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**Session:** 45. Clinical: Bone and Joint Infection  
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**Background.** Empirical antimicrobial therapy of prosthetic-joint infection (PJI) is a major clinical challenge and current guidelines recommend the combination of vancomycin plus a broad-spectrum  $\beta$ -lactamin. As Gram-negative bacilli (GNB) are probably less represented in late infections, we evaluate the microbiological epidemiology in patients with PJI according to the chronology of infection.

**Methods.** All patients managed in a reference center for complex bone and joint infections in France (2011 and 2016) were included in a prospective cohort study. Microbiological data at the time of diagnosis were collected and analyzed according to the chronology of infection.

**Results.** We included 567 PJI (284 males, 50.1%; median age 70.3 years). The median occurrence time was 23.4 weeks after prosthesis implantation (285 hip and 252 knee PJI, which were revision prosthesis in 216 [40.3%] cases). Microbiological bone samples found 164 [28.9%] *S. aureus* (including 26 [16.3%] MRSA), 162 [28.6%] coagulase-negative *Staphylococci* (CoNS), including 80 [58.8%] methicillin-resistant CoNS), 80 (14.1%) *Enterobacteriaceae*, 74 (13.1%) *Streptococci*, and 85 (15.0%) anaerobes (including 60 [10.6%] *Propionibacterium*). Infection was plurimicrobial in 10 [18.2%] cases. Among the 183 patients (32%) with late PJI (occurring >1 year), obtained after exclusion of the 59 patients (10.4%) with hematogenous origins, *Enterobacteriaceae* ( $n = 8$ ; 4.4%;  $P < 10^{-3}$ ) were much less represented than in patients with early PJI occurring <1 year. No difference was observed regarding the presence of non-fermenting GNB, with a prevalence of 4.6 and 2.7% in early and late PJI, respectively. Taken together, these data suggest that a broad-spectrum  $\beta$ -lactam antibiotic might be useful in only 12 (6.6%) patients with late PJI, compared with 66 (20.3%) patients with early PJI ( $P < 10^{-3}$ ). Of note, there were statistically more anaerobes ( $n = 40$ ; 21.9%) in late PJI, including 32 *Propionibacterium* (17.5%;  $P < 10^{-3}$ ).

**Conclusion.** Considering the minority amount of GNB in late post-operative PJI and the overrepresentation of anaerobes including *P. acnes*, the empirical treatment should be reconsidered, especially when a two-stage exchange is planned. In those situations, another acceptable option could be the vancomycin+clindamycin combination.

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### 213. Clinical Characteristics and Treatment Outcomes of Patients with Sternooclavicular Septic Arthritis Caused by *Staphylococcus aureus*

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**Background.** Aggressive surgical therapy such as en-bloc resection of the joint is favored in the treatment of sternooclavicular (SC) septic arthritis. However, this practice is based on expert opinion and small case series. We analyzed the clinical characteristics and treatment outcomes of patients with *S. aureus* SC septic arthritis treated with medical therapy alone or with limited surgical therapy.

**Methods.** All adult patients with SC septic arthritis caused by *S. aureus* at the Asan Medical Center between September 2009 and December 2016 were retrospectively reviewed. Demographic characteristics, laboratory results, underlying diseases/conditions, patient management, and treatment outcomes were assessed. SC septic arthritis due to *S. aureus* was defined if patients had positive cultures of specimens from the SC joint, or if blood cultures yielded *S. aureus*, together with physical findings and imaging studies supporting the diagnosis of SC septic arthritis. Limited surgical therapy was defined as simple incision, drainage, and debridement of infected SC joint.

**Results.** In total, 22 cases of *S. aureus* SC septic arthritis were enrolled. Of these 22 patients, 11 received medical therapy alone, 11 underwent limited surgical therapy, and none underwent aggressive surgery. Most patients (73%) had underlying predisposing conditions such as infection at a distant site, diabetes, and liver cirrhosis, and none had IV drug abuse or HIV infection. Complications such as chest wall and/or neck abscess, clavicular and/or sternal osteomyelitis were identified in 18 patients (82%). Patients with chest wall and/or neck abscess had a tendency to be treated with limited surgery than patients without them (73% vs. 27%,  $P = 0.09$ ). The median duration of intravenous antibiotics in all patients was 35 days (IQR 25–46 days). After a median follow-up of 31 months (IQR 2–40 months), there was no relapse of SC septic arthritis or deterioration of joint function.

**Conclusion.** Medical therapy alone or with limited surgical therapy appears to be a successful therapeutic strategy for the complicated *S. aureus* SC septic arthritis in a selected patient.

