

37<sup>th</sup> Annual Meeting of the  
European Bone and Joint Infection Society



# Staphylococcal acute post-operative PJI treated with DAIR and impact of rifampin: a retrospective cohort study in France

A. Becker, C. Triffault-Fillit, E. Forestier, O. Lesens, C. Cazorla, S. Descamps, B. Boyer, C. Chidiac, and T. Ferry  
on behalf of the IPASTAPH Study Group



Hospices Civils de Lyon



# INTRODUCTION



Post-operative PJI : < 1 month  
without sinus tract  
without loosening



DAIR

# INTRODUCTION



Post-operative PJI : < 1 month  
without sinus tract  
without loosening



DAIR

Staphylococci

Streptococci

GNB

...

# INTRODUCTION



Post-operative PJI : < 1 month  
without sinus tract  
without loosening



DAIR



+ companion :  
ASP, FQ...

Staphylococci

Streptococci

GNB

...

RIFAMPIN

# OBJECTIVES

RIFAMPIN

- Always prescribed?
- Doses?
- Duration?
- Time to introduction?

How does it influence the outcome?

# OBJECTIVES

RIFAMPIN

- Always prescribed?
- Doses?
- Duration?
- Time to introduction?

How does it influence the outcome?

Risk factors for treatment failure?

# MATERIEL & METHOD

Multicenter retrospective cohort study, between 2011 and 2016

## Inclusion criteria

- All adult patients (>18yo) managed for a postoperative (<1 month) PJI
- DAIR management
- Microbiological documentation : *S. aureus* ( $\geq 1$  intraoperative sample)  
CNS ( $\geq 2$  intraoperative samples)  
*S. aureus* + CNS

## Definition

Treatment failure :

- Persistence of clinical symptoms
- Need for new surgery with or without persistence or superinfection
- Infection-related death

# RESULTS

<b>Characteristics</b>		N =79
<b>Demographic data</b>	Gender (male)	55 (69.6%)
	Age (years)	71 (53-89)
<b>Comorbidities</b>	ASA score	2 (2-3)
	Charlson score	4 (3-6)
<b>Type of PJI</b>	Hip	59 (74.7%)
	Knee	20 (25.3%)
	Revision prosthesis	12 (15.2%)
	Exchange of removal component	38 (48.1%)
<b>Microbiology</b>	<i>S. aureus</i>	22 (82.3%)
	CNS	15 (19.1%)
	Methicillin-R strains	14 (17.5%)
	RMP-R strains	2 (2.5%)
	FQ-R strains	16 (20.0%)



# RESULTS

<b>Characteristics</b>		N =79
<b>Demographic data</b>	Gender (male)	55 (69.6%)
	Age (years)	71 (53-89)
<b>Comorbidities</b>	ASA score	2 (2-3)
	Charlson score	4 (3-6)
<b>Type of PJI</b>	Hip	59 (74.7%)
	Knee	20 (25.3%)
	Revision prosthesis	12 (15.2%)
	Exchange of removal component	38 (48.1%)
<b>Microbiology</b>	<i>S. aureus</i>	22 (82.3%)
	CNS	15 (19.1%)
	Methicillin-R strains	14 (17.5%)
	RMP-R strains	2 (2.5%)
	FQ-R strains	16 (20.0%)

# RESULTS

<b>Characteristics</b>		N =79
<b>Demographic data</b>	Gender (male)	55 (69.6%)
	Age (years)	71 (53-89)
<b>Comorbidities</b>	ASA score	2 (2-3)
	Charlson score	4 (3-6)
<b>Type of PJI</b>	Hip	59 (74.7%)
	Knee	20 (25.3%)
	Revision prosthesis	12 (15.2%)
	Exchange of removal component	38 (48.1%)
<b>Microbiology</b>	<i>S. aureus</i>	22 (82.3%)
	CNS	15 (19.1%)
	Methicillin-R strains	14 (17.5%)
	RMP-R strains	2 (2.5%)
	FQ-R strains	16 (20.0%)

