

Outcome of Staphylococcal Implant-associated Osteoarticular Infections: Role of surgical strategies and impact of fluoroquinolone treatment among susceptible isolates.

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BACKGROUND

- The management of staphylococcal implant-associated osteoarticular infections (IOAIs) remains a major clinical challenge, requiring appropriate surgery and tailored antimicrobial treatment.
- Fluoroquinolones (FQ) are frequently recommended due to their favourable pharmacokinetic properties, but there is little evidence on their impact on clinical outcomes.
- We aimed to evaluate the outcome, the role of surgical strategies and the impact of FQ use in staphylococcal IOAIs.

METHODS

- Retrospective, single-centre observational cohort study (2020-2023).
- Adult patients with microbiologically confirmed staphylococcal IOAIs
- Primary outcome:** clinical failure, defined as the need of unplanned surgery for infection control, persistence/relapse during follow-up, including suppressive antimicrobial treatment, or death within 30 days since treatment initiation.
- The role of FQ was evaluated among cases caused by susceptible isolates.

RESULTS

CHARACTERISTICS

Table.1 Characteristics of staphylococcal implant-associated infections

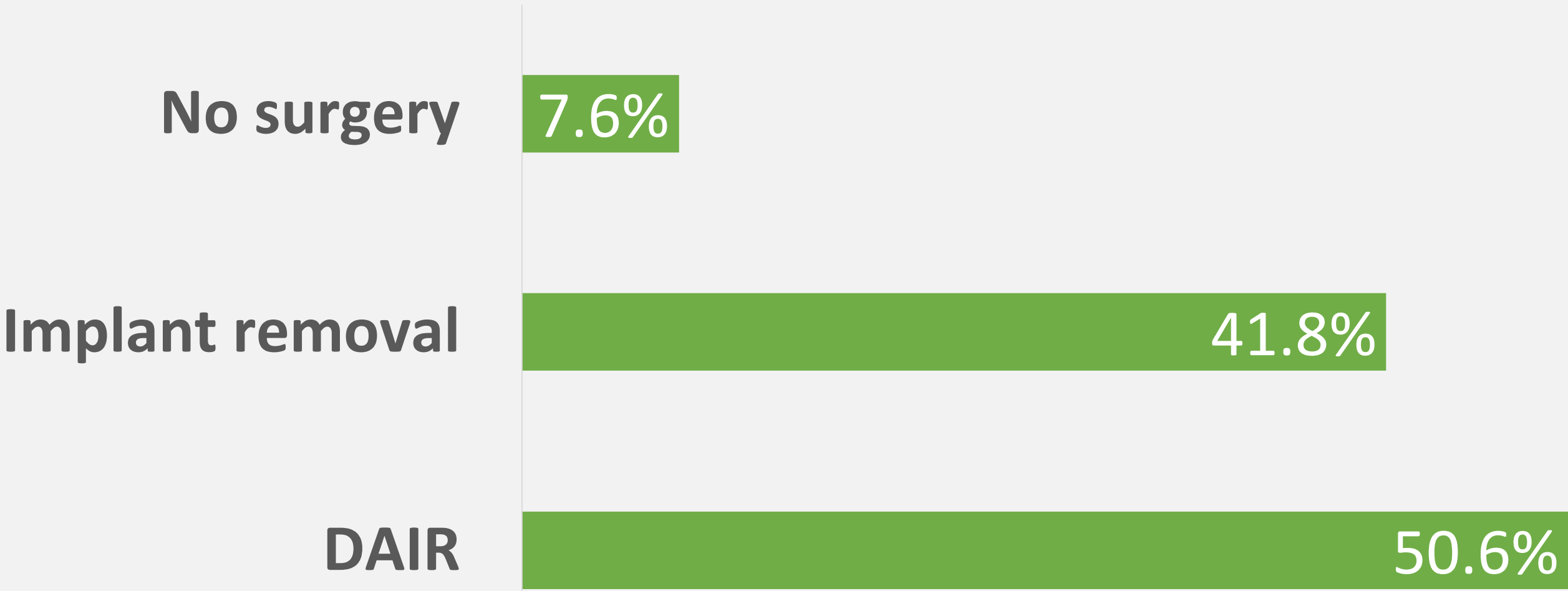
	Global Cohort (n = 148)
BASELINE FEATURES	
Age years; median (IQR)	65 (54-75)
Sex, male	89 (60.1%)
CharlsonCI; median (IQR)	1 (0-2)
MICROBIOLOGICAL DATA	
<i>Staphylococcus</i> isolates	161
<i>Staphylococcus aureus</i>	80 (49.7%)
<i>Staphylococcus epidermidis</i>	59 (36.6%)
Other staphylococci	22 (13.7%)
Methicillin-R	59 (36.6%)
FQ-R	43 (26.7%)

Methicillin resistance was strongly associated with FQ resistance (p<0.001)

TREATMENT

SURGICAL TREATMENT

Figure 2. Initial surgical treatment.

