SOUTHERN ILLINOIS UNIVERSITY EDWARDSVILLE

Impact of an Infectious Disease Consultation on Duration of Antibiotic Therapy in Uncomplicated Gram-Negative Bacteremia

Samantha Beck, PharmD Candidate; Samara Turasky, PharmD Candidate;
Elizabeth Cady, PharmD; Erica Little, PharmD BCIDP

SCHOOL OF PHARMACY

BACKGROUND

- Previously published recommendations state that 7 to 14 days of antibiotic therapy was ideal for the treatment of GNB. (1)
- Longer durations of antibiotic therapy could increase the risks of:
  - Drug-related adverse effects
  - Longer length of hospital stay
  - Increased costs to the hospital and the patient
  - **Antibiotic resistance**
- New data now suggests that the use of **7-day** antibiotic therapy is **non-inferior** to 14-day antibiotic therapy for treatment of uncomplicated GNB, so why not avoid the risks?(2,3)

PURPOSE

- This study's purpose was to compare the duration of antibiotic therapy used for the treatment of uncomplicated gram-negative bacteremia between those who received an infectious disease consult and those who did not.

METHODS

Study Design
- Single-center study retrospective chart review
- Timeframe: January 1st 2023 to May 1st 2024

IRB Approval
- Institutional Review Board at Southern Illinois University Edwardsville in Edwardsville, Illinois

Inclusion Criteria
- Ages 18 to 99 years old
- Diagnosis of controlled, monomicrobial gram-negative bacteremia with one of the following bacteria:
  - *Escherichia coli, Klebsiella spp.,* or *Pseudomonas aeruginosa*
- Bacteremia secondary from one of the following sources:
  - Urinary tract, Abdominal cavity, Skin and soft tissue, or Respiratory tract

Exclusion Criteria
- Uncontrolled or polymicrobial infections
- Bacteremia not caused by one of the pathogens listed above
- Alternative source of bacteremia not listed above

METHODS (cont.)

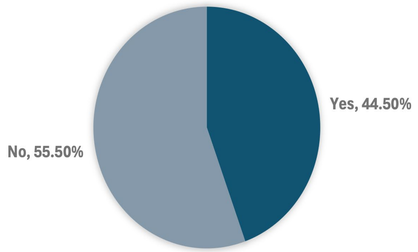
Treatment Groups
- Infectious disease consultation vs No infectious disease consultation

OUTCOMES

PRIMARY	SECONDARY
• **Duration of antibiotic therapy** per the infectious disease consult team recommendations vs the duration by primary team without ID consultation.	• **Length of hospital stay** between the two treatment groups

RESULTS

PATIENTS ELIGIBLE FOR 7-DAY TREATMENT OF GNB



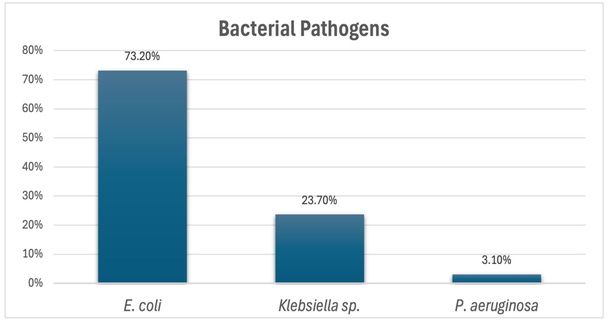
Treatment Groups

	No ID Consult N = 33 (44%)	ID Consult N = 64 (66%)
Patient Characteristics		
Age (years) - 18 – 89 (mean) - 90 – 99 (n)	 57.7 1	 61.2 0
Sex: n (%) - Female - Male	 21 (63.6%) 12 (36.4%)	 32 (50.0%) 32 (50.0%)
IV to PO		
% on PO antibiotics upon discharge: n (%)	28 (84.8%)	13 (20.3%)
# days on PO antibiotics before IV → PO (mean)	3.9	0.7

Patient Enrollment
- N = 218 patient charts reviewed

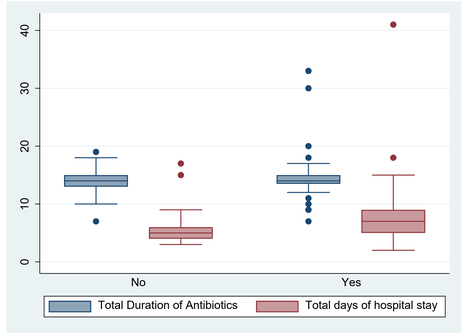
Patients Included	Patients Excluded
N = 97	N = 121

- Most common causative pathogen: *Escherichia coli (*73.2%)
- Most common source of infection: Urinary tract (82.5%)



Duration of Antibiotic Therapy (days)			
Primary Outcome	**No ID Consult**	**ID Consult**	**P-Value**
Duration of Therapy *Median (IQR)*	14.0 (13.0, 15.0)	14.0 (13.5, 15.0)	**0.379**

RESULTS (cont.)



Key
No: No ID Consult
Yes: ID Consult

Length of Hospital Stay (days)			
Secondary Outcome	**No ID Consult**	**ID Consult**	**P-Value**
Duration of Hospital Stay *Median (IQR)*	5.0 (4.0, 6.0)	7.0 (5.0, 9.0)	**0.007**

CONCLUSIONS

- Only 97 of reviewed patients met the inclusion criteria for this study and eligibility for a short-course of antibiotic therapy for the management of uncomplicated gram-negative bacteremia based on the previous studies' inclusion criteria.
- While over half of the patients received an infectious disease consultation, the primary outcome, duration of antibiotic therapy, presented with **no significant difference** between the two treatment arms.
- Although, those who received an infectious disease consultation had a **significantly longer** length of hospital stay.
- Based on the results of our study, more education about when to recommend a shorter course of antibiotics in the management of uncomplicated gram-negative bacteremia is needed.

REFERENCES

1 Mermel, L. A., Allon, M., Bouza, E., et al. (2009). Clinical practice guidelines for the diagnosis and management of intravascular catheter-related infection: 2009 update by the Infectious Diseases Society of America. Clinical Infectious Diseases, 49(1), 1–45. https://doi.org/10.1086/599376
2 Yahav, D., Franceschini, E., Koppel, F., et al. (2019). Seven versus 14 days of antibiotic therapy for uncomplicated gram-negative bacteremia: A noninferiority randomized controlled trial. Clinical Infectious Diseases, 69(7), 1091–1098. https://doi.org/10.1093/cid/ciy1054
3 Sousa, A., Pérez-Rodríguez, M. T., Suárez, M., et al. (2019). Short- versus long-course therapy in gram-negative bacilli bloodstream infections. European Journal of Clinical Microbiology & Infectious Diseases, 38(5), 851–857. https://doi.org/10.1007/s10096-019-03467-5