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239. Sex Differences in Prosthetic Joint Infection

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Session: P-12. Bone and Joint

Background. Male sex has been demonstrated to be a non-modifiable risk factor for prosthetic joint infection (PJI) incidence in multiple studies. Given the known anatomical, genetic, and immunological differences between sexes, we compared the clinical characteristics of PJI among men and women.

Methods. A retrospective cohort of total hip and knee arthroplasty PJIs from 2009 to 2019 were identified using a single institution PJI database. Included cases met

the 2013 MSIS criteria. Microbiology, acuity (defined by implant age and symptom days), and surgical outcomes were collected. Success was defined as no further PJI surgery at two years. Continuous variables were tested with either Student's t test or Mann-Whitney U test. Categorical variables were tested with either Chi-squared test or Fisher's exact test.

Results. We identified 1052 PJI patients, of whom 463 (44.0%) were women. In univariate analysis of the total cohort, women were younger (68.1 ± 11.2 vs 66.1 ± 11.8 years, $p=0.01$), had higher BMI (30.8 ± 7.78 vs 29.8 ± 6.0 , $p=0.04$), and had a higher culture-negative rate (14.5% vs 9.0%, $p < 0.01$) than men, but no difference was noted in Charlson Comorbidity Index (Table 1). Among hip PJIs, women were likelier than men to present with acute PJI (15.9% vs 8.7%, $p=0.03$). There were no differences in debridement, antibiotics, and implant retention (DAIR) utilization (48.2% vs 44.1%, $p=0.067$), and overall treatment success (72.1% vs 71.6%, $p=0.9$), nor in any subanalysis of acute, hip, or knee PJIs.

Table 1. Prosthetic Joint Infection Characteristics by Sex

	Overall	Female	Male	p
n	1052	463	589	
Age (mean (SD))	66.96 (11.58)	68.07 (11.20)	66.08 (11.81)	0.006
BMI (mean (SD))	30.24 (6.81)	30.77 (7.78)	29.84 (5.95)	0.038
Joint (knee) (%)	568 (54.0)	255 (55.1)	313 (53.1)	0.574
Laterality (right) (%)	514 (48.9)	230 (49.7)	284 (48.2)	0.678
Surgical treatment (%)				
One stage exchange	53 (5.0)	29 (6.3)	24 (4.1)	0.067
Two stage exchange	516 (49.0)	211 (45.6)	305 (51.8)	
DAIR	483 (45.9)	223 (48.2)	260 (44.1)	
History of PJI (%)	107 (10.2)	48 (10.4)	59 (10.0)	0.933
Charlson Comorbidity Index (%)				
0	478 (45.7)	216 (47.1)	262 (44.7)	
1	365 (34.9)	158 (34.4)	207 (35.3)	0.185
2	126 (12.1)	60 (13.1)	66 (11.3)	
3 or more	76 (7.3)	25 (5.4)	51 (8.7)	
Erythrocyte Sedimentation Rate (median [IQR])	52 [33, 79]	58.50 [40, 90]	48 [29, 71]	<0.001
C-Reactive Protein (median [IQR])	6.5 [3.0, 18.5]	6.5 [3.2, 17.2]	6.3 [2.9, 18.7]	0.467
Synovial WBC (median [IQR])	35000 [13525, 77468]	32250 [12187, 75600]	35650 [13975, 81177]	0.32
Infection within 90 days of index surgery (%)	255 (24.2)	125 (27.0)	130 (22.1)	0.075
Microorganism Infection Type (%)				
Acute Postoperative	122 (11.6)	64 (13.8)	58 (9.8)	
Acute Hematogenous	464 (44.1)	194 (41.9)	270 (45.8)	0.108
Chronic	466 (44.3)	205 (44.3)	261 (44.3)	
Microbiology (%)				
<i>C. acnes</i>	31 (2.9)	9 (1.9)	22 (3.7)	
Coagulase Negative <i>Staphylococcus</i>	226 (21.5)	92 (19.9)	134 (22.8)	
<i>Enterococcus</i>	39 (3.7)	19 (4.1)	20 (3.4)	
Fungal	6 (0.6)	3 (0.6)	3 (0.5)	
Gram Negative	71 (6.7)	33 (7.1)	38 (6.5)	
Methicillin-resistant <i>Staphylococcus aureus</i>	69 (6.6)	33 (7.1)	36 (6.1)	<0.001
Methicillin-sensitive <i>Staphylococcus aureus</i>	205 (19.5)	85 (18.4)	120 (20.4)	
Other Gram Positive	28 (2.7)	16 (3.5)	12 (2.0)	
<i>Streptococcus</i>	170 (16.2)	64 (13.8)	106 (18.0)	
Polymicrobial	87 (8.3)	42 (9.1)	45 (7.6)	
Culture Negative	120 (11.4)	67 (14.5)	53 (9.0)	
Treatment success at 2 years (%)	756 (71.9)	334 (72.1)	422 (71.6)	0.915

DAIR = debridement, antibiotics, and implant retention; WBC = white blood cell

Conclusion. Although females may present differently when diagnosed with PJI, overall outcomes and outcomes may respect to acuity and type of septic revision did not clearly differ in this single-center cohort. Further research in larger cohorts, including additional biomarkers and socioeconomic variables, may further elucidate relationships between sex and PJI characteristics including culture-negativity and symptom acuity.

Disclosures. All Authors: No reported disclosures

240. Epidural Involvement Complicating Pyogenic Spondylodiscitis

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Session: P-12. Bone and Joint

Background. Pyogenic spondylodiscitis is an infection of the intervertebral disc(s) and/or adjacent vertebrae. It might be associated with epidural involvement. We aimed to study clinical, laboratory and evolutionary features of epidural involvement complicating pyogenic spondylodiscitis.

Methods. We conducted a retrospective study including patients hospitalized for spondylodiscitis with epidural involvement in the infectious diseases department between 2007 and 2019.

Results. We included 22 patients among whom 16 were males (72.7%). The mean age was 64±11 years. Eleven patients had diabetes mellitus (50%). The onset of the disease was acute in 18 cases (81.8%) and sub-acute in 4 cases (18.2%). The median delay to diagnosis was 4 [2-13] weeks. The revealing symptoms were back pain (95.5%), fever (68.2%) and asthenia (54.5%). Motor deficit was noted in 9 cases (40.9%), sensory deficit in 4 cases (18.2%) and sphincter dysfunction in one case (4.5%). Physical examination revealed spinal tenderness (77.3%), paravertebral tenderness (22.7%) and spinal stiffness (18.2%). Blood cultures were positive in 13 cases (59.1%) represented by *Staphylococcus aureus* (31.8%). Elevated C-reactive protein levels (81.8%) and accelerated erythrocyte sedimentation rate (63.6%) were noted. Imaging features showed vertebral body osteolysis (81.8%), inflammation of adjacent soft tissue (81.8%), spinal cord compression (40.9%) and psoas abscess (13.6%). Along with medical treatment, immobilisation (72.7%), abscess drainage (13.6%) and surgery (9.1%) were indicated. The disease evolution was favourable in 20 cases (90.9%). Two patients were dead (9.1%). Sequelae were noted in 9 cases (40.9%) represented by back pain (31.8%) and spinal deformity (9.1%).

Conclusion. Spondylodiscitis complicated with epidural involvement might lead to complications and sequelae if not promptly diagnosed and treated.

Disclosures. All Authors: No reported disclosures