Impact of the Ampicillin/Sulbactam Shortage on Clinical Outcomes for Adult Inpatients with Aspiration Pneumonia

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BACKGROUND

- Ampicillin/sulbactam is a recommended first-line agent for the treatment of aspiration pneumonia
- Beginning March 2019, a nation-wide shortage of ampicillin/sulbactam was declared
- Alternative therapies such as ceftriaxone in combination with metronidazole have been utilized more frequently
- The objective of this study was to examine clinical outcomes in adult inpatients treated with either ampicillin/sulbactam or ceftriaxone/metronidazole for aspiration pneumonia

METHODS

- An electronic health record report identified patients ≥ 18 years of age that received ampicillin/sulbactam (pre-March 2019) or ceftriaxone/metronidazole (post-March 2019) with the indication of aspiration pneumonia
- The primary objective was to describe 30-day all-cause readmission rates for patients that received ampicillin/sulbactam compared to ceftriaxone/metronidazole
- The secondary objectives included hospital length of stay (LOS), 30-day all-cause mortality, *C. difficile* infection (CDI) within 3 months, and total antibiotic costs
- Comparisons of variables were performed using Chi-square analysis for independent categorical variables, and Fisher's exact test for independent nominal variables

RESULTS

- 86 patients (50 in the ampicillin/sulbactam group and 36 in the ceftriaxone/metronidazole group) were included
- Baseline demographics were similar between groups
- There were no statistical differences in the rate of 30-day all-cause readmission (30% vs 19%, $p = 0.322$)
- Total treatment days (5 vs 7 days, $p = 0.022$) and total treatment cost in dollars ($130 vs $235, $p < 0.001$) were significantly lower in the ampicillin/sulbactam group
- Rate of 30-day all-cause mortality (30% vs 19%, $p = 0.038$) was significantly reduced in the ceftriaxone/metronidazole group

DISCUSSION

- No significant difference was observed in the rate of 30-day all-cause readmission in patients receiving ampicillin/sulbactam compared to ceftriaxone/metronidazole for treatment of aspiration pneumonia
- Further studies are needed to assess the differences seen in the rate of 30-day all-cause mortality

In Adult Inpatients with Aspiration Pneumonia, No Difference was Observed in Readmission Rates Between Patients Receiving Ampicillin/Sulbactam Compared to Ceftriaxone/Metronidazole

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ID Week 2020, October 21st – 22nd
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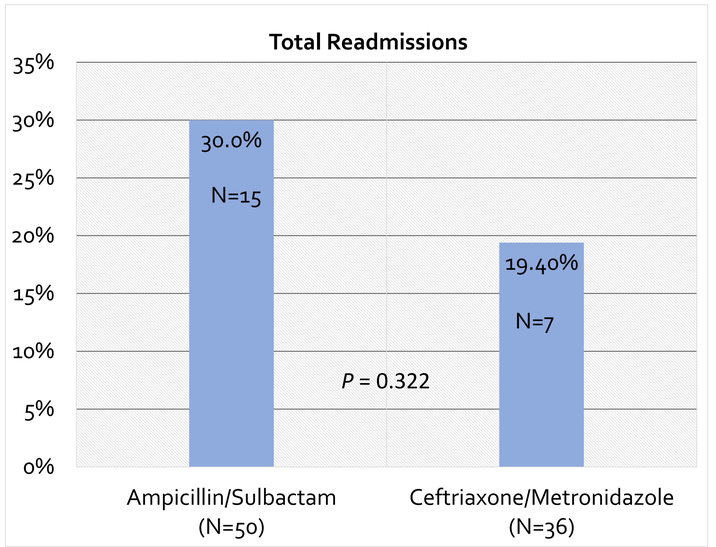
Baseline Demographics	Ampicillin/ Sulbactam (N=50)	Ceftriaxone/ Metronidazole (N=36)	*p* value
Age in years, mean (SD)	73.6 (17.6)	75.8 (14.9)	0.719
Male gender, n (%)	31 (62.0)	22 (61.1)	>0.999
Weight in kg, mean (SD)	77.8 (24.0)	73.8 (23.3)	0.459
CCI**, mean (SD)	3.8 (1.9)	4.0 (1.7)	0.703
CrCl < 30 mL/min, n (%)	10 (20.0)	8 (22.2)	0.796
Procalcitonin available, n (%)	26 (52.0)	23 (63.9)	0.377
Procalcitonin, mean (SD)	1.8 (5.2)	1.0 (2.5)	0.904

**CCI = Charlson Comorbidity Index Score



Secondary Outcomes	Ampicillin/ Sulbactam (N=50)	Ceftriaxone/ Metronidazole (N=36)	*p* value
LOS in days, mean (SD)	7.7 (7.4)	9.9 (10.1)	0.070
90-Day CDI, n (%)	2 (4.0)	0 (0.0)	0.508
Total Treatment Days, mean (SD)	5.4 (2.2)	7.1 (2.6)	0.022
Total Treatment Cost in Dollars, mean (SD)	129.5 (70.4)	234.6 (85.9)	<0.001
30-Day Mortality, n (%)	6 (12.0)	0 (0.0)	0.038