Conclusion. This study showed that IMP1-E septicemia was isolated in patients with severe disease and long-term hospitalization. Selection of antibiotics therapy based on antimicrobial susceptibility induced microbiological cure, but clinical response was dependent on the underlying diseases.

Disclosures. **All authors:** No reported disclosures.

1047. Global Surveillance: Susceptibility of Ceftolozane–Tazobactam Against *Escherichia coli*, *Klebsiella pneumoniae,* and *Pseudomonas aeruginosa* Isolates Collected From Bloodstream Infections in the United States From 2015 to 2017

S.J. Ryan Arends, PhD; Dee Shortridge, PhD; Mariana Castanheira, PhD; Jennifer M. Streit, BS and Robert K. Flamm, PhD; JMI Laboratories, Inc., North Liberty, Iowa

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Background. Ceftolozane–tazobactam (C-T) is an antibacterial combination of a novel antipseudomonal cephalosporin and a β-lactamase inhibitor. C-T was approved by the US Food and Drug Administration in 2014 and by the European Medicines Agency in 2015 to treat complicated urinary tract infections, acute pyelonephritis, and complicated intra-abdominal infections. The Program to Assess Ceftolozane-Tazobactam Susceptibility (PACTS) monitors Gram-negative (GN) isolates resistant to C-T worldwide. In the current study, isolates were collected from patients hospitalized with bloodstream infections (BSIs) from 2015 to 2017 within the United States.

Methods. A total of 3,377 prevalence-based BSI GN isolates, including *Escherichia coli* (EC; 1,422), *Klebsiella pneumoniae* (KPN, 630), and *Pseudomonas aeruginosa* (PSA; 344), were collected during 2015 to 2017 from 32 PACTS hospitals in the United States. Isolates were tested for C-T susceptibility by CLSI broth microdilution method in a central monitoring laboratory (JMI Laboratories). Other antibiotics tested were amikacin (AMK), cefepime (FEP), ceftazidime (CAZ), colistin (COL), levofloxacin (LVX), meropenem (MEM), and piperacillin–tazobactam (TZP). Antibiotic-resistant phenotypes analyzed (CLSI, 2018) for EC and KPN included carbapenem-R (CR) and non-CR extended-spectrum β-lactamase (ESBL); as well as CAZ-nonsusceptible (CAZ-NS), MEM-NS, and COL-NS PSA.

Results. Of the 3,377 BSI GN isolates, 3,219 (95.3%) had a C-T MIC ≤ 4 mg/L. The three most prevalent GN species isolated from BSIs were EC (42.1%), KPN (18.7%), and PSA (10.2%). The %S of C-T and comparators for the top three pathogens are shown in the table. C-T showed activity against these isolates with %S of ≥96.0% against all three species. Of the comparators tested, AMK and COL also had high %S against these isolates.

Conclusion. C-T demonstrated activity against the most prevalent contemporary GN isolates from BSIs in the US. C-T was the only beta-lactam that had ≥96%S against all three species: EC, KPN, and PSA. For PSA, C-T maintained activity (>90%S) against isolates resistant to CAZ, TZP, and MEM. These data suggest that C-T may be a useful treatment for GN BSI.

		% susceptible[a]							
	n	C-T	FEP	CAZ	MEM	TZP	LVX	AMK	COL
EC	1,422	98.2	86.0	85.9	99.6	95.5	66.7	99.8	99.8
MDR	117	80.3	10.3	12.8	95.7	62.4	1.7	97.4	99.1
ESBL, non-CRE	251	91.6	23.5	21.9	100.0	85.7	20.3	99.2	99.2
KPN	630	96.0	89.8	88.4	97.8	93.0	91.6	98.9	98.9
MDR	49	57.1	10.2	6.1	71.4	44.9	32.7	87.8	89.4
ESBL, non-CRE	77	81.8	29.9	19.5	96.1	66.2	58.4	96.1	94.7
PSA	344	98.8	87.5	87.5	81.4	85.2	77.9	97.4	99.7
CAZ-NS	43	90.7	27.9	-	32.6	11.6	41.9	88.4	100.0
TZP-NS	51	92.2	29.4	25.5	33.3	-	35.3	90.2	100.0
MEM-NS	64	93.8	53.1	54.7	-	46.9	31.2	89.1	100.0

[a] CLSI (2018), EUCAST for EC and KPN vs. COL.

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1048. Beta-Hemolytic Streptococcal Infective Endocarditis: Characteristics and Outcomes From a Large, Multi-National Cohort

Nuria Fernandez-Hidalgo, MD[1]; Amal Gharamti, MD[2]; María Luisa Aznar, MD[3]; Vivian H. Chu, MD[4]; Hussein Rizk, MD[5] and Zeina Kanafani, MD[6]; [1]Hospital Vall D'hebron, Barcelona, Spain, [2]Division of Infectious Diseases, Department of Internal Medicine, American University of Beirut Medical Center, Beirut, Lebanon, Beirut, Lebanon, [3]Department of Infectious Diseases, Hospital Universitari Vall d'Hebron, Barcelona, Spain, [4]Duke University Medical Center, Durham, North Carolina, [5]Cairo University, Cairo, Egypt, [6]Internal Medicine, American University of Beirut Medical Center, Beirut, Lebanon

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Background. β-Hemolytic streptococci (BHS) are an uncommon cause of infective endocarditis (IE). The aim of this study was to describe the clinical features and outcomes of patients with β-hemolytic streptococcal infective endocarditis in a large multi-national cohort, and compare them to patients with oral Viridans IE, a more common cause of IE.