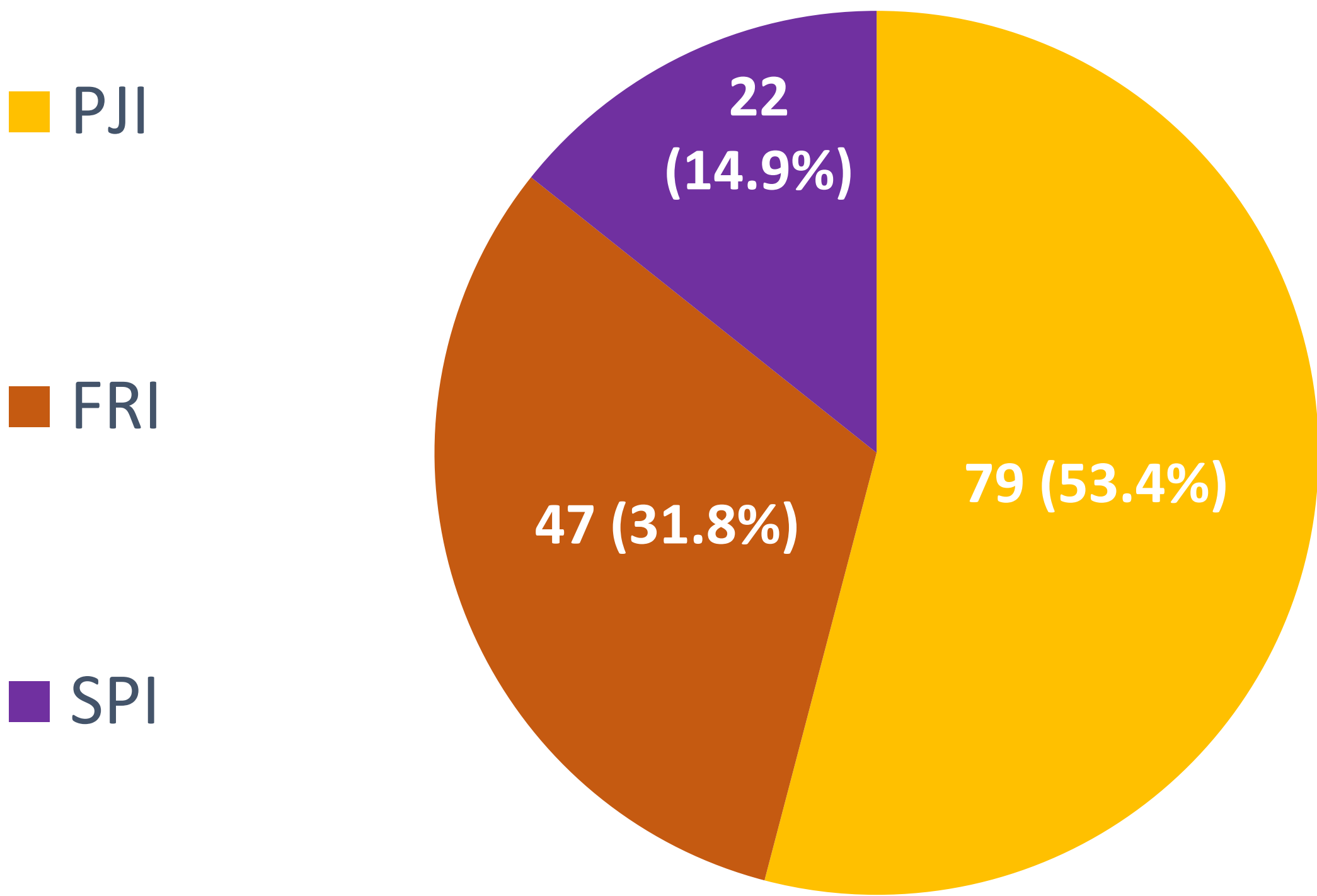


ANTIBIOTIC TREATMENT

Treatment with FQ in IOAIs by susceptible isolates (N=105):

- 58 (55%)
- Treatment duration: 47 days (IQR 36-61)

Figure 1. Type of staphylococcal implant-associated osteoarticular infections.



