

Gram-Negative Bacteremias: Frequency of an IOTA (Intravenous to Oral Transition of Antimicrobial Therapy)

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Purpose: Several retrospective cohort studies suggest that conversion to oral therapy for gram-negative bacteremia has similar outcomes to IV regimens, and several experimental and observational studies support a “step-down” from initial IV therapy to oral therapy, particularly from a urinary source. The common pathogens were *Escherichia coli* and *Klebsiella pneumoniae*. The benefits of transitioning patients from IV to oral antibiotic therapy are well-recognized. The purpose of this study was to collect information about patients who have been hospitalized with a gram-negative bacteremia (from a urinary source) and to discover the frequency at which these patients were transitioned to oral antibiotics.

Methods: This retrospective cohort study was performed at HSHS St. John’s Hospital in Springfield, IL from January 1st, 2019 to May 31st, 2022 . The primary objective of this study was to assess the percentage of patients with a gram negative bacteremia (from a urinary source) who were 1. able to be and 2. subsequently switched from IV to oral antibiotics. The secondary objective was to create a protocol for pharmacists to assess patient eligibility to transition from IV to oral antibiotic therapy in the presence of a gram-negative bacteremia from a urinary source. Patients were included in the study if they were 18 years or older, had a positive blood culture test for *Escherichia coli* or *Klebsiella pneumoniae* (that were susceptible to oral antibiotics), had a monomicrobial infection from a urinary source, had signs of clinical improvement, were able to take oral medication, received at least 24 hours of IV therapy.

Results: Twenty eight patients out of 100 (28%) with a gram negative bacteremia met the above eligibility criteria to be switched from intravenous to oral antibiotics. Seventy one percent of patients (20/28) were switched from IV to oral antibiotics for the completion of their treatment course. Twenty nine percent (8/22) who were eligible for oral therapy were not switched. It was not clear why patients were not switched, due to the retrospective nature of the study.

Conclusion: Most patients who met the inclusion criteria derived by previous studies were switched from IV to oral antibiotics in the presence of monomicrobial *E. coli* or *Klebsiella pneumoniae* bacteremia from a urinary source with clinical improvement. According to our results, there appears to be an opportunity to transition more patients from IV to oral with a gram negative bacteremia.