Table 1. Demographic, clinical characteristics of 22 patients with sternooclavicular septic arthritis caused by *Staphylococcus aureus*

Characteristic/Outcome	All patients (n = 22)	Patients treated with medical therapy alone (n = 11)	Patients treated with limited surgical therapy (n = 11)
Age (year), median (IQR)	61 (50-71)	61 (50-80)	58 (37-64)
Male	17 (77)	9 (82)	8 (72)
<b>Predisposing condition</b>			
No underlying condition	6 (27)	1 (9)	5 (45)
Diabetes mellitus	5 (24)	3 (27)	2 (18)
Liver cirrhosis	5 (24)	1 (9)	4 (36)
Solid tumor	4 (18)	3 (27)	1 (9)
Hematologic malignancy	1 (5)	1 (9)	0
COPD	1 (5)	0	1 (9)
Chronic renal failure	2 (10)	2 (18)	0
Central venous catheter	2 (9)	2 (18)	0
Intravenous drug user	0	0	0
HIV infection	0	0	0
Infection at distant site	7 (32)	5 (45)	2 (18)
<b>Site of acquisition</b>			
Community-acquired	19 (86)	8 (73)	11 (100)
Health care-associated	1 (5)	1 (9)	0
Nosocomial	2 (9)	2 (18)	0
<b>Joint involvement</b>			
Right joint	11 (50)	8 (72)	3 (27)
Left joint	11 (50)	3 (27)	8 (72)
Bilateral joint	0	0	0
<b>Bacteremia</b>	19 (86)	9 (82)	10 (91)
<b>MRSA</b>	4 (18)	3 (27)	1 (9)
<b>Complication</b>	18 (82)	8 (73)	10 (91)
Clavicular and/or sternal osteomyelitis	10 (46)	5 (45)	5 (45)
Chest wall and/or neck abscess	11 (50)	3 (27)	8 (72)
Myositis	3 (14)	2 (18)	1 (9)
Mediastinitis	4 (18)	2 (18)	2 (18)
<b>Time to first surgical therapy, median days (IQR)</b>	-	-	5 (2-6)

Abbreviations: IQR, interquartile range; MRSA, methicillin-resistant *Staphylococcus aureus*  
**NOTE.** Data are presented as number of patients (%), unless otherwise specified

Table 2. Outcomes of 22 patients with sternooclavicular (SC) septic arthritis caused by *Staphylococcus aureus*

Outcome	All patients (n = 22)	Patients treated with medical therapy alone (n = 11)	Patients treated with limited surgical therapy (n = 11)
Duration of fever, median days (IQR)	2 (2-6)	3 (2-4)	4 (2-6)
Duration of intravenous antibiotics, median days (IQR)	35 (25-46)	36 (23-49)	35 (25-42)
Hospital stay, median days (IQR)	30 (21-50)	30 (21-50)	29 (20-43)
Duration of oral antibiotics after hospital discharge, median days (IQR)	14 (5-42)	10 (0-28)	21 (13-44)
Treatment success of SC septic arthritis	22 (100)	11 (100)	11 (100)
Deterioration of joint function	0	0	0
Relapsed SC septic arthritis	0	0	0
Relapsed <i>S. aureus</i> infection	1 (6)	1 (9)	0
All-cause mortality	1 (6)	1 (9)	0

Abbreviations: IQR, interquartile range  
**NOTE.** Data are presented as number of patients (%), unless otherwise specified

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### 214. Oral vs. Intravenous Antibiotics for the Treatment of Acute Bacterial Osteomyelitis in the Veteran Population

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**Background.** The optimal route for administration of antibiotics in the treatment of acute bacterial osteomyelitis (ABOM) has not been clearly defined. Based on pharmacokinetic data and expert opinion, intravenous (IV) antibiotics are considered the standard of care. Studies demonstrate reasonable oral (PO) absorption and bone penetration of certain antibiotics, supporting the potential efficacy of their use in the treatment of ABOM. The purpose of this study was to determine whether a difference exists in treatment outcomes in Veterans with ABOM treated with PO vs. IV antibiotics.

**Methods.** This is a retrospective, electronic chart review of patients diagnosed with ABOM between October 1, 2008, and September 30, 2013. Subjects were evaluated and placed into two groups: (1) IV antibiotics for at least 4 weeks or (2) PO antibiotics for at least 4 weeks. The primary endpoint was treatment failure within one year of diagnosis. Treatment failure was defined as recurrence of infection, amputation of the infected bone, or if they were lost to follow-up.

**Results.** In total, 83 patients, accounting for 89 episodes of ABOM were included in this study; 41 in the IV group and 48 in the PO group. Treatment failure occurred in 14 patients in the IV group (34.15%) and 17 patients in the PO group (35.42%),  $P = 0.90$ . Subgroup analysis of subjects with diabetes mellitus, peripheral vascular disease, body mass index  $\geq 30$  kg/m<sup>2</sup>, and those  $\geq 65$  years also found no difference between groups. After at least 4 weeks of antibiotic therapy, 10 patients in the IV group and five patients in the PO group had an amputation of the infected bone,  $P = 0.14$ . Mean length of hospital stay was significantly longer in the IV group at 8.55 days as compared with the PO group at 2.23 days,  $P < 0.0001$ .

**Conclusion.** Treatment of ABOM with PO antibiotics may serve as a reasonable alternative to IV antibiotics, showing similar efficacy and reduced hospital stay.

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