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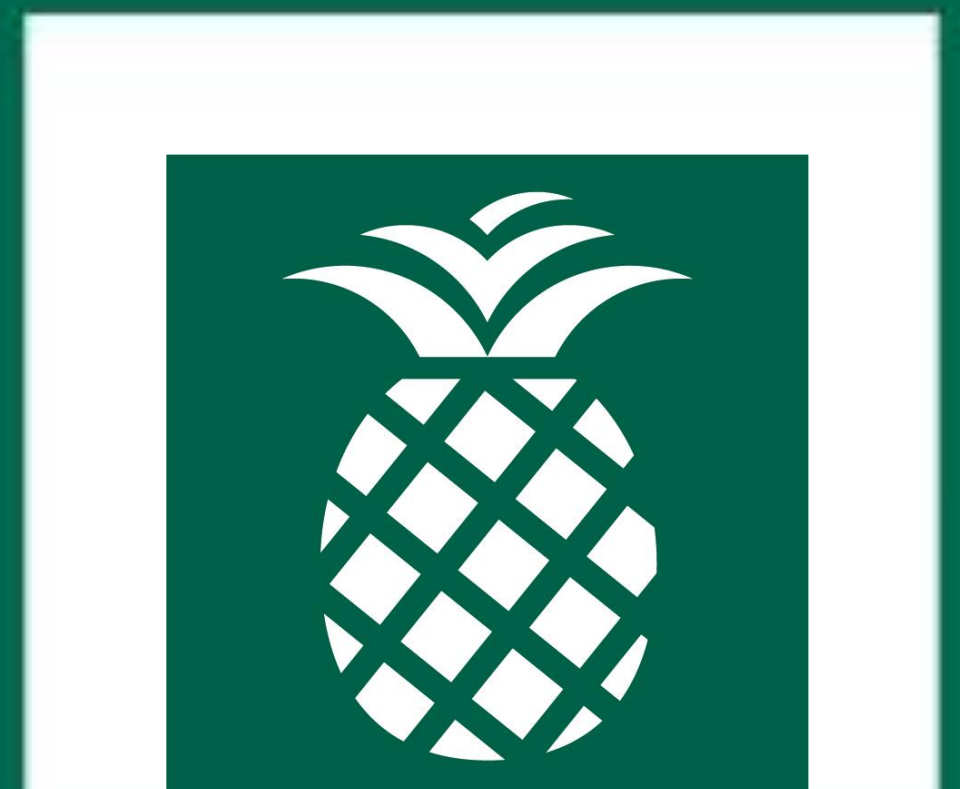
Jose Ojeda, Marianela Robainas, Claudia Chang, Robert Kraljevich, Yarelys Garcia, and Lissette Bauza

# Effects of Intravenous Antibiotic Therapy on Length of Stay in Patients Admitted with Heart Failure Exacerbation



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## BACKGROUND

- Approximately 5.7 million adults in the United States live with heart failure and about 50% succumb to the disease within 5 years<sup>1</sup>
- It is one of the most common causes of hospitalizations due to risk of exacerbation<sup>2</sup>
- There are similarities in the clinical presentation of acute decompensated heart failure (ADHF) and community-acquired pneumonia (CAP)<sup>3</sup>
- Treatment for both conditions is often initiated, however, the additional fluid volume and sodium provided by the intravenous (IV) antibiotics can be detrimental to these patients<sup>4</sup>
- The purpose of this study is to evaluate the impact of inappropriate IV antibiotic therapy on patients admitted for ADHF

## OBJECTIVES

### Primary Objective

- Compare the length of stay in patients who received IV antibiotic therapy versus patients who did not

### Secondary Objectives

- Determine the total daily dose of diuretics received
- Compare 30-day readmission rates between the two groups
- Determine the total days of antibiotic therapy and total volume of IV fluids received from IV antibiotics

## METHODS

- A retrospective review of 113 patients admitted from July 1<sup>st</sup>, 2017 to August 31<sup>st</sup>, 2019

- Patients were classified into 2 groups:
  - Group 1: patients with ADHF who received IV antibiotics
  - Group 2: patients with ADHF who did not receive IV antibiotics

- Inclusion criteria:
  - Age ≥ 18 years
  - Confirmed diagnosis of ADHF

- Exclusion criteria:
  - Age < 18 years, pregnancy, active infection, procalcitonin > 0.25 ng/mL, hospital-acquired infection, antibiotic use prior to admission, or radiographic evidence of pneumonia

