 min (no, %)	14 (26.9)	429 (15.3)	0.031



RESULTS

	Control Group (n=29)	Study Group (n=24)	Total (n=53)
Staphylococcus	16	16	32
Streptococcus	2	0	2
Gram-negative Bacteria	6	3	9
Gram-positive Bacteria*	2	3	5
Enterococcus	1	1	1
Culture-negative PJI	2	1	3



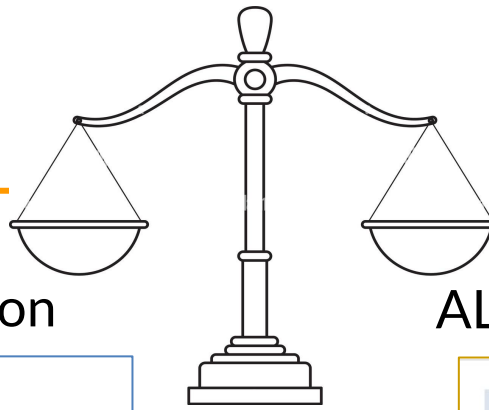
*non staphylococcus either streptococcus

	Control Group (n=1,452)	Study Group (n=1,441)
S Erythromycin (n=20)	10	10
R Erythromycin (n= 16)	9	7

p=0.77



DISCUSSION



ALBC PREVENT primary TKA infection

> [J Bone Joint Surg Am. 2009 Jan;91\(1\):38-47. doi: 10.2106/JBJS.G.01686.](#)

Risk factors for infection after knee arthroplasty. A register-based analysis of 43,149 cases

Esa Jämsen ¹, Heini Huhtala, Timo Puolakka, Teemu Moilanen

> [J Arthroplasty. 2017 Apr;32\(4\):1095-1099. doi: 10.1016/j.arth.2016.11.012. Epub 2016 Nov 15.](#)

Is the Commercial Antibiotic-Loaded Bone Cement Useful in Prophylaxis and Cost Saving After Knee and Hip Joint Arthroplasty? The Transatlantic Paradox

Pablo Sanz-Ruiz ¹, Jose Antonio Matas-Diez ¹, Mar Sanchez-Somolinos ², Manuel Villanueva-Martinez ¹, Javier Vaquero-Martín ¹

Meta-Analysis > [Medicine \(Baltimore\). 2019 Dec;98\(49\):e18068.](#)

doi: 10.1097/MD.00000000000018068.

Antibiotic-impregnated bone cement for preventing infection in patients receiving primary total hip and knee arthroplasty: A meta-analysis

Jin Zhang ^{1 2}, Xiao-Yu Zhang ¹, Feng-Li Jiang ¹, Yi-Ping Wu ¹, Bei-Bei Yang ¹, Zi-Yun Liu ¹, Dong Liu ^{1 3}

ALBC DOES NOT prevent primary TKA infection

Randomized Controlled Trial > [J Bone Joint Surg Am. 2013 May 1;95\(9\):769-74.](#)

doi: 10.2106/JBJS.L.00901.

The use of erythromycin and colistin-loaded cement in total knee arthroplasty does not reduce the incidence of infection: a prospective randomized study in 3000 knees

Pedro Hinarejos ¹, Pau Guirro, Joan Leal, Ferran Montserrat, Xavier Pelfort, M L Sorli, J P Horcajada, Lluís Puig

> [Surg Infect \(Larchmt\). 2019 Apr;20\(3\):244-246. doi: 10.1089/sur.2018.123. Epub 2019 Feb 1.](#)

Does the Use of Antibiotic-Loaded Bone Cement Have an Effect on Deep Infection in Primary Total Knee Arthroplasty Practice?

Sadullah Turhan ¹

Meta-Analysis > [Surg Infect \(Larchmt\). 2015 Apr;16\(2\):183-7. doi: 10.1089/sur.2014.044.](#)

Epub 2015 Mar 31.

Lack of efficacy of prophylactic application of antibiotic-loaded bone cement for prevention of infection in primary total knee arthroplasty: results of a meta-analysis

Yiqin Zhou ¹, Lintao Li, Qi Zhou, Shuai Yuan, Yuli Wu, Hui Zhao, Haishan Wu

- Erytromycin and colistin loaded cement: less expensive and spectrum in vitro as aminoglycosides
- Use of ALBC in primary TKA only in **patients at risk**

> [J Chin Med Assoc.](#) 2003 Sep;66(9):533-6.

The combination of systemic antibiotics and antibiotics impregnated cement in primary total knee arthroplasty in patients of rheumatoid arthritis--evaluation of 60 knees

[Hsin-Tung Liu](#)¹, [Fang-Yao Chiu](#), [Chuan-Mu Chen](#), [Tain-Hsiung Chen](#)

[Clinical Trial](#) > [J Bone Joint Surg Br.](#) 2001 Jul;83(5):691-5.

doi: 10.1302/0301-620x.83b5.11737.

Cefuroxime-impregnated cement at primary total knee arthroplasty in diabetes mellitus. A prospective, randomised study

[F Y Chiu](#)¹, [C F Lin](#), [C M Chen](#), [W H Lo](#), [T Y Chaung](#)

- Development of antimicrobial resistance

> [J Arthroplasty.](#) 2014 Jun;29(6):1123-7. doi: 10.1016/j.arth.2013.12.004. Epub 2013 Dec 10.

Routine use of antibiotic laden bone cement for primary total knee arthroplasty: impact on infecting microbial patterns and resistance profiles

[Erik N Hansen](#)¹, [Bahar Adeli](#)¹, [Robert Kenyon](#)¹, [Javad Parvizi](#)¹

Affiliations + expand

PMID: 24418770 DOI: 10.1016/j.arth.2013.12.004





LIMITATIONS

- The effectiveness of the erythromycin and colistin loaded cement probably cannot be generalized to another antibiotic.
- With 53 deep infections some risk factors have not been detected

CONCLUSION

The use of erythromycin and colistin-loaded bone cement in total knee arthroplasty did **not** lead to a **decrease in the rate of infection in long term follow up**



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