Elizabethkingia anophelis: Experience of an Academic Health System in Southeastern Wisconsin

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Abstract

Background: Starting late 2015 an increased number of infections due to Elizabethkingia anophelis were identified in Southeastern Wisconsin with a high mortality rate. We aim to describe our experiences as the only academic health system in the Southeastern Wisconsin region.

Elizabethkingia anophelis is a Gram-negative, obligate aerobic bacteria previously classified under the family Flavobacteriaceae and Chryseobacteriaceae until 20051, has been implicated in cases of neonatal meningitis and sepsis, and as an emerging pathogen in the healthcare environment2, including nosocomial pneumonia3,4, E. anophelis, a novel species within the genus first identified in 20135, has been implicated in similar infections6. Starting late 2015, an increased number of Elizabethkingia anophelis infections were identified in Southeastern Wisconsin. This has become the largest outbreak of E. anophelis ever described, affecting two more states (Illinois, Michigan). Despite an exhaustive outbreak investigation by local and federal authorities, the source of the outbreak has not been determined. Our aim is to describe our experience during this outbreak at the Froedert and The Medical College of Wisconsin (F&MWC) hospital system, which is the only academic health system located in Southeastern Wisconsin, from November 2015 to April 2016.

Methods

All consecutive patients admitted to F&MWC Hospitals (1 urban, academic; 2 community based) with positive cultures for Elizabethkinga, Flavobacterium, and Chryseobacterium from November 2015 to April 2016 were included in our retrospective study. The microbiology records were prospectively searched, and the medical records of identified cases were summarized after chart review. Patient information collected for the study included demographic data (age, sex, county of residence), past medical history, clinical presentation, culture source, and mortality. Descriptive statistics were performed on Staata 14.10 (StataCorp LP, College Station, TX).

Results

Figure 1. Location of Froedert and The Medical College of Wisconsin (F&MWC) hospitals in Southeastern Wisconsin: Froedert Hospital Milwaukee, Community Memorial Hospital Milwaukee, Froedert Community Memorial Hospital Menomonee Falls, St. Joseph’s Hospital: West Bend

Figure 2. Epidemic curve: FH&M: Froedert Memorial Lutheran Hospital Iurban, academic hospital; CMH: Community Memorial Hospital (community hospital), yellow: St. Joseph Hospital (community hospital, green)

Figure 3. A. Inpatient mortality data. Two patients (20%) died during the hospital admission when E. anophelis was isolated. B. Age distribution by sex.

Figure 4. Frequency of Elizabethkinga cultures according to source. A small proportion of patients had isolation on different body fluids during his/her hospital admission.

Figure 5. Frequency of medical conditions prior to admission in patients with E. anophelis infection. Patients can have more than one condition.

Conclusions

From November 2015 to April 2016, ten patients were identified in our health system with cultures positive for E. anophelis. Two additional probable cases came from transferring facilities. All patients had positive blood cultures at the time of hospital admission. E. anophelis was identified in both sterile and non-stereile fluids. All patients had at least one major comorbidity, including but not limited to cancer, COPD, diabetes, ESRD requiring hemodialysis, and alcohol abuse.

Mortality rate was high (20% on patients admitted to our hospital system; one patient died 4.5 months after initial isolation).

References