# RESULTS

<b>Characteristics</b>		N =79
<b>Demographic data</b>	Gender (male)	55 (69.6%)
	Age (years)	71 (53-89)
<b>Comorbidities</b>	ASA score	2 (2-3)
	Charlson score	4 (3-6)
<b>Type of PJI</b>	Hip	59 (74.7%)
	Knee	20 (25.3%)
	Revision prosthesis	12 (15.2%)
	Exchange of removal component	38 (48.1%)
<b>Microbiology</b>	<i>S. aureus</i>	22 (82.3%)
	CNS	15 (19.1%)
	Methicillin-R strains	14 (17.5%)
	RMP-R strains	2 (2.5%)
	FQ-R strains	16 (20.0%)

# RESULTS

<b>Characteristics</b>		N =79
<b>Demographic data</b>	Gender (male)	55 (69.6%)
	Age (years)	71 (53-89)
<b>Comorbidities</b>	ASA score	2 (2-3)
	Charlson score	4 (3-6)
<b>Type of PJI</b>	Hip	59 (74.7%)
	Knee	20 (25.3%)
	Revision prosthesis	12 (15.2%)
	Exchange of removal component	38 (48.1%)
<b>Microbiology</b>	<i>S. aureus</i>	22 (82.3%)
	CNS	15 (19.1%)
	Methicillin-R strains	14 (17.5%)
	RMP-R strains	2 (2.5%)
	FQ-R strains	16 (20.0%)

# RESULTS

Characteristics		N =79
Antibiotherapy	Median duration (days)	92 (31-152)
	RMP	59 (74.4%)
	RMP + FQ	35 (44.3%)
	Median duration of RMP (days)	56.5 (15.8-86)
	RMP duration $\geq$ 2 weeks	43 (54.4%)
	Median dose of RMP (mg/kg/d)	14.6 (13-16.7)
	RMP within 2 weeks after DAIR	40 (50.6%)
	Adverse event	6 (7.6%)
Follow up	Median duration (days)	443 (219.5-790.5)
Outcome	Treatment failure	21 (21.6%)
	Iterative DAIR	4 (19%)
	Persistence same pathogen	12 (57.1%)
	Superinfection	9 (42.9%)

# RESULTS

Characteristics		N =79
Antibiotherapy	Median duration (days)	92 (31-152)
	RMP	59 (74.4%)
	RMP + FQ	35 (44.3%)
	Median duration of RMP (days)	56.5 (15.8-86)
	RMP duration $\geq$ 2 weeks	43 (54.4%)
	Median dose of RMP (mg/kg/d)	14.6 (13-16.7)
	RMP within 2 weeks after DAIR	40 (50.6%)
	Adverse event	6 (7.6%)
Follow up	Median duration (days)	443 (219.5-790.5)
Outcome	Treatment failure	21 (21.6%)
	Iterative DAIR	4 (19%)
	Persistence same pathogen	12 (57.1%)
	Superinfection	9 (42.9%)

# RESULTS

Characteristics		N =79
<b>Antibiotherapy</b>	Median duration (days)	92 (31-152)
	RMP	59 (74.4%)
	RMP + FQ	35 (44.3%)
	Median duration of RMP (days)	56.5 (15.8-86)
	RMP duration $\geq$ 2 weeks	43 (54.4%)
	Median dose of RMP (mg/kg/d)	14.6 (13-16.7)
	RMP within 2 weeks after DAIR	40 (50.6%)
	Adverse event	6 (7.6%)
<b>Follow up</b>	Median duration (days)	443 (219.5-790.5)
<b>Outcome</b>	Treatment failure	21 (21.6%)
	Iterative DAIR	4 (19%)
	Persistence same pathogen	12 (57.1%)
	Superinfection	9 (42.9%)

