

IMPACT OF RIFAMPIN UNAVAILABILITY ON THE OUTCOME OF PROSTHETIC JOINT INFECTION CAUSED BY STAPHYLOCOCCUS SPP.



RETROSPECTIVE COHORT STUDY | 2009–2021

Juliana Arruda de Matos^{1,6} · Leonardo Antunes Vilaça de Souza^{1,5} · Julia Herkenhoff Carijó¹ · Alan de Paula Mozella² · Lourenço Pinto Peixoto³ · Pedro David Campos de Souza e Silva⁴ · Juliana Agostinho da Costa⁴ · Cassianne Cristina da Silva Souza⁴ · Julie Romão Posse⁴ · Kelly Biancardini Gomes Barbato⁴

National Institute of Traumatology and Orthopedics (INTO): ¹Department of Infectious Diseases; ²Specialized Care Center for Knee Surgeries; ³Specialized Care Center for Hip Surgeries; ⁴Teaching and Research Division | ⁵Federal University of Rio de Janeiro | ⁶Fiocruz, National Institute of Infectology Evandro Chagas

INTRODUCTION

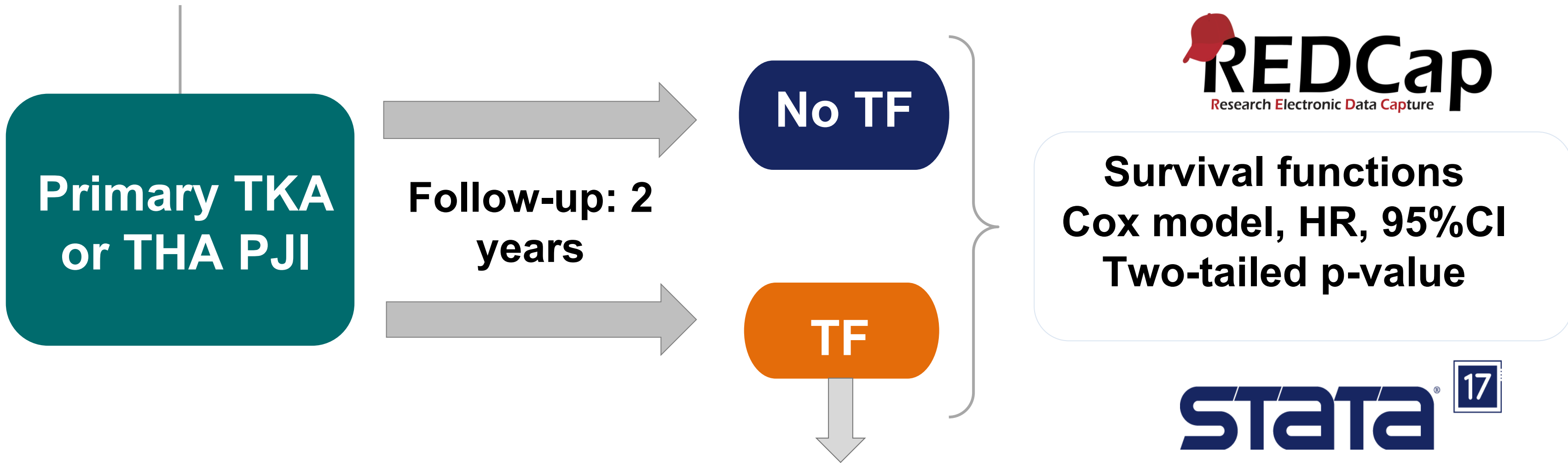
Rifampin is recommended as an adjunct in staphylococcal prosthetic joint infection (PJI) because of its activity against biofilm and intracellular bacteria. In Brazil, availability is limited by concerns about resistance in *Mycobacterium tuberculosis*.

OBJECTIVE

Compare treatment-failure incidence among patients with staphylococcal PJI after primary total knee (TKA) or hip arthroplasty (THA) treated with or without adjunctive rifampin.

