Aspergillus, PhD Student

Methods. In this study, we included the results of all positive blood cultures of A. auris in Suhar teaching hospital from May 2018 (date of first detection) till end of April 2019. Further confirmation of the species was performed by MALDI-TOF and antibiotic susceptibility test (AST) by Vitek 2 in central public health laboratory (CPhL) of Oman.

Results. We detected 13 patients (9 females, 4 males). The mean age was 58.61% years (28–76 years). All candidemic patients had severe underlying conditions, including prolonged hospital stay or extensive and prolonged antimicrobial exposure or medical comorbidities (8 of 13). The time from hospital admission to onset of A. auris candidemia was 8–49 days, with a median of approximately 27 days. The most common isolated co-pathogen from blood culture was C. pneumoniae (without regard to Coagulase-negative staphylococci). As average, every patient received 4.8 kind of different antibiotics in mean 88 doses before candidemia developed and piperacillin–tazobactam was the most common used antibiotics. AST was done just for 5 patients and revealed high-level resistance to fluconazole and Amphotericin B while, Echinocandins (anidulafungin, caspofungin) were fully sensitive and voriconazole had intermediate sensitivity. Mean duration of antifungal treatment was 12.5 days (5–26 days). 8 patients treated by Echinocandins (4/8 died), 4 by Fluconazole (3/4 died) and one without treatment discharged. 30-day all-cause mortality was 61.5%.

Conclusion. In Oman, C. auris has been reported from many hospitals. Resistance to several antifungal agents and persistence in the hospital environment make this organism a potent menance for the treating physician and the infection control personnel. In our hospital, every candidemic patient should be treated with Echinocandins and assumed to be resistant to Fluconazole until proven otherwise according to results of AST.

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2269. Clinical Outcomes in Patients with Carbapenem-Non-Susceptible, β-Lactam-Susceptible Pseudomonas aeruginosa Infections

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Methods. Retrospective multicenter cohort of adult in-patients who received efampipril for Paar pneumonia and/or bacteremia from January 2012 to November 2018. Baseline characteristics, treatment information, and clinical outcomes were obtained from the electronic medical record. The primary outcome was 14-day mortality. Secondary outcomes included 30-day mortality, 30-day infection recurrence, and infection-related length of stay (IR-LOS). IR-LOS was defined as the time from index culture to antibiotic discontinuation or hospital discharge, whichever was sooner. Descriptive statistics were analyzed using SPSS.

Results. 387 patients were evaluated; 60 Carba-S and 21 Carba-NS were included. The proportion of patients exposed to infective empirical therapy was similar between the groups. The clinical outcomes are displayed in Table 1. Compared with the Carba-S group, Carba-NS patients were younger, had better renal function, increased incidence of pneumonia, more severely ill, and higher rate of empirczide failure to use. Despite these differences at baseline there were no significant differences in empiric APBL treatment patterns, 14- or 30-day mortality, or recurrence at 30 days between the groups. Carba-NS patients had lower rate of oral step down therapy and a significantly longer LOS and IR-LOS.

Conclusion. In this cohort of patients who received appropriate and timely APBL therapy, the Carba-NS phenotype was not associated with increased rates of 14-day mortality, 30-day mortality, or 30-day infection recurrence. These data suggest that APBLs may be effective therapeutic options against this phenotype. Further research is warranted to confirm these findings.
Table 1. Carba-S (60) vs Carba-NS (21) P-value

| Demographics | Carba-S (60) | Carba-NS (21) | P-value |
|--------------|-------------|---------------|---------|
| Age, y       | 61.2±14.1   | 51.7±17.8     | 0.02    |
| Female sex   | 24 (40)     | 7 (33)        | 0.59    |
| Height, cm   | 169.3±10.8  | 172.5±12.6    | 0.26    |
| Weight, kg   | 75.2±26.1   | 68.0±35.8     | 0.23    |
| C/ML, mg/mL  | 26.7±9.2    | 23.5±11.2     | 0.10    |
| C/ML, mg/mL  | 42.5±87.5   | 70.4±53.5     | 0.03    |
| Charlson Comorbidity Index | 4.1±3.1 | 3.1±3.1 | 0.31 |
| APACHE II    | 16.5±8.9    | 21.2±7.7      | 0.03    |
| Immuno-compromised | 19 (32) | 7 (33) | 0.89 |

Infections

- Pneumonia: 14 (25) vs 15 (71), P = 0.001
- Bacteremia: 46 (77) vs 6 (29), P = 0.001
- Bacteremia source control: 12 (26) vs 17 (31), P = 0.74
- Bacteremia source unknown: 3 (7) vs 0
- Bone and joint: 1 (2) vs 0
- Cardiovascular: 8 (17) vs 2 (33), P = 0.32
- Central line: 8 (17) vs 1 (17), P = 0.001
- Lower Respiratory Tract: 3 (7) vs 0
- SSI: 4 (9) vs 0
- Surgical Wound: 5 (11) vs 0
- Urinary Tract: 12 (26) vs 2 (33), P = 0.65
- Unknown: 5 (11) vs 1 (17)

Treatment

- Time to effective therapy, h: 2.5±10.3 vs 5±9.7, P = 0.31
- Time to negative blood culture, d: 1.3±1.1 vs 1.7±1.0, P = 0.20
- Empirical 1st-bacterium duration, d: 3.8±6.3 vs 4.8±8.2, P = 0.24
- Empirical β-lactam agent: 7 (12) vs 1 (13), P = 0.67
- Ceftazidime: 19 (39) vs 6 (29), P = 0.25
- Ceftriaxone: 0 (0) vs 4 (19), P = 0.004
- Ceftriaxone-aztreonam: 0.0 (0) vs 1 (13), P = 0.26
- Piperacillin-tazobactam: 34 (57) vs 9 (33), P = 0.42
- Empirical combination therapy: 4 (7) vs 3 (15), P = 0.16
- Escalation of therapy: 10 (17) vs 2 (9), P = 0.72
- Oral step down therapy: 22 (37) vs 1 (10), P = 0.02
- Total treatment duration, d: 14.2±8.0 vs 13.0±9.4, P = 0.69