# RESULTS

Characteristics		N =79
Antibiotherapy	Median duration (days)	92 (31-152)
	RMP	59 (74.4%)
	RMP + FQ	35 (44.3%)
	Median duration of RMP (days)	56.5 (15.8-86)
	RMP duration $\geq$ 2 weeks	43 (54.4%)
	Median dose of RMP (mg/kg/d)	14.6 (13-16.7)
	RMP within 2 weeks after DAIR	40 (50.6%)
	Adverse event	6 (7.6%)
Follow up	Median duration (days)	443 (219.5-790.5)
Outcome	Treatment failure	21 (21.6%)
	Iterative DAIR	4 (19%)
	Persistence same pathogen	12 (57.1%)
	Superinfection	9 (42.9%)



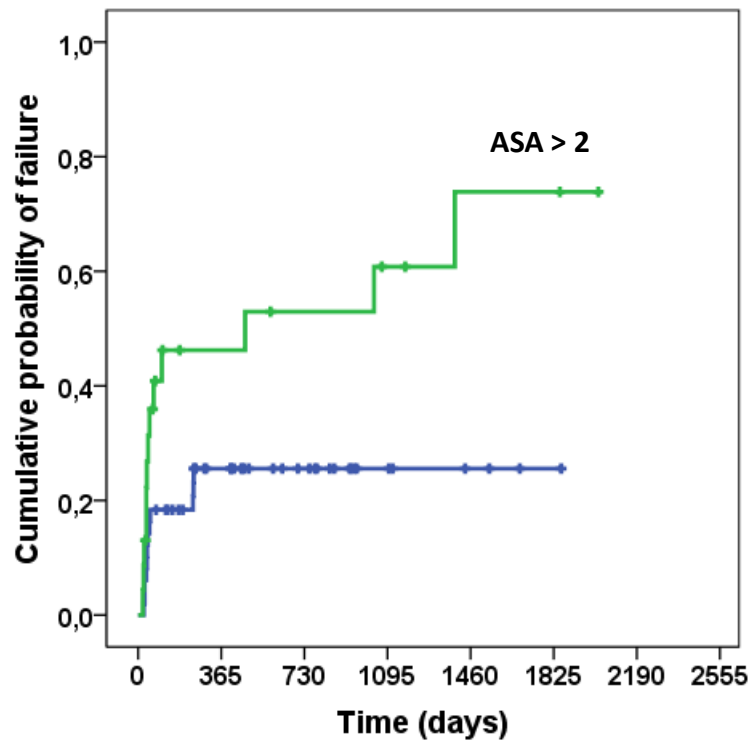
# RESULTS

Characteristics		N =79
<b>Antibiotherapy</b>	Median duration (days)	92 (31-152)
	RMP	59 (74.4%)
	RMP + FQ	35 (44.3%)
	Median duration of RMP (days)	56.5 (15.8-86)
	RMP duration $\geq$ 2 weeks	43 (54.4%)
	Median dose of RMP (mg/kg/d)	14.6 (13-16.7)
	RMP within 2 weeks after DAIR	40 (50.6%)
	Adverse event	6 (7.6%)
<b>Follow up</b>	Median duration (days)	443 (219.5-790.5)
<b>Outcome</b>	Treatment failure	21 (21.6%)
	Iterative DAIR	4 (19%)
	Persistence same pathogen	12 (57.1%)
	Superinfection	9 (42.9%)