OUTCOME

- GLOBAL FAILURE** (patients treated with surgery): **34.6%**
- PJI (43.2%) vs SPI (33.3%) and FRI (18.4%) (p=0.032)

Figure 3. Clinical failure according to the type of surgery.

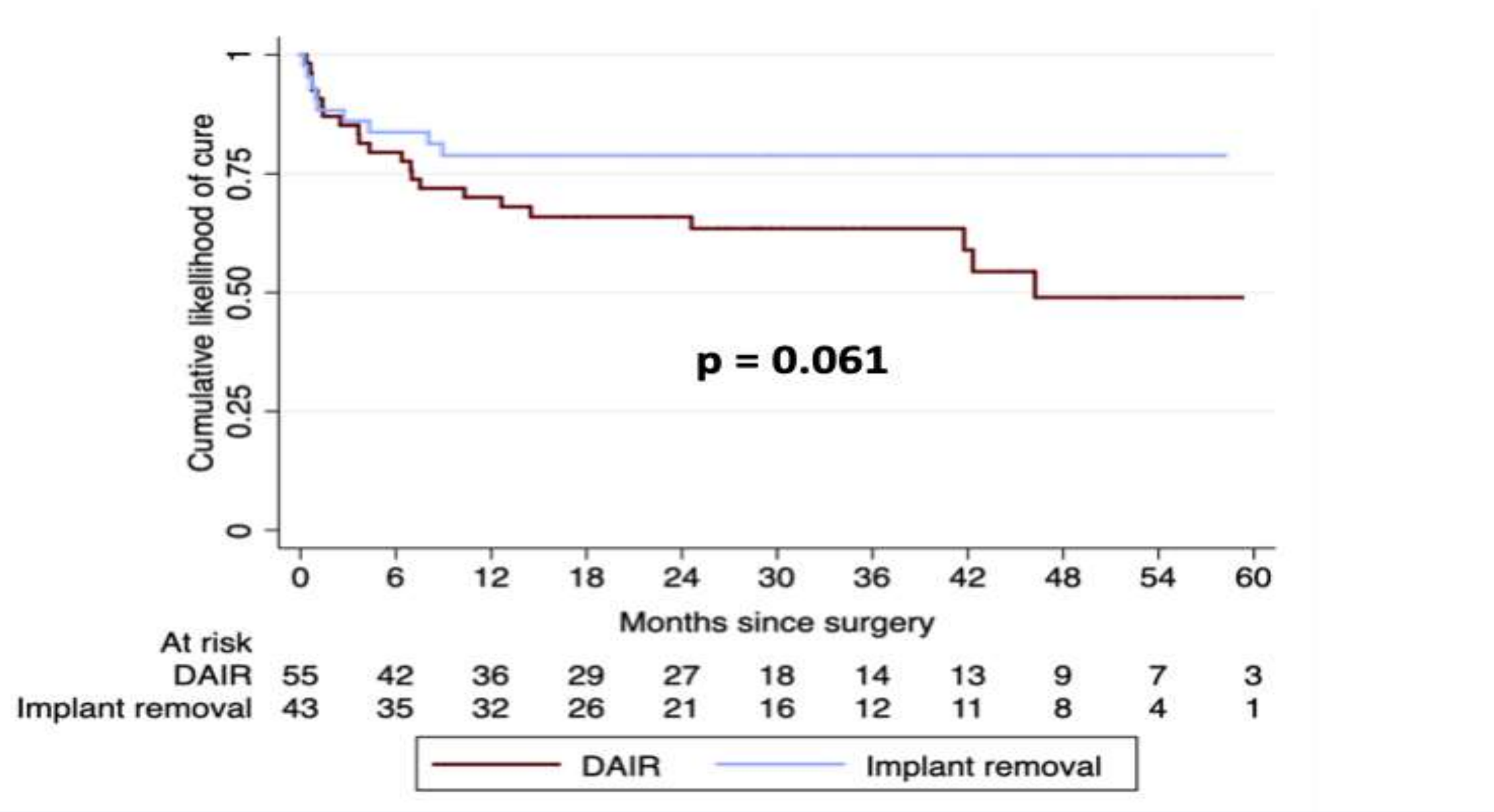
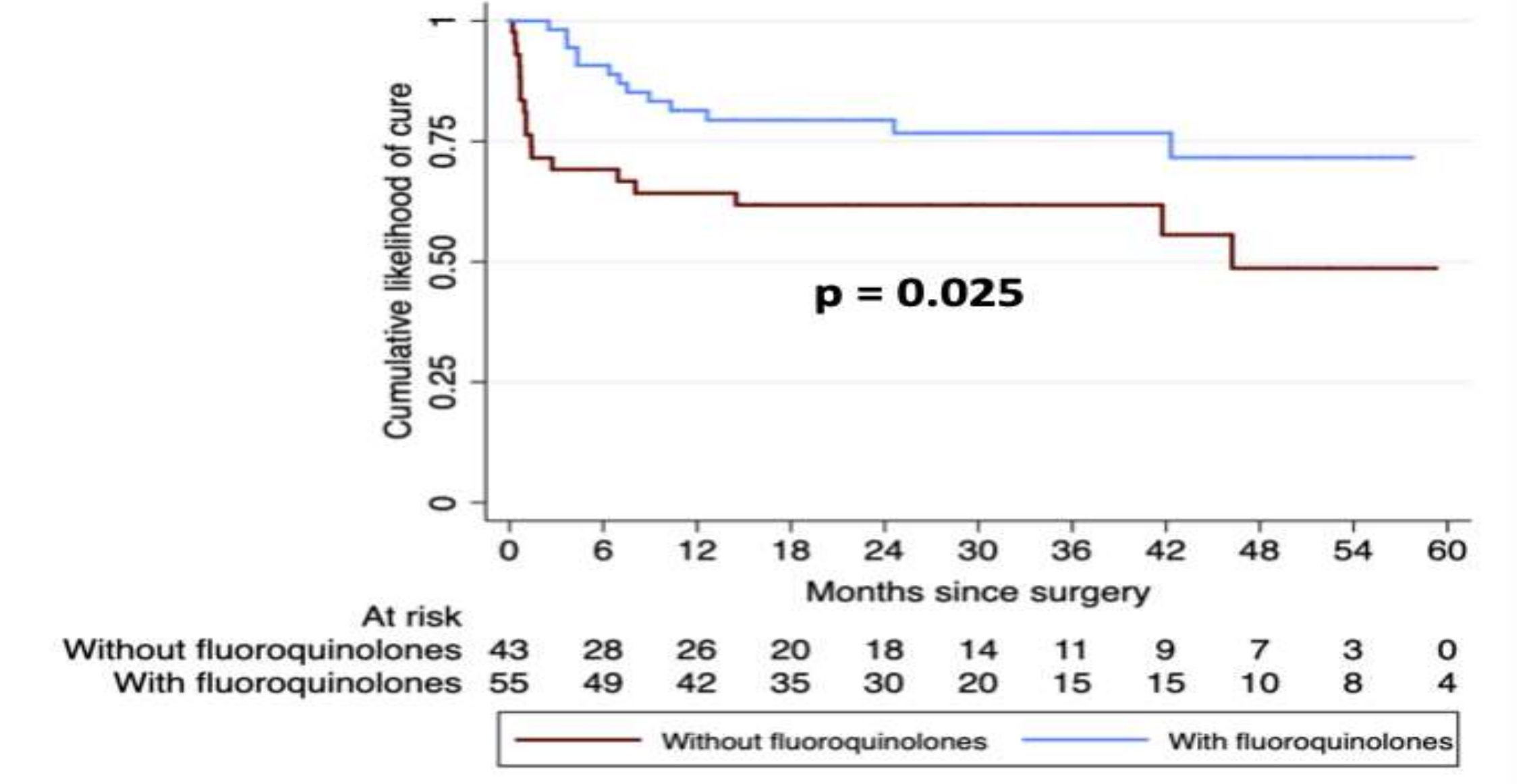


Figure 4. Clinical failure according to FQ use.



CONCLUSIONS

- Staphylococcal IOAIs are associated with high failure rates, especially among patients managed with DAIR.
- Fluoroquinolone use was associated with a lower risk of treatment failure in patients with IOAIs caused by susceptible isolates, especially when managed with DAIR.
- Our results highlight the importance of individualizing the surgical and antimicrobial treatment for patients with staphylococcal IOAIs.