

Disclosures. T. Ferry, HERAEUS: Consultant, Speaker honorarium. S. Lustig, Heraeus: Consultant, Consulting fee

222. Clinical Outcomes of Prosthetic Knee Joint Infection in a United States Tertiary Healthcare Center

Folusakin Ayoade, MD and John Todd, MD; Infectious Diseases, Louisiana State University Health Science Center, Shreveport, Louisiana

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Background. The 2013 IDSA prosthetic joint infection (PJI) guidelines identified some research gaps, some of which include what factors may predict PJI outcome. We therefore conducted a retrospective single-center study with the goal of addressing some of these gaps.

Objectives: 1. Describe the incidence, pathogens, role of inflammatory markers, and treatment outcomes of knee PJI. 2. Identify correlations between joint aspiration (JA) and intraoperative (IO) cultures.

Methods. We retrospectively analyzed all adult knee PJI that were diagnosed and managed at our institution between 1/1/2005 and 12/31/2015. Statistical analysis was done using the paired *t*-test, Fisher exact and McNemar χ^2 tests as applicable.

Results. Forty-six subjects met the inclusion criteria and were analyzed. See table below.

Clinical and Demographic Information of PJI subjects (*n* = 46).

Parameter	Value (%)
Age (years)	
Range	27–84
Median	60
Mean	58.8
Sex	
Female	28 (61)
Symptom onset	
< 3 weeks	15 (33)
> 3 weeks	28 (61)
No Data	3 (6)
Implant duration	
Early (< 3month)	10 (22)
Delayed (3–24 month)	15 (33)
Late (> 24 months)	21 (45)
Positive culture	
JA	17 (37)
IO	29 (63)
Surgical Rx	
Two stage	15 (33)
Debridement and retention	18 (39)
Removal without replacement	13 (28)
Outcome	
Cure	26 (57)
Failure with relapse	5 (11)
Failure with progression	6 (13)
Indeterminate	6 (13)
Death	3 (6)

The incidence rate of PJI for the study period was 5.4%. *Staph. aureus* was the commonest pathogen accounting for 11(65%) JA and 13(40%) of IO cultures. Low virulence organisms [*Staph. epidermidis* *n* = 8 (25%) and *Corynebacterium* spp. *n* = 1 (3%)] were only recovered from IO cultures. Gram-negative bacilli accounted for 5(30%) JA and 7(28%) IO cultures. JA correlates well with IO cultures using paired sample correlations (*t*-test); (correlation 0.61, *P* = 0.027).. 97% of subjects had elevated ESR while 96% had elevated CRP. Concerning outcome, there was no statistically significant difference between groups based on implant duration (*P* = 0.98), symptom onset (*P* = 0.23), pathogen type (*P* = 0.83), and treatment options (*P* = 0.39).

Conclusion. 1. JA culture is a good predictor of IO culture in knee PJI. 2. Yield of low virulence organisms from JA culture is poor. 3. Elevated ESR and CRP can support diagnosis of knee PJI. 4. Implant duration, pathogen type, duration of symptoms and treatment type do not appear to affect outcome.

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223. Microbiological Epidemiology in Patients Experiencing Microbiological or Clinical Failure Following Reimplantation After a Two-Stage Exchange Strategy for Hip or Knee Prosthetic Joint Infection (PJI)

Tristan Ferry, MD, PhD¹; Hassan Serrier, MD²; Frederic Laurent, DPharm, PhD³; Eugénie Mabrut, CRA⁴; Michel-Henri Fessy, MD, PhD⁵; Christian Chidiac, MD, PhD⁶; Laure Huot, MD²; Sébastien Lustig, MD, PhD⁶ and Florent Valour, MD, PhD⁴; ¹Inserm 1111, UCBL1, Hospices Civils de Lyon, Lyon, France, ²Hospices Civils de Lyon - Cellule Innovation, Lyon, France, ³Laboratory of Bacteriology, Regional Reference Center for Bji, Hospices Civils de Lyon, Lyon, France, ⁴ID Department, Regional Reference Center for Bji, Hospices Civils de Lyon, Lyon, France, ⁵Hospices Civils de Lyon - Centre Hospitalier Lyon Sud, Pierre-Benite, France, ⁶Orthopaedic Surgery, Regional Reference Center for Bji, Hospices Civils de Lyon, Lyon, France

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Background. Patients with late PJI are at risk for superinfection at the time of reimplantation. Different commercially available antibiotic-loaded cements (gentamicin, vancomycin, gentamicin+clindamycin [G+C], gentamicin+vancomycin [G+V]) could be used for the fixation of the new prosthesis and could be effective to treat or prevent superinfection. We aim to determine the microbiological epidemiology in patients experiencing failure following reimplantation to establish, based on the drug susceptibilities, which cement could be the most active.

Methods. Prospective cohort study including all patients with a two-stage exchange in 2013–2015. Microbiological failure was defined by positive culture at the time of reimplantation. Clinical failure was defined by patients with clinical signs of infection requiring a new surgery.