METHODS

- Retrospective analytical cohort study
- PJI caused by *Staphylococcus* spp. (at least two positive cultures of periprosthetic specimens)
- Hospitalized for initial PJI treatment from January 2009 to February 2021



- New or persistent infection by the same microorganism
- Subsequent surgery needed more than 14 days after the initial procedure
- PJI-related-death within 2 years of follow-up

RESULTS

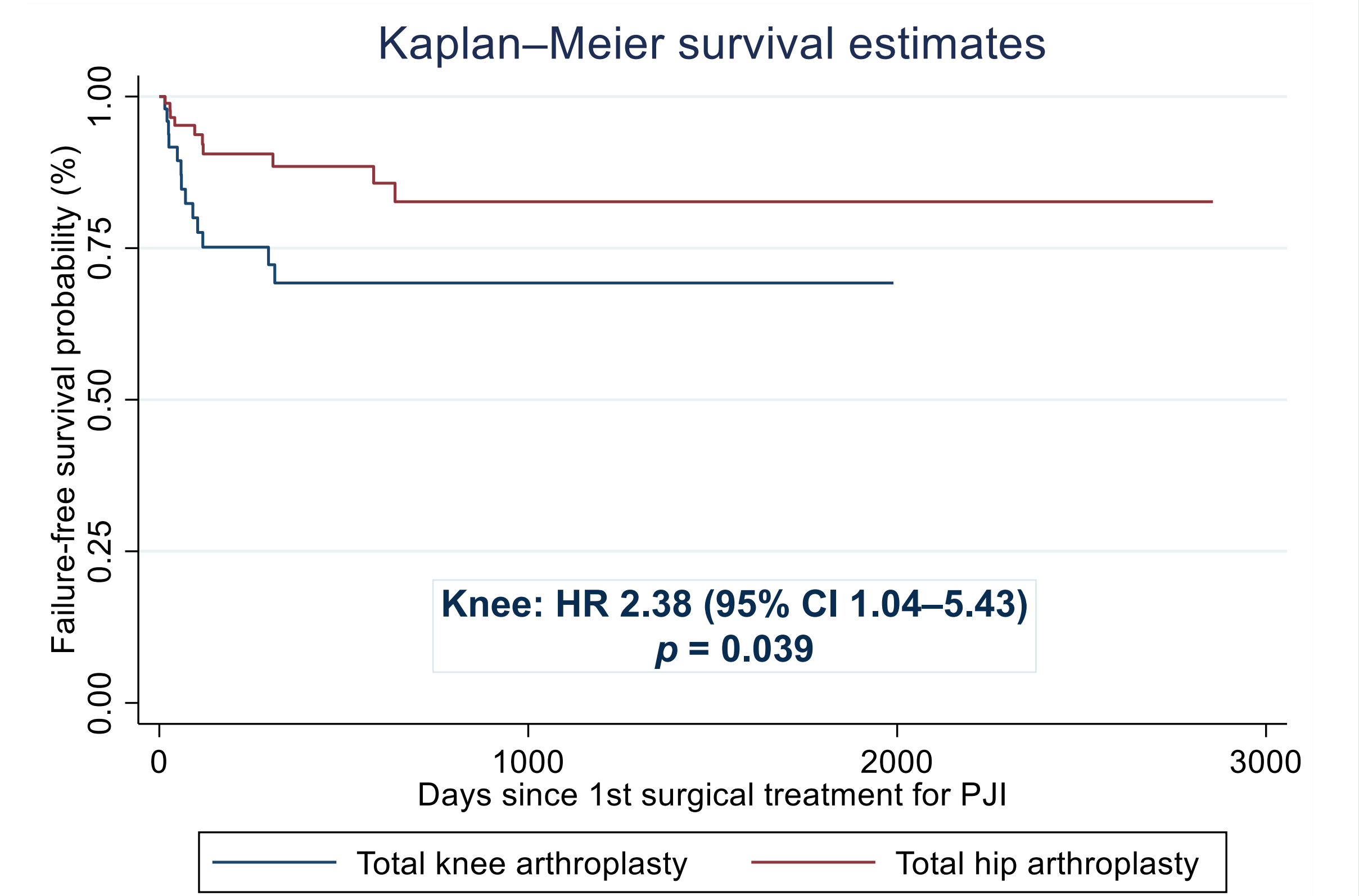
143 PATIENTS (49 knee | 94 hip) | MEDIAN AGE: 64 YEARS (72 women | 71 men) | 23 FAILURES (16.1% of the cohort)

Variables	Success (n=120)	Failure (n=23)	Hazard ratio 95%CI	p-value
Female sex	51.7%	39.1%	0.65 (0.28-1.51)	0.320
Age >=65 years	44.2%	34.8%	0.76 (0.32-1.79)	0.527
BMI>=28	47.8%	65.0%	1.84 (0.73-4.62)	0.196
ACCI>2	38.3%	43.5%	1.25 (0.55-2.86)	0.591
Immunosuppression	5.9%	27.3%	5.96 (2.30-15.46)	<0.001
Knee joint	30.0%	56.5%	2.38 (1.04-5.43)	0.039
DAIR treatment	49.2%	52.2%	1.24 (0.55-2.81)	0.608
Rifampin >30 days*	42.5%	25.0%	0.36 (0.12-1.11)	0.076
<i>S. aureus</i>	80.8%	100.0%	-	1.000