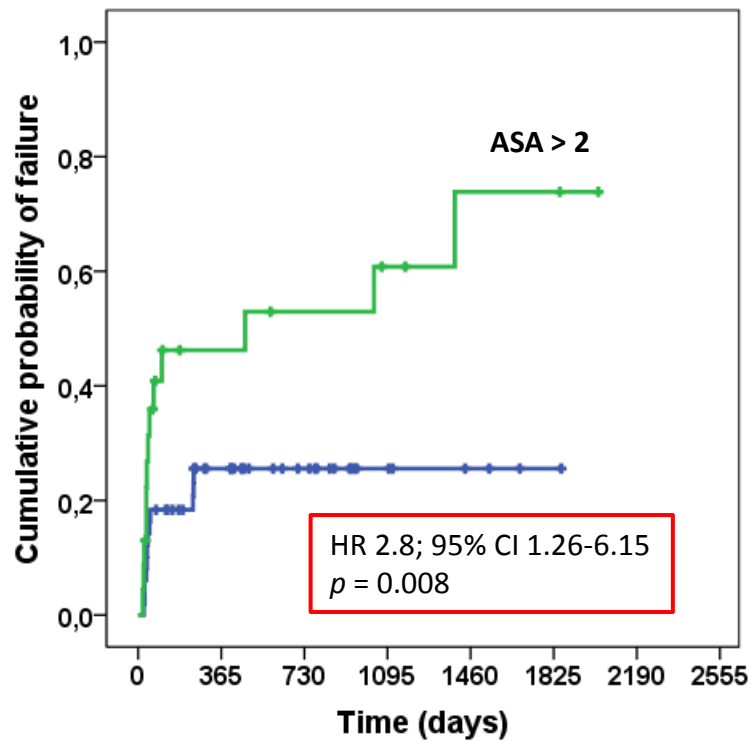
# RESULTS

Characteristics		N =79
<b>Antibiotherapy</b>	Median duration (days)	92 (31-152)
	RMP	59 (74.4%)
	RMP + FQ	35 (44.3%)
	Median duration of RMP (days)	56.5 (15.8-86)
	RMP duration $\geq$ 2 weeks	43 (54.4%)
	Median dose of RMP (mg/kg/d)	14.6 (13-16.7)
	RMP within 2 weeks after DAIR	40 (50.6%)
