INTRODUCTION:
Long-term antimicrobial treatment (LTAT) is frequently used in prosthetic joint infection (PJI) as first therapeutic option either because the patient or the surgeon reject surgery or the expected functional results of surgery are not acceptable, and also after surgery when the signs of infection persist and cure is not considered achievable.

OBJECTIVES:
-To describe the features of patients with PJI that require LTAT.
-To analyse their outcome in terms for additional surgeries, adverse reactions (AR), superinfection, relapse, and antimicrobial resistance.

METHOD:
-Designs: observational study.
-Population: prospective cohort study of patients with PJI followed for at least 18 months after the first therapeutic option was decided.
-Site: a tertiary hospital of Spain from 2006-2011.

DEFINITIONS:
• LTAT: Patients with PJI who received ≥6 months of antibiotic treatment.
• Persistence of infection: absence of improvement of signs of infection.
• Relapse: recurrence of infection after initial improvement by the same microorganism (MO).
• Superinfection: new infection by a different MO that caused the initial infection.
• FQ: Fluorquinolone; RIF: Rifampin; T/S: Co-trimoxazol; LNZ: Linezolid

FEATURES OF PATIENTS WITH LTAT:
47 patients required LTAT
Median age: 70 years (range: 32-92)
Women: 28 (60%)
Comorbidities: 34 (72%).

Median follow-up: 26 months
[interquartile range (IQR): 20-37]
Median of LTAT: 32 weeks (IQR: 24-172).

OUTCOMES OF PATIENTS WITH LTAT:

ADDITIONAL SURGERY DUE TO RELAPSE OR PERSISTENCE OF INFECTION
8 MO were available in relapses/persistence of infection, and 5 (62.5%) developed resistance to one or several antimicrobials used:
- CNS, resistance to levofloxacin and rifampin (n=2)
- CNS, resistance to rifampin (n=1)
- CNS, resistance to co-trimoxazol (n=1)
- S. aureus, resistance to co-trimoxazol (n=1)

ANTIMICROBIAL RESISTENCES AFTER LTAT
8 MO were available in relapses/persistence of infection, and 5 (62.5%) developed resistance to one or several antimicrobials used:
- CNS, resistance to levofloxacin and rifampin (n=2)
- CNS, resistance to rifampin (n=1)
- CNS, resistance to co-trimoxazol (n=1)
- S. aureus, resistance to co-trimoxazol (n=1)

CONCLUSIONS:
-Most patients treated with LTAT were initially treated with DRP. More than half required additional surgery due to relapse, mainly PR.
-There is high probability of recurrence due to a resistant MO and/or superinfection is high.
-Adverse effects are not negligible.
-Patients to be treated with LTAT should be carefully selected; LTAT should not be relied as a surgery-sparing approach even in patients who are considered initially as bad candidates for surgery.

ADVERSE REACTIONS:
22 AR were recorded in 16 (34%) patients.
None severe, 5 moderate.

SUGRAL SITE SUPERINFECTION
21 episodes occurred in 16 (34%) patients, 13 (62%) caused by multidrug-resistant MO.

GNB 11 (52%)
CNS 6 (28.6%)
Corynebacterium striatum 2 (9.5%)
S. aureus 1 (4.7%)
Anaerobes 1 (4.7%)

Growth of multiple resistant strains of MO is increased in patients with LTAT.

CONCLUSIONS:
-Most patients treated with LTAT were initially treated with DRP. More than half required additional surgery due to relapse, mainly PR.
-There is high probability of recurrence due to a resistant MO and/or superinfection is high.
-Adverse effects are not negligible.
-Patients to be treated with LTAT should be carefully selected; LTAT should not be relied as a surgery-sparing approach even in patients who are considered initially as bad candidates for surgery.

ADVERSE REACTIONS:
22 AR were recorded in 16 (34%) patients.
None severe, 5 moderate.

SUGRAL SITE SUPERINFECTION
21 episodes occurred in 16 (34%) patients, 13 (62%) caused by multidrug-resistant MO.

GNB 11 (52%)
CNS 6 (28.6%)
Corynebacterium striatum 2 (9.5%)
S. aureus 1 (4.7%)
Anaerobes 1 (4.7%)

Growth of multiple resistant strains of MO is increased in patients with LTAT.

CONCLUSIONS:
-Most patients treated with LTAT were initially treated with DRP. More than half required additional surgery due to relapse, mainly PR.
-There is high probability of recurrence due to a resistant MO and/or superinfection is high.
-Adverse effects are not negligible.
-Patients to be treated with LTAT should be carefully selected; LTAT should not be relied as a surgery-sparing approach even in patients who are considered initially as bad candidates for surgery.

ADVERSE REACTIONS:
22 AR were recorded in 16 (34%) patients.
None severe, 5 moderate.