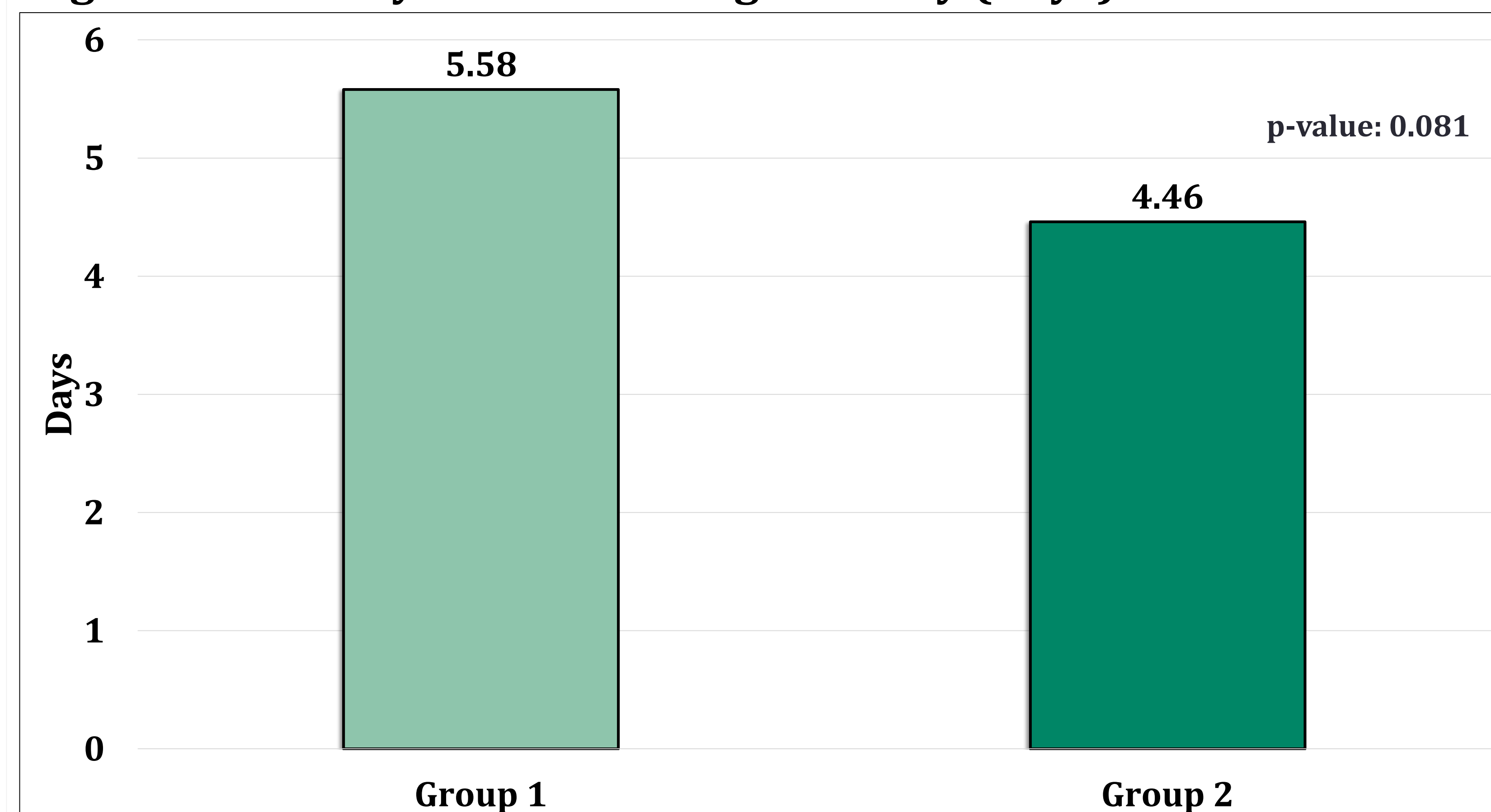
- SPSS software was used for statistical analysis
- P-value < 0.05 was considered statistically significant

## RESULTS

**Table 1: Demographics**

Baseline Characteristic	Group 1 (n=19)	Group 2 (n= 56)	P-value
<b>Age (Mean, SD)</b>	<b>80.3 (13.2)</b>	<b>74.7 (16.6)</b>	<b>0.187</b>
<b>Gender (n, %)</b>			
Female	8 (42.1)	19 (33.9)	0.521
Male	11 (57.9)	37 (66.1)	
<b>Race (n, %)</b>			
Black	2 (10.5)	8 (14.3)	0.828
Hispanic	13 (68.4)	34 (60.7)	
White	4 (21.1)	14 (25.0)	
<b>Marital Status (n, %)</b>			
Divorced/Separated	3 (15.8)	7 (12.5)	0.677
Married	6 (31.6)	23 (41.1)	
Single	4 (21.0)	15 (26.8)	
Widowed	6 (31.6)	11 (19.6)	

**Figure 1: Primary Outcome- Length of Stay (Days)**



**Table 2: Secondary Outcomes**

	Group 1 (n=19)	Group 2 (n=56)	P-value
<b>Readmission Rate (n, %)</b>	<b>8 (42.1)</b>	<b>7 (12.5)</b>	<b>0.005</b>
<b>Furosemide Equivalent Dose in mg (Mean, SD)</b>	<b>220 (139.4)</b>	<b>214.7 (147.3)</b>	<b>0.732</b>

### Additional Secondary Outcomes for Group 1:

- Days of antibiotic therapy (median, IQR): 2 (2)
- Volume in mL of IV fluid from antibiotics (mean, SD): 592 (530)

## DISCUSSION

- There was no statistically significant difference in demographics between groups
- Group 1 patients had a greater length of stay than group 2 patients
- There was a statistically significant difference in 30-day readmission rates between groups
- The average diuretic dose was similar between groups
- Patients in group 1 received additional fluids from antibiotic therapy
- Sodium content from antibiotic therapy fluid was negligible
- Limitations:
  - Small sample size
  - Retrospective chart review
  - Patients may have been readmitted to another hospital
  - Procalcitonin level was not drawn for all patients
  - Specialty consultation may have differed between groups

## CONCLUSIONS

- Amount of fluids received from antibiotics did not have an effect on diuretic therapy
- Unnecessary antibiotic therapy may lead to increased hospital length of stay and higher readmission rates
- Due to the small sample size of this study, future studies should be conducted to further evaluate the effect of IV antibiotic therapy in patients experiencing heart failure exacerbations

## DISCLOSURE

- All authors of this presentation have nothing to disclose concerning possible financial or personal relationships with commercial entities that may have direct or indirect interest in the subject matter of this presentation.

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