	Adverse event	6 (7.6%)
<b>Follow up</b>	Median duration (days)	443 (219.5-790.5)
<b>Outcome</b>	Treatment failure	21 (21.6%)
	Iterative DAIR	4 (19%)
	Persistence same pathogen	12 (57.1%)
	Superinfection	9 (42.9%)

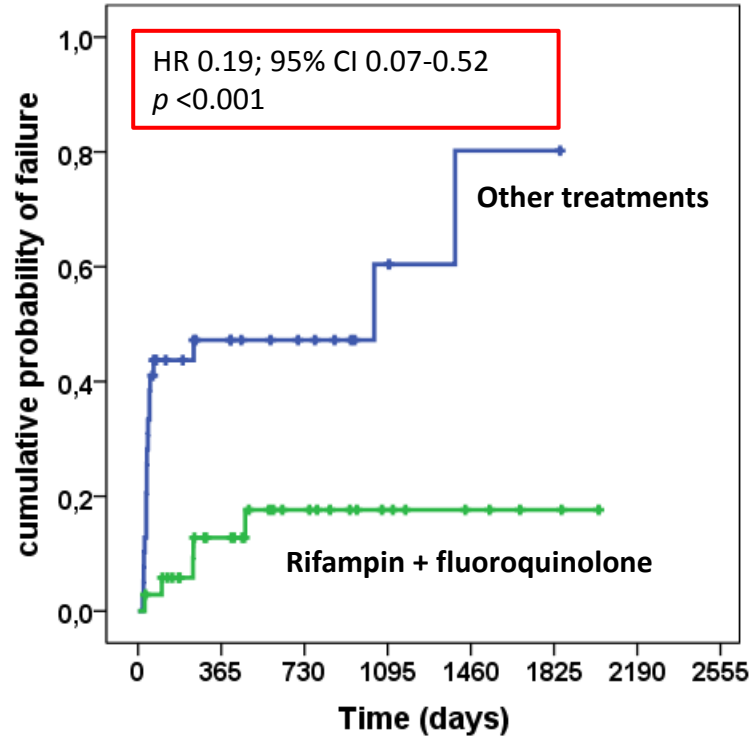
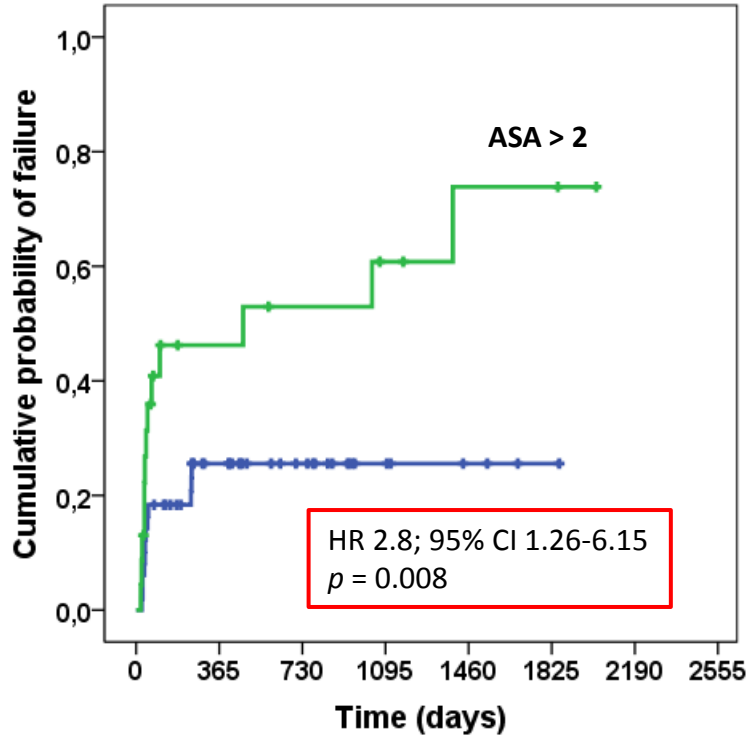
# RESULTS