Outcomes

- 14 day mortality: 9 (15) vs 1 (5), P = 0.44
- 30 day mortality: 10 (17) vs 2 (10), P = 0.72
- 30 day recurrence: 5 (8) vs 1 (5), P = 1.0
- Length of stay, d: 8.0±12.6 vs 21±40.7, P = 0.001
- Infection-related length of stay, d: 6.0±12.8 vs 10.6±14.8, P = 0.001

Data presented as mean ± SD, n (%), or median [IQR]

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2270. Initial Treatment Selection Among Patients with Recurrent Pseudomonas aeruginosa (PSA) Infections (Infxs): Does Prior PSA Antibiotic Susceptibility

Results: Effect Subsequent Empiric Treatment Decisions?

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Session: 246. Clinical Outcomes of Infections with Resistant Organisms Saturday, October 5, 2019: 12:15 PM

Background. Resistance to commonly used anti-pseudomonal β-lactams (AP-BLs) like piperacillin/tazobactam (TZP), meropenem (MER) and ceftepime (CEF) among patients (patients) with PSA infx is increasing. To minimize receipt of DAT among patients with PSA infxs, clinicians need to consider the patient’s risk of having a PSA infx that is NS to AP-BL and have a history of a prior PSA infx. Patients with history of a PaA infx that was NS to 21 AP-BL may benefit from initial use of novel AP-BL therapies.

Methods. This was a retrospective cohort study of a single intensive care unit. All patients receiving ECMO therapy between 7/11/13 and 4/28/18 were evaluated. Multidrug-resistant (MDR) pathogens were defined as non-susceptible to ≥1 agent in ≥3 antimicrobial classes, and vancomycin-resistant Enterococcus (VRE).

Results. 471 patients received ECMO accounting, for 4,739 ECMO days. Thirty-six patients (7.6%) had ≥1 episode of BSI; 47 episodes occurred, resulting in 10 events per 1,000 ECMO days. The most common organisms were Enterobacteriaceae (26%), which were MDR. Staphylococcus aureus (25%), MRSA (25%), and Enterococcus spp. (17%), were also identified. Overall, 20% of BSI were due to MDR bacteria. Median duration of BSI was significantly longer for infections due to VRE (8.5 days), than other organisms (1 day; P = 0.006). Duration of ECMO (P = 0.001), continuous renal replacement therapy (P = 0.01), units of blood transfused (P = 0.0001) and end-stage lung disease (ESLD) awaiting transplant (P = 0.004) were risk factors for BSI. Duration of ECMO, units of blood transfused and ESLD were independent risk factors for BSI. VRE vs. VA ECMO or central vs. peripheral cannulation were not significant risk factors. By logistic regression, MDR bacterial BSI was associated with longer duration of ECMO (P = 0.001) and number of units of blood transfused (P = 0.001), 1-year mortality after initiation of ECMO was 48%. Independent risk factors for 1-year mortality were age (P = 0.0001) and BSI due to MDR bacteria (P = 0.049).

Conclusion. The rate of BSIs during ECMO is relatively low, but these infections are commonly caused by MDR bacteria and associated with high 1-year mortality. Clinicians should consider empiric antibiotic coverage for MDR bacteria in patients with BSI on prolonged ECMO, and in patients on ECMO who received multiple blood transfusions. Since MDR bacterial BSI is an independent risk factor for mortality, future research on preventive strategies are warranted in high-risk ECMO cohorts.

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2272. Evaluation of Clinical Features, Carbapenem Resistance and Risk Factors of Klebsiella Species: A 4-Year Retrospective Study in Turkey

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Session: 246. Clinical Outcomes of Infections with Resistant Organisms Saturday, October 5, 2019: 12:15 PM

Background. Carbapenem-resistant bacteria are increasing due to widespread use of antibiotics. One of the most important part of healthcare-associated infections and cause morbidity and mortality. The aim of this study was to determine the epidemiological, clinical features, carbapenem resistance rates and risk factors of bloodstream infections of children with Klebsiella spp.

Methods. In this retrospective study, medical records of 85 episodes of 77 patients caused by with Klebsiella spp. bacteremia who admitted to Ege University Faculty of Medicine, Pediatric Hospital in Turkey between 2014 and 2017 were evaluated. Conventional biochemical methods were performed using the automated systems of MALDI-TOF MS / VITEK 2 (Biomerieux, France). According to EUCAST recommendations, VITEK 2 (Biomerieux, France) automated microdilution method was used in sensitivity tests.

Results. The mean age of 85 episodes included in the study was 3.49 (±4.54) years. 56% (48%) of patients were male (female). 22% (42%) were male. 18.8% of the patients were premature. The most common service was newborn care (30.6%). Neutropenia was 26% and thrombocytopenia was 55% at the time of diagnosis. Klebsiella pneumonia was 93% and Klebsiella oxytoca was 7%. Carbapenemresistance rate was found to be 30.6% in Klebsiella spp. Carbapenem resistance was found 18% in 2014, 38% in 2015, 42% in 2016 and 25% in 2017. In patients who developed carbapenem-resistant Klebsiella