Poster # 1381

Impact of Total Body Weight on Efficacy of Ceftriaxone in Obese Patients

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BACKGROUND

- Obese patients are at an increased risk of infection and poor therapeutic outcomes compared to non-obese patients
- Pharmacokinetic parameters of β-lactam antibiotics are impacted by excessive adipose tissue and increased glomerular filtration rates
- Minimal data exist that assesses the relationship between ceftriaxone efficacy and obesity
- Purpose: To evaluate the clinical outcomes of ceftriaxone when used as definitive monotherapy for obese patients versus non-obese patients

METHODS

Study Design

- Single center, retrospective cohort; approved by the University of Mississippi Medical Center Institutional Review Board

Outcome Measures and Definitions

- Composite Primary – Clinical Treatment Failure:
  - Presence of any of the following:
    - Change in definitive therapy between 72 hours and 14 days post-initiation due to clinical worsening
    - Persistent leukocytosis (WBC > $10x10^9$/L) between 72 hours and 14 days after treatment initiation
    - Fever (single temperature >100.9 F) between 72 hours and 14 days post-treatment initiation
    - Re-infection within 30 days leading to readmission to the hospital
- Secondary:
  - 30-day inpatient all-cause mortality
  - 30-day hospital readmission

Subjects

- The study population included patients admitted to the University of Mississippi Medical Center from July 2015 to July 2017

Inclusion Criteria	Exclusion Criteria
• Age ≥ 18 years old • Treated with ceftriaxone monotherapy for > 72 hours	• Source control not achieved within 72 hours • Polymicrobial infections requiring > 1 antibiotic for definitive therapy

Analysis

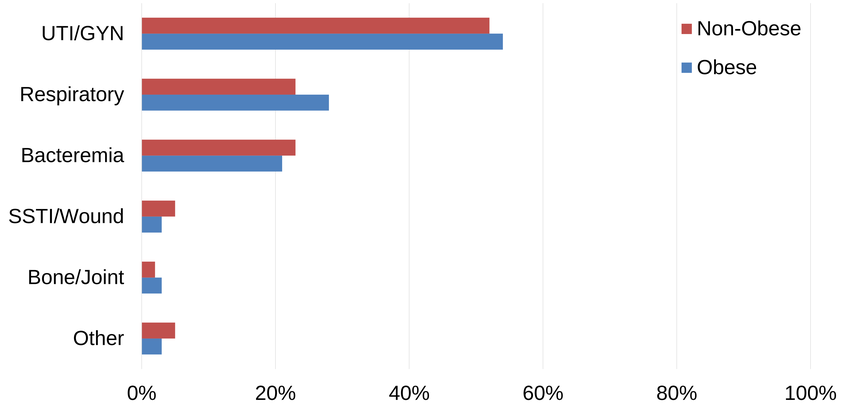
Results were reported as proportions or medians [interquartile range (IQR)]. Comparisons between the obese group and non-obese group were analyzed using Student's t-test or Mann-Whitney U test for continuous variables and X^2 test or Fisher's Exact test for categorical variables. A p-value of < 0.05 was considered statistically significant**.** Statistical analysis was performed using SPSS software version 24.0 (IBM).

RESULTS

PATIENT DEMOGRAPHICS

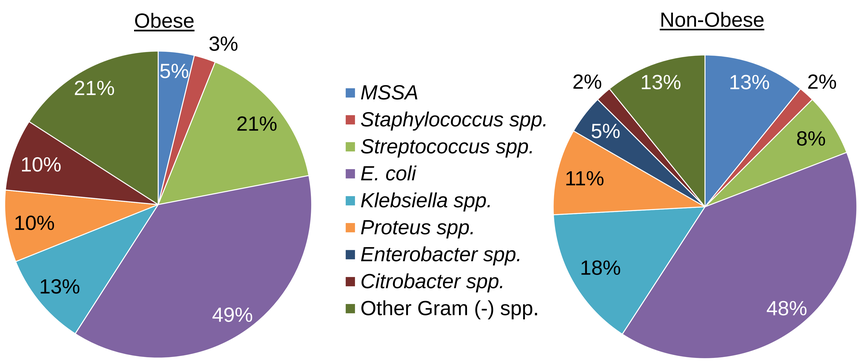
Variable N(%) or Median [IQR]	Total (n=101)	Obese (n=39)	Non-Obese (n=62)	P-value
Age, years	62 [51-70]	62 [53-70]	62 [51-75]	0.761
Sex, male	56 (55.4)	24 (61.5)	32 (51.6)	0.329
Weight, kg	**80 [64-98]**	**103 [95-120]**	**66 [59-77]**	**<0.001**
Charlson Score	2 [1-4]	3 [1-5]	2 [1-4]	0.293

INFECTION SOURCE



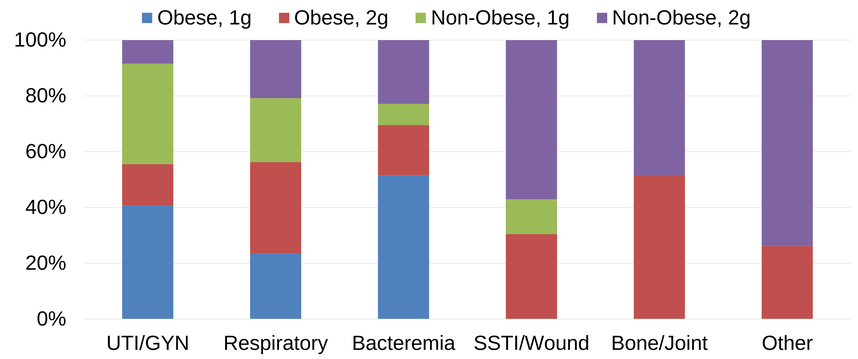