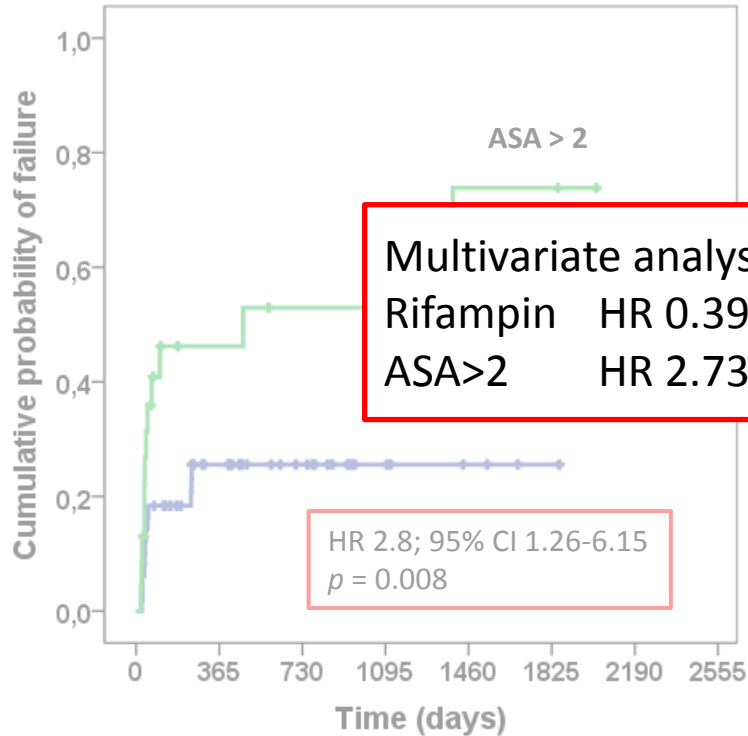
# RESULTS



# RESULTS



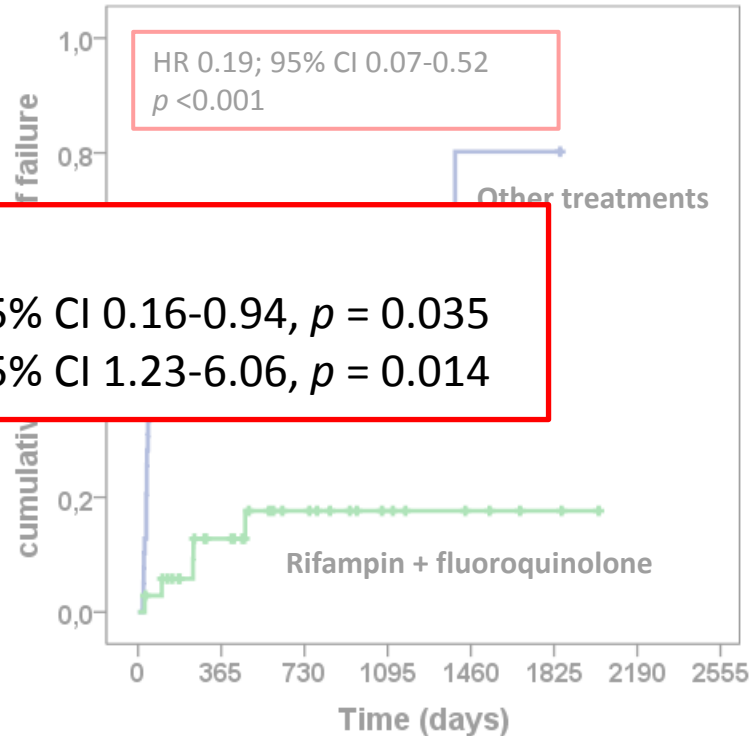
# RESULTS



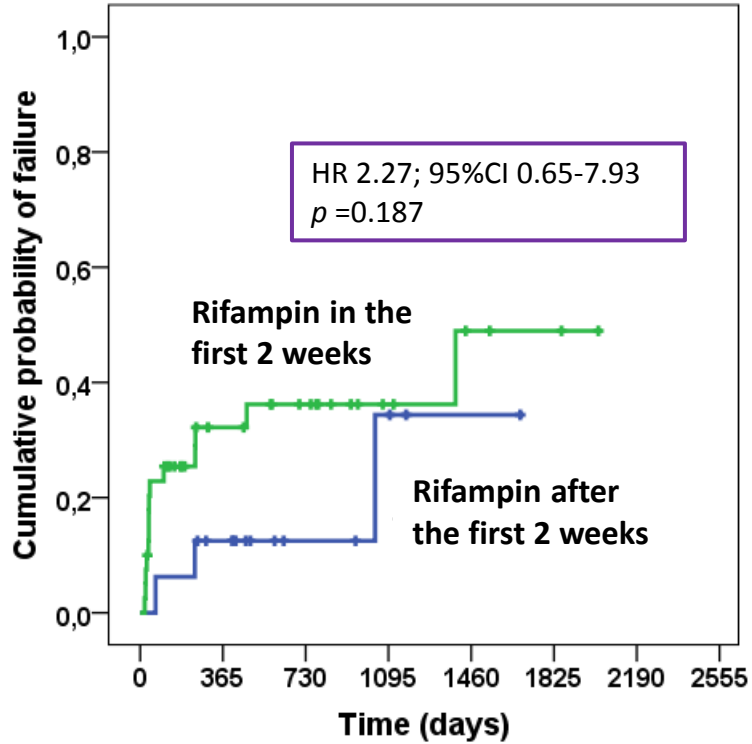