Methods. The International Collaboration on Endocarditis Prospective Cohort Study (ICE-PCS) is a large multi-national database that recruited patients with IE prospectively using a standardized data set. Sixty-four sites in 28 countries reported patients prospectively using a standard case report form (CRF) developed by ICE collaborators. Patients with BHS IE were compared with patients with IE due to Oral Viridans Streptococci (OVS).

Results. Among 1336 cases of streptococcal IE, 823 (62%) were caused by OVS and 147 (11%) by BHS. The majority of patients in both groups belonged to the male gender and had similar median age. Among the predisposing conditions, congenital heart disease and native valve predisposition were more commonly associated with OVS IE than with BHS IE ($P < 0.005$). The presence of endocavitary cardiac device is associated more with BHS IE than with OVS IE ($P = 0.026$). BHS were more likely to be penicillin-susceptible than OVS ($P = 0.001$). Clinically, patients with BHS IE are more likely to present acutely ($P < 0.005$) and with fever ($P = 0.024$). BHS IE is more likely to be complicated by stroke ($P < 0.005$) and other systemic embolism ($P < 0.005$). The overall in-hospital mortality of BHS IE was significantly higher than that of OVS IE ($P = 0.001$). The independent factors associated with in-hospital mortality for β-hemolytic streptococcal IE were age, per 1-year increment (OR 1.044; CI 1.014–1.075; $P = 0.004$) and prosthetic valve IE (OR 3.029; CI 1.171–7.837; $P = 0.022$). The complications associated with a higher in-hospital mortality were CHF (OR 2.513; CI 1.074–5.879; $P = 0.034$), especially CHF NYHA III or IV (OR 4.136; CI 1.707–10.025; $P = 0.002$), and stroke (OR 3.198; CI 1.343–7.619; $P = 0.009$).

Conclusion. Our findings suggest that BHS IE is an aggressive disease characterized by an acute presentation. It is associated with a significant rate of complications and a high rate of in-hospital mortality. This underlines the importance of early surgery to prevent the progression of disease.

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1049. Outcome and Impact of Empirical Antimicrobial Treatment in Bacteraemia With Bacteroides Species; A Retrospective Cohort Study in a Region of Southern Sweden

Johan Tham, MD, PhD[1]; Karolina Kalin, MD[2]; Fredrik Resman, MD[3] and Karin Holm, MD, PhD[1]; [1]Clinical Infection Medicine, Department of Translational Medicine, Lund University, Skåne University Hospital, Sweden, Malmö, Sweden, [2]Department of Translational Medicine, Clinical Infection Medicine, Lund University, Skåne University Hospital, Sweden, Malmö, Sweden, [3]Department of Translational Medicine, Lund University, Malmö, Sweden, Clinical Infection Medicine, Malmö, Sweden, [4]Department of Clinical Sciences, Division of Infection Medicine, Lund University, Skåne University Hospital, Sweden, Lund, Sweden

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Background. Anaerobic infections are an important cause of bacteremia and severe Infections. Due to increasing extended spectrum β-lactamase resistance (ESBL), the treatment recommendations for anaerobic infections in Sweden have changed during the past ten years. The effects of anaerobe resistance and outcome for patients with anaerobe infections is unclear.

Methods. A retrospective cohort study was conducted in patients with bacteraemia due to Bacteroides species in the Region of Skåne between 2011 and 2015. Data on patients were reviewed from medical and microbiological records and we determined the factors associated with 28-day mortality using a multivariate regression model.

Results. Data on 454 patients were reviewed from medical and microbiological records and 389 (median age, 76 years; male, 54%) met the inclusion criteria. The 28-day all-cause mortality rate was 19% (72/389). Inadequate empirical antibiotic therapy occurred among 182 (47%) patients, and we found a trend toward that inadequate antibiotic treatment increased the 28-day mortality ($P = 0.055$). The frequency of bacteraemia with Bacteroides increased during the period of time and Bacteroides fragilis was the most common bacteria, 55% (212/389). The resistance against piperacillin/tazobactam was higher than in many other studies and among the different Bacteroides isolates that were resistant to piperacillin/tazobactam, Bacteroides thetaiotamicron was the most prevalent with 60% (50/83) being resistant. Piperacillin/tazobactam was the frequently used antimicrobial agent against Bacteroides infections and the utilization was increasing. We did not find any resistance among the Bacteroides isolates against metronidazole and only three isolates were resistant against carbapenems.

Conclusion. Anaerobe resistance is an increasing issue and especially against the most common antibiotic treatment, piperacillin/tazobactam. Early recognition and appropriate treatment is important to avoid proliferation of these increasing bacteria since inadequate treatment increased the mortality.

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1050. Oral Antibiotics for the Treatment of Gram-Negative Bloodstream Infections: Prescribing Practices and Outcomes at a Large Academic Medical Center

Kimberly Claeys, PharmD, BCPS[1]; Nora Loughry, BS[2]; Sanjay Chainani, BS[2]; Surbhi Leekha, MBBS, MPH[3] and Emily Heil, PharmD, BCPS-AQID[1]; [1]Pharmacy Practice and Science, University of Maryland School of Pharmacy, Baltimore, Maryland, [2]University of Maryland School of Medicine, Baltimore, Maryland, [3]Department of Epidemiology and Public Health, University of Maryland School of Medicine, Baltimore, Maryland

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