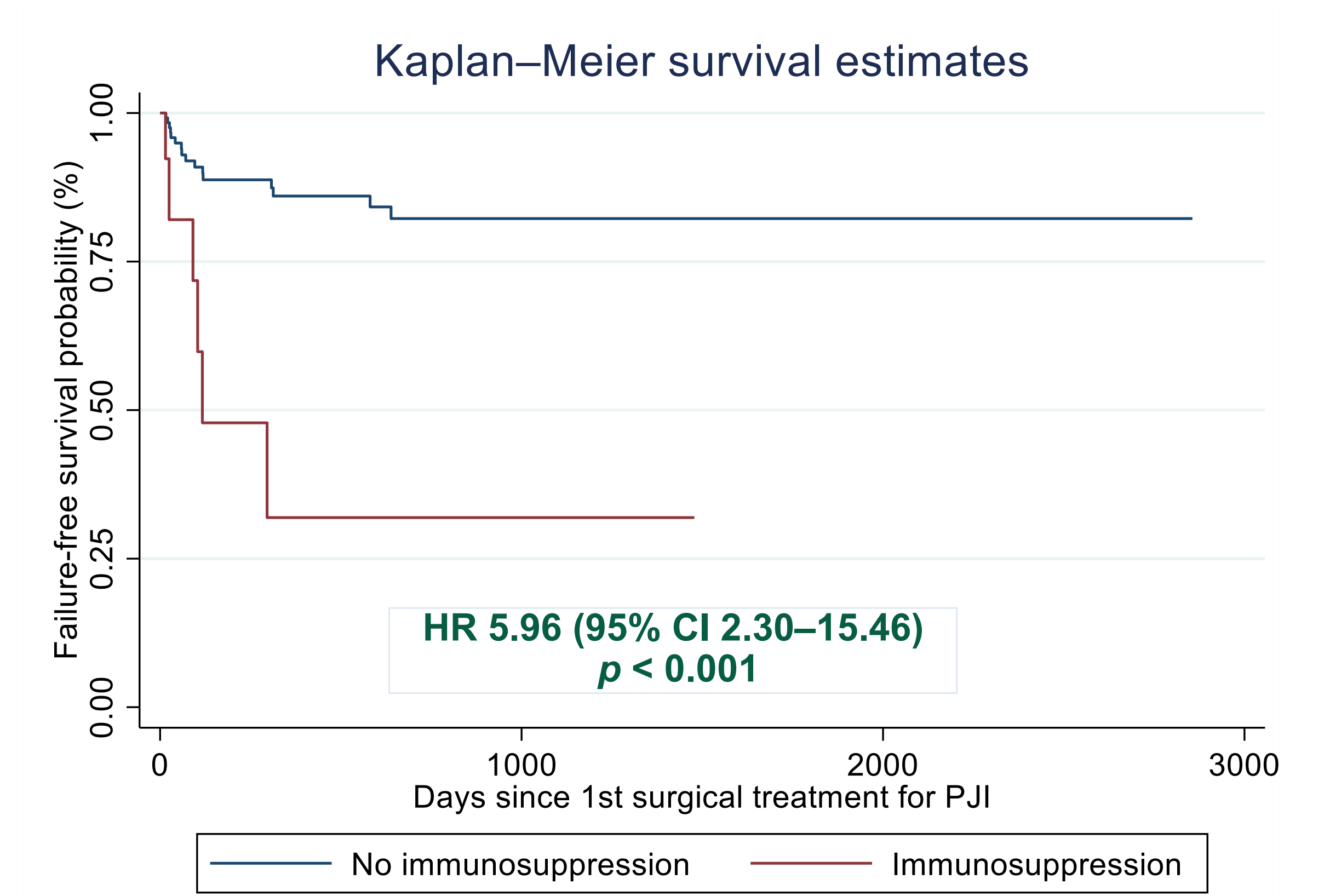
* After exclusion of patients who failed before 30 days of treatment (n=125)

REFERENCE
Charlson M, Svatrowski TP, Peterson J, Gold, J. Validation of a combined comorbidity index. J Clin Epidemiol. 1994;47(11):1245-51. DOI: [https://doi.org/10.1016/0895-4356\(94\)90129-5](https://doi.org/10.1016/0895-4356(94)90129-5).

