Eravacycline versus best previously available therapy in adults with pneumonia due to drug-resistant *Acinetobacter baumannii*

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BACKGROUND

- Eravacycline is a fluorocycline antibiotic within the tetracycline class, it inhibits bacterial protein synthesis by reversibly binding to the 30S ribosomal subunit.

- Eravacycline has a broad spectrum of activity, including activity against *Acinetobacter baumannii*, including multi-drug resistant (MDR) strains.

- There are currently no published studies documenting patient outcomes with the use of eravacycline against MDR *Acinetobacter baumannii*.

- **Study Objective:** To assess the efficacy of eravacycline use, in comparison to best previously available therapy, in patients with drug resistant *Acinetobacter baumannii* pneumonia.

STUDY OBJECTIVES

- **Primary Outcome:** 30-day-in-hospital mortality

- **Secondary Outcomes:**
  - Clinical cure at day 14 from definitive antibiotic initiation, defined as resolution of signs/symptoms of index infection or discharge to lower level of care
  - Duration of hospital length of stay (LOS), ICU LOS
  - Readmission within 90-days with a drug resistant *Acinetobacter baumannii* respiratory culture
  - Microbiologic cure (if applicable), defined as respiratory culture negative for drug-resistant *Acinetobacter baumannii* during index hospitalization

METHODS

- Multi-center, retrospective, observational analysis

- Data will be extracted from the electronic medical record of patients admitted to a Valley Health System hospital (n=6) between January 2017 and December 2020

Inclusion Criteria

- Age ≥18 years old
- Pneumonia diagnosis – new radiologic finding on chest x-ray and receipt of systemic antibiotics pneumonia for ≥ 72 hours
- Respiratory culture positive for drug-resistant *Acinetobacter baumannii*

Exclusion Criteria

- Respiratory culture positive for drug-resistant *Acinetobacter baumannii* within the previous 30 days

- The following data will be collected:
  - Demographic variables: age, gender, ethnicity
  - Date of hospital (and, if applicable ICU) admission and discharge
  - Comorbidities: tracheostomy, CHF, COPD, diabetes, immunocompromised, and nursing home residence
  - Type of pneumonia (community-, hospital-, or ventilator-associated)
  - Index *Acinetobacter baumannii* culture type and susceptibility results including MICs
  - Empiric and definitive antibiotic agents
  - qSOFA score
  - CURB-65 score
  - Temperature, heart rate, and respiratory rate at the time of empiric antibiotic initiation and 14 days after definitive antibiotic initiation
  - WBCs and SCr at the time of empiric antibiotic initiation and 14 days after definitive antibiotic initiation

DATA ANALYSIS

- Descriptive statistics will be performed to describe any differences in patients treated with eravacycline and those treated with best previously available therapy.

- Inferential statistics will include chi-square tests for nominal data, Mann-Whitney U test for non-parametric data, and Student's t-test for parametric data.

- The research results will provide data and patient outcomes on a particularly drug resistant pathogen, namely *Acinetobacter baumannii*. This will be the first report of its kind.

REFERENCES

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2. Abdallah M, Olafisoye O, Cortes C, et al. Activity of eravacycline against enterobacteriaceae and acinetobacter baumannii, including multidrug-resistant isolates, from new york city. *Antimicrob Agents Chemother.* 2015; 59(3):1802-1805.

DISCLOSURE