Reported cases of Actinomyces odontolyticus bacteraemia in Hamad Medical Corporation between 1/1/2016 to 1/11/2020

Background. Actinomycosis species are Gram positive anaerobic, non-sporulating, non-acid fast, non-motile, irregularly staining bacterium. It is associated with a wide range of infections including dental caries, abscesses, intra-abdominal and blood-stream infections. A. odontolyticus normally a commensal organism found in the mouth, was first isolated from dental caries in 1958. The incidence of Actinomycosis odontolyticus bacteremia is less common.

Methods. We are reporting 15 cases of isolated A. odontolyticus blood stream infection at HMC, State of Qatar from 1/1/2016 to 1/11/2020. We aim to describe their clinical characteristic, risk factors and treatment outcome.

Results. Our patients with bacteraemia fall into one of two groups. The first group consists of paediatric patients with unremarkable co-morbidities. The second group includes older adults, often with co-morbidities that pre-dispose to infection, such as diabetes mellitus or hypertension. Fever was the main presenting sign and symptom in 12 patients (80%). Nine of the patients were females (60%). 13 patients (86%) received antibiotics. Maximum duration of antibiotics was 60 days and minimum duration was three days. The infectious disease team was consulted for six patients (40%). One patient died while the other 14 recovered uneventfully with a case fatality rate of 6.6%.

S217 - 2021:8 (Suppl 1)

Abstracts OFID 2021:8 (Suppl 1) • 5217
Minimal inhibitory concentrations (MICs) of selected antibiotics against A. odontolytics, including interpretations and breakpoints, as reported by the AMR HAI reference unit, PHE Colindale

Conclusion. Clinicians of all specialties need to be aware of the rising number of reports of Actinomyces species bacteremia due to widespread availability of molecular identification techniques, including MALTI-TOF. Further, more studies are needed to determine guidelines for treating these resilient microbes.

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219. Outcomes with Low- vs. High-bioavailability Oral Antibiotics in Treatment of Uncomplicated Gram-Negative Bacteremia
Ashley L. Cubillos, PharmD, BCPS, BCIDP; Elisabeth Chandler, PharmD, BCIDP; Ian P. Murphy, PharmD; Robert Castro, MD; Lee Health, Fort Myers, Florida
Session: P-10. Bacteremia
Background. High-bioavailability (HIGH-BIO) oral agents (i.e. trimethoprim-sulfamethoxazole, fluoroquinolones) are increasingly utilized for definitive treatment of uncomplicated gram-negative (UGN) bloodstream infections (BSI). Literature supports use of HIGH-BIO agents as step-down therapy, but few studies have assessed use of low-bioavailability (LOW-BIO) agents (i.e. beta-lactams). Increased recurrence of BSI is not commonly associated with LOW-BIO agents; suboptimal dosing of beta-lactam agents may have impacted outcomes. Trials have not assessed whether high-dose beta-lactams (HD-BL) improve clinical outcomes over low-dose beta-lactams (LD-BL) for UGN BSI.

Methods. This retrospective cohort study conducted between December 2016 and December 2020 included adults with UGN BSI administered oral step-down therapy for at least 1/3 of the total antibiotic duration. The primary outcome was incidence of treatment failure of HIGH-BIO compared to LOW-BIO agents within 90 days of completing oral therapy. Treatment failure was a composite of all-cause mortality, recurrent BSI, reinfection of the primary site, or transition to IV antibiotics after initiating oral therapy. Secondary outcomes were incidence of treatment failure of HIGH-BIO compared to HD-BL agents, and of HD-BL compared to LD-BL agents.

Results. Of 225 patients, 67 (29.8%) received a HIGH-BIO and 158 (70.2%) a LOW-BIO agent; of those in the LOW-BIO arm 126 (79.7%) received a HD-BL. The most common source of BSI was urinary (202 [89.8%]); transition to oral therapy occurred after a mean of 5 ± 2.39 days. No difference in treatment failure was observed between HIGH-BIO and LOW-BIO agents (8 [11.9%] vs. 25 [15.8%]; P = 0.45). A numerically higher number of patients in the LOW-BIO arm had recurrent BSI (4 [2.5%] LOW-BIO vs. 0 [0%] HIGH-BIO, P = 0.18). No difference in treatment failure was observed between HIGH-BIO and HD-BL agents (8 [11.9%] vs. 20 [15.9%]; P = 0.46), or HD-BL and LD-BL agents (20 [15.9%] vs. 5 [15.6%]; P = 0.97).

Conclusion. No difference in treatment failure was observed between groups; further study is needed due to failure to reach statistical power. A numerical trend towards increased recurrence of BSI was observed with LOW-BIO agents. Beta-lactams may be reasonable for step-down therapy of UGN BSI if HIGH-BIO agents are contraindicated.