Results. We included 117 patients (median age 70 years). Fourteen patients (12%) experienced a failure: seven patients with microbiological failure (four CoNS, one *P. acnes*, one *corynebacterium*, and three *Candida albicans*); seven patients with a clinical relapse requiring a new surgery (three *Enterobacteriaceae*, two *P. aeruginosa*, one *streptococcus* spp., one CoNS, one *P. acnes*, one *E. faecalis*). Considering the use of a vancomycin-loaded cement, this antibiotic was inactive on *Candida* (*n* = 3) and Gram-negative isolates (*n* = 5). Considering the use of gentamicin, this antibiotic was inactive on *Candida* (*n* = 3) and five bacterial isolates. These five letter isolates were also not susceptible to Clindamycin. Considering the use of G+V, this combination was inactive on *Candida* (*n* = 3) and only one bacterial isolate (a gentamicin-resistant *K. pneumoniae*). Consequently, the vancomycin-, gentamicin- and G+C-loaded cements may effectively treat or prevent 42.9% of superinfections, only. Conversely, the G+V-loaded cement may effectively treat or prevent 71.4% of them.

Conclusion. Considering the commercially available antibiotic loaded: none of the *Candida albicans* superinfection could be locally treated, and the G+V-loaded cement could treat or prevent most bacterial superinfections.

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224. Pressure Ulcer-Related Pelvic Osteomyelitis: Evaluation of a Two-Stage Surgical Strategy (Debridement, Negative Pressure Therapy and Flap Coverage) with Prolonged Antimicrobial Therapy

Tristan Ferry, MD, PhD¹; Fabien Boucher, MD²; Joseph Chateau, MD²; Hristo Shipkov, MD²; Fatiha Daoud, MD³; Evelyne Braun, MD²; Claire Triffault-Fillit, MD²; Thomas Perpoint, MD³; Frederic Laurent, DPharm, PhD⁴; Alain-Ali Mojallal, MD, PhD⁵; Christian Chidiac, MD, PhD²; Florent Valour, MD, PhD²; Johan Andrianasolo, MD⁵ and Lyon BJI Study group; ¹Inserm 1111, UCBL1, Hospices Civils de Lyon, Lyon, France, ²ID Department, Regional Reference Center for Bji, Hospices Civils de Lyon, Lyon, France, ³Hospices Civils de Lyon, Lyon, France, ⁴Laboratory of Bacteriology, Regional Reference Center for Bji, Hospices Civils de Lyon, Lyon, France, ⁵Hospices Civils de Lyon - Hôpital de la Croix-Rousse, Lyon, France

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Background. A two-stage surgical strategy (debridement-negative pressure therapy (NPT) and flap coverage) with prolonged antimicrobial therapy is usually proposed in pressure ulcer-related pelvic osteomyelitis but has not been widely evaluated.

Methods. Adult patients with pressure ulcer-related pelvic osteomyelitis treated by a two-stage surgical strategy were included in a retrospective cohort study. Determinants of superinfection (i.e., additional microbiological findings at reconstruction) and treatment failure were assessed using binary logistic regression and Kaplan–Meier curve analysis.

Results. Sixty-four pressure ulcer-related pelvic osteomyelitis in 61 patients (age, 47 [IQR 36–63]) were included. Osteomyelitis was mostly plurimicrobial (73%), with a predominance of *S. aureus* (47%), *Enterobacteriaceae* (44%), and anaerobes (44%). Flap coverage was performed after 7 (IQR 5–10) weeks of NPT, with 43 (68%) positive bone samples among which 39 (91%) were superinfections, associated with a high ASA score (OR, 5.8; *P* = 0.022). An increased prevalence of coagulase negative Staphylococci (*P* = 0.017) and *Candida* (*P* = 0.003) was observed at time of flap coverage. An ESBL *Enterobacteriaceae* was found in one (12%) patients, associated with fluoroquinolone consumption (OR, 32.4; *P* = 0.005). Treatment duration was as 20 (IQR 14–27) weeks, including 11 (IQR 8–15) after reconstruction. After a follow-up of 54 (IQR 27–102) weeks, 15 (23%) failures were observed, associated with previous pressure ulcer (OR, 5.7; *P* = 0.025) and Actinomycetes infection (OR, 9.5; *P* = 0.027).

Conclusion. Pressure ulcer-related pelvic osteomyelitis is a difficult-to-treat clinical condition, generating an important consumption of broad-spectrum antibiotics. Carbapenem should be reserved for ESBL at-risk patients only, including those with previous fluoroquinolone use. The uncorrelation between outcome and the debridement-to-reconstruction interval argue for a short sequence to limit the total duration of treatment.

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225. Microbiologic Predictors of Pelvic Osteomyelitis Related to Decubitus Ulcers

Neha Sharma, BS; Abbye Clark, BS; Caroline Derrick, PharmD, BCPS; Majdi N. Al-Hasan, MBBS; Sharon Weissman, MD and Kamla Sanasi-Bhola, MD; University of South Carolina School of Medicine, Columbia, South Carolina

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Background. Management of pelvic osteomyelitis related to decubitus ulcers (PODU) remains challenging, whereas definitive therapy is based on blood, bone,