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Paper Poster Session

Bone and prosthetic joint infection

Aetiology of prosthetic joint infections during 2014 in Madrid, Spain

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Background: The knowledge of the etiology of prosthetic joint infections (PJI) is essential for an optimal management of the patients. We retrospectively analysed the etiology of acute, hematogenous or delayed PJI in 12 hospitals from a homogeneous health zone in Spain, with special interest in the detection of clinically relevant resistances among the isolated microorganisms.

Material/methods: Microbiology databases from 12 hospitals from Madrid Community, Spain were searched for detection of positive results from samples submitted for diagnosis of PJI during the year 2014. Interpretation of cultures was performed according to the criteria of Atkins et al, and the clinical diagnosis was performed according to the IDSA criteria after reviewing clinical charts. During this period, 5 of the hospitals included implant sonication as part of their laboratory methods. All other samples were processed according to commonly accepted procedures, including aerobic and anaerobic cultures. 9 hospitals also inoculate liquid media. Identification was also performed according to commonly accepted methods. Susceptibility testing was performed by microdilution according to EUCAST methodology. The study was approved by the Ethics in Research Committee of the coordinating centre.

Results: During the study period 260 patients were diagnosed of PJI (131 woman). Mean age of them was 72.9 years (range 16-95). Affected joints were hip (127), knee (120), shoulder (11), elbow (1) and hip and knee simultaneously in 1 case. 95 were acute infections, 142 delayed and 27 hematogenous. No differences between these typed were found for the affected joint, sex or age. 35 polymicrobial infections were diagnosed (17 acute, 16 delayed and 2 hematogenous). The isolated organisms (295 strains) appear in the table.

Organism	Acute (%)	Delayed (%)	Haematogenous (%)	Total (%)
<i>S. aureus</i>	31 (29.2%)	32 (20.1%)	10 (33.3%)	73 (24.7%)
Coagulase-negative staphylococci, including <i>S. lugdunensis</i>	16 (15.1%)	70 (44%)	3 (10%)	89 (30.2%)
<i>E. faecalis</i> and other gram-positive cocci	11 (10.4%)	17 (10.7%)	7 (23.3%)	35 (11.9%)
<i>Enterobacteriaceae</i>	26 (24.5%)	12 (7.5%)	5 (16.7%)	43 (14.6%)
<i>P. aeruginosa</i>	12 (11.3%)	7 (4.4%)	2 (6.7%)	21 (7.1%)
Other Gram-negative rods	2 (1.9%)	2 (1.3%)	0 (0%)	4 (1.4%)
<i>P. acnes</i>	2 (1.9%)	7 (4.4%)	1 (3.3%)	10 (3.4%)
<i>Candida sp.</i>	0 (0%)	6 (3.8%)	0 (0%)	6 (2%)
Other organisms	6 (5.7%)	6 (3.8%)	2 6.7%)	14 (4.7%)

61 organisms (21.1% of all bacterial strains) had clinically relevant, including 4 ESBL-producing *Enterobacteriaceae*, 16 MRSA, 1 Vancomycin-R *Enterococcus*, 2 imipenem-resistant *P. aeruginosa* and 1 carbapenemase-producing *K. pneumoniae*.

Conclusions: Although delayed and hematogenous infections are caused mainly by staphylococci and other Gram-positive cocci, acute infections are caused by a broad spectrum of organisms. While polymicrobial infections are not frequently detected, the high percentage of clinically relevant resistances increases the concern about the future evolution of this problem among PJI patients.