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220. The Treatment of Enterococcus Blood Stream Infections in Patients Receiving Extracorporeal Membrane Oxygenation
Joseph E. Marcus, MD; Michal Sobieszczcz, MD; Alice E. Barsoumian, MD; San Antonio Uniformed Services Health Education Consortium, San Antonio, Texas; SAUSHEC, San Antonio, Texas; Brooke Army Medical Center, San Antonio, Texas
Session: P-10. Bacteremia
Background. Background: Extracorporeal membrane oxygenation (ECMO) is a growing modality of life support that is subject to a high rate of nosocomial infections. There is a paucity of data to guide treatment for infections on ECMO, which can lead to vastly different practice patterns at different centers. This case series describes the outcomes of patients with Enterococcus bacteremia at a single center.

Methods. A retrospective chart review was performed on all patients who received ECMO support at a tertiary academic medical center with ECMO capabilities between October 2012 and May 2020 with positive blood cultures for Enterococcus species.

Results. A total of 10 patients had Enterococcus bacteremia during the study period with E. faecalis (n=7, 70%) more commonly than E. faecium (n=3, 30%). Infections occurred more often in men (n=6, 60%) than women (n=4, 40%) with median age 36 (IQR: 31-42). Infections occurred late in the hospitalization (median: 33 days [IQR: 26-59]) and after several weeks on the ECMO circuit (median: 24 days [22-52]). Infections were often polymicrobial (n=5; 50%). There were no cases of infective endocarditis. Infections were treated with 7-14 days of therapy with ampicillin being the most common antibiotic prescribed (n=5, 50%). Four (40%) patients were decannulated before completion of therapy. No patients had cannulas removed due to bacteremia. There were no cases of recurrence. Mortality was 20% in this cohort.

Conclusion. Enterococcus is a common cause of bloodstream infections in patients with prolonged courses on ECMO circuit. In this cohort of patients, Enterococcus did not cause any metastatic infections and was generally treated with 7-14 days of antibiotics without recurrence, despite many patients remaining on ECMO for extended periods after clearance. As ECMO use continues to expand, there will need to be more data on treatment outcomes of infections to establish best practices.

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Clinical Characteristics of Patients with Enterococcus Bacteremia

| Patient | Age | Sex | Race | BMI | Comorbidities | Co-infections | Source | Pathogen | Species | Coagulase | Phase | Co-Antimicrobial Antibiotics | Duration of Therapy | Outcome |
|---------|-----|-----|------|-----|--------------|--------------|--------|----------|---------|----------|-------|-----------------------------|-------------------|---------|
| 1       | 70  | M   | White| 20  | Yes          | No           | N/A    | Enterococci| E. faecalis| Yes      | 24     | Ampicillin, Gentamicin       | 14 days           | No      |
| 2       | 60  | F   | Black| 25  | Yes          | No           | N/A    | Enterococci| E. faecalis| Yes      | 28     | Ampicillin, Gentamicin       | 21 days           | No      |
| 3       | 50  | M   | White| 30  | Yes          | No           | N/A    | Enterococci| E. faecalis| Yes      | 21     | Ampicillin, Gentamicin       | 21 days           | No      |
| 4       | 40  | M   | Black| 22  | Yes          | No           | N/A    | Enterococci| E. faecalis| Yes      | 28     | Ampicillin, Gentamicin       | 21 days           | No      |
| 5       | 30  | F   | White| 20  | Yes          | No           | N/A    | Enterococci| E. faecalis| Yes      | 21     | Ampicillin, Gentamicin       | 21 days           | No      |

Conclusion. Enterococcus is a common cause of bloodstream infections in patients with prolonged courses on ECMO circuit. In this cohort of patients, Enterococcus did not cause any metastatic infections and was generally treated with 7-14 days of antibiotics without recurrence, despite many patients remaining on ECMO for extended periods after clearance. As ECMO use continues to expand, there will need to be more data on treatment outcomes of infections to establish best practices.

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221. Evaluation of Rates of Culture Positive Blood Stream Pathogens Prior to and During the SARS-CoV-2 Pandemic: A Multicenter Evaluation
Laura A. Pumiak, PhD; Karri A. Bauer, PharmD; Calvin Yu, MD; Pamela Moise, PharmD; Vikas Gupta, PharmD, BCPS; Merck & Co., Inc., Kenilworth, New Jersey; Merck & Co, Inc, Kenilworth, New Jersey; Becton, Dickinson and Company, Franklin Lakes, New Jersey; Merck Research Labs, Merck & Co, Inc., Kenilworth, New Jersey
Session: P-10. Bacteremia
Background. Bacterial co-infections or super-infections are well-characterized complications of viral infections, further increasing morbidity and mortality of global viral pandemics. We evaluated trends in the incidence of culture positive gram-negative (GN), gram-positive (GP), and fungal/yeast pathogens from a blood source in hospitalized patients at US hospitals before and during the SARS-CoV-2 pandemic.