## Multivariate analysis

Rifampin HR 0.39; 95% CI 0.16-0.94,  $p = 0.035$

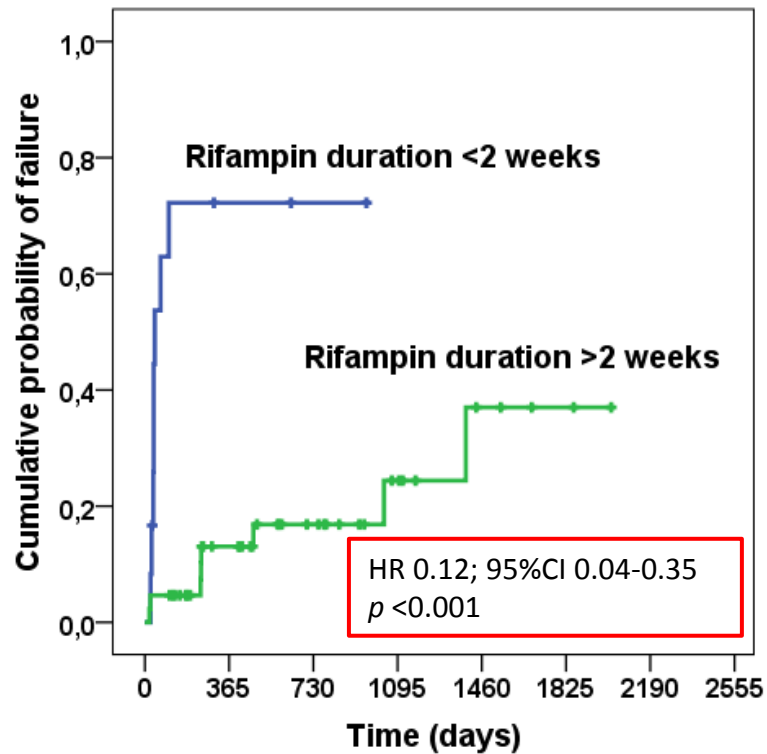
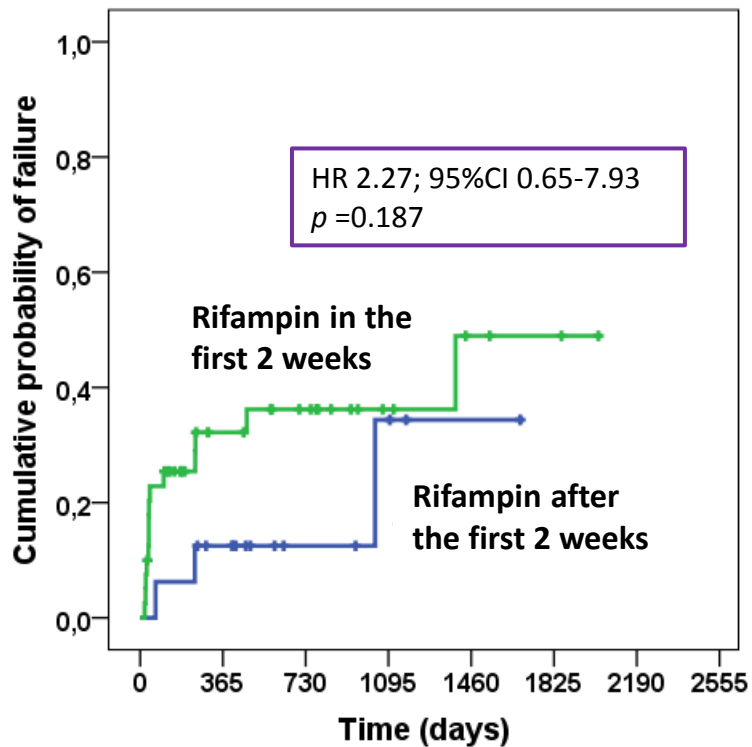
ASA>2 HR 2.73; 95% CI 1.23-6.06,  $p = 0.014$



# RESULTS

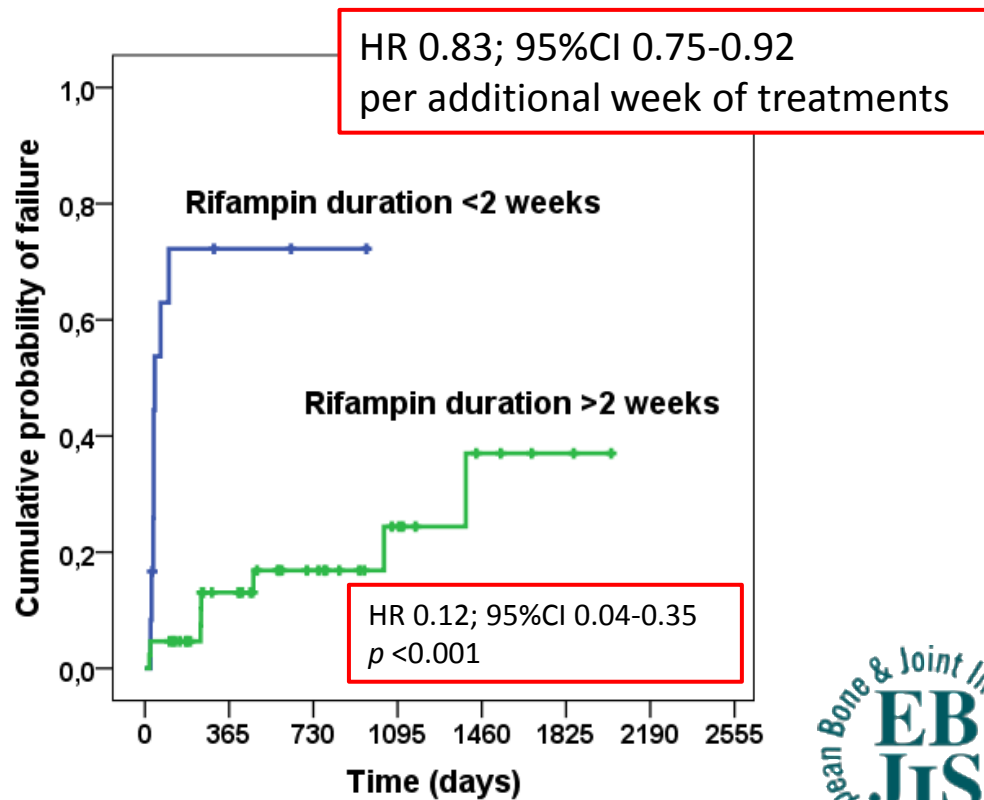
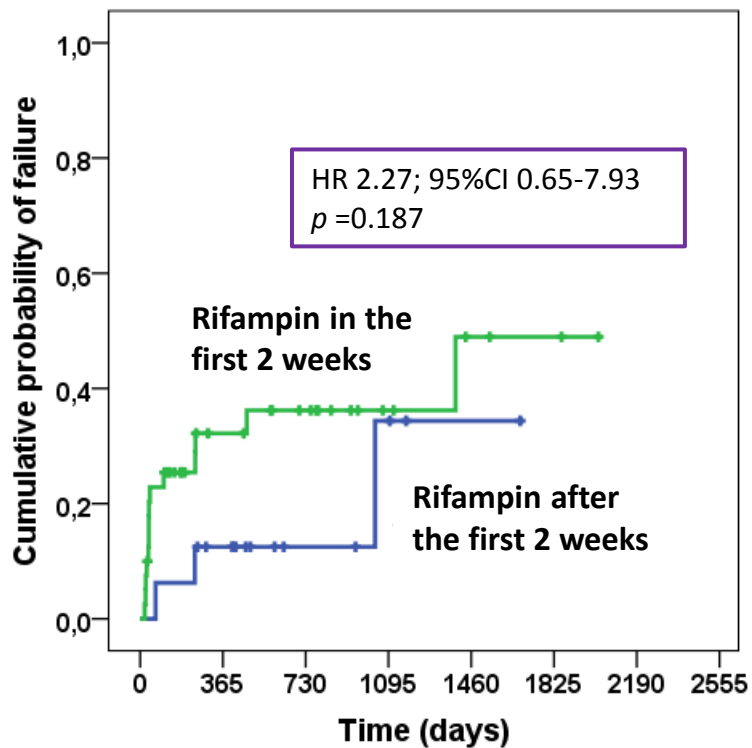


# RESULTS





# RESULTS



- Risk factors for treatment failure :
  - ASA score  $> 2$
  - Treatment without RMP
  - RMP duration  $< 2$  weeks

- Risk factors for treatment failure :
  - ASA score > 2
  - Treatment without RMP
  - RMP duration < 2 weeks
- 25% of the patients did not receive RMP !
  - Need for new molecules?

37<sup>th</sup> Annual Meeting of the  
European Bone and Joint Infection Society



Thank you for your attention!

Acknowledgement : Lyon IPASTAPH Study Group