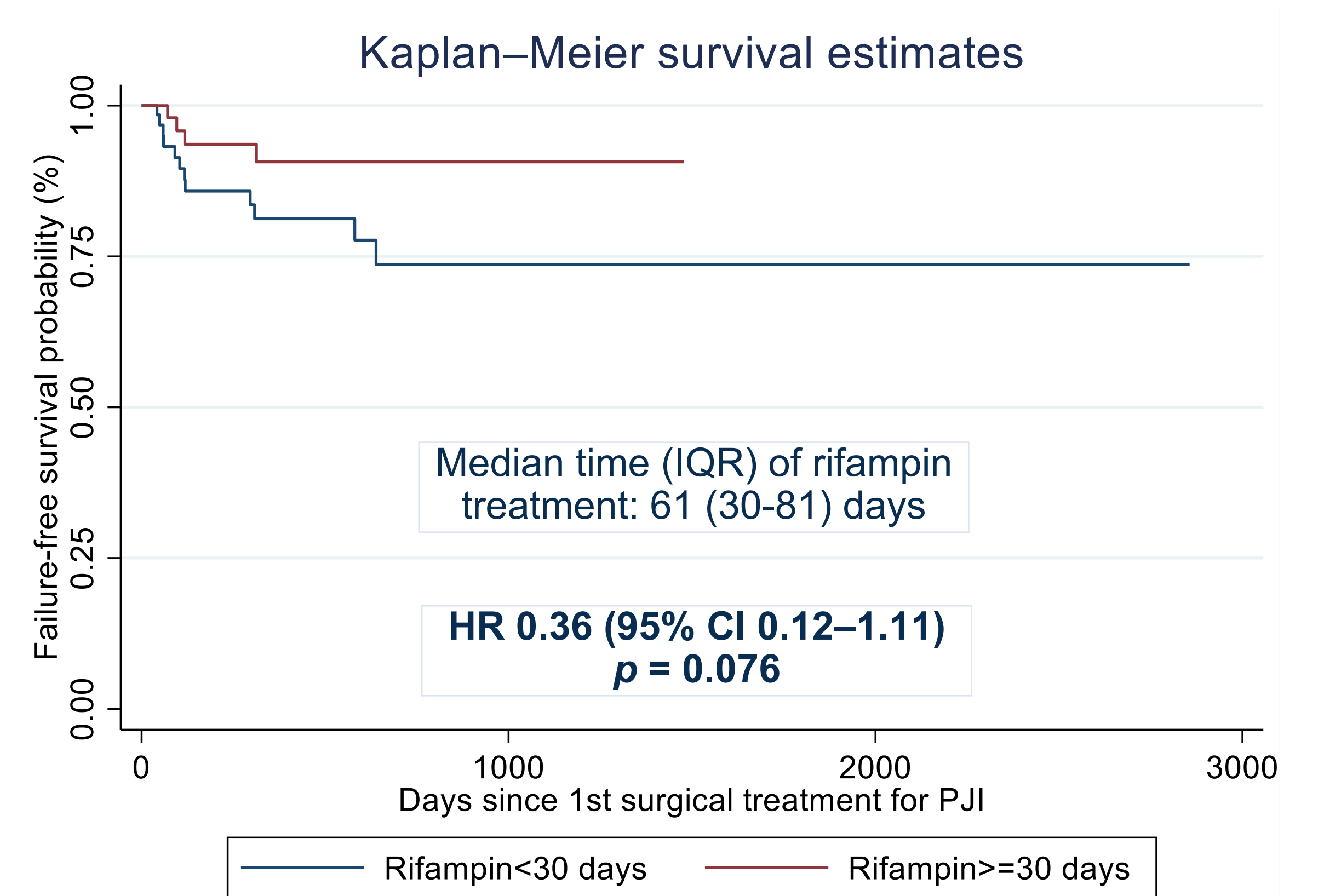
HIP VS. KNEE ARTHROPLASTY



IMMUNOSUPPRESSION



RIFAMPIN FOR ≥30 DAYS (n=125)



CONCLUSIONS

In a setting where availability of rifampin is erratic, immunosuppression and knee arthroplasty was associated with increased risk for treatment failure in a cohort of patients with Staphylococcal PJI. The use of rifampin for more than 30 days as adjuvant treatment showed a trend of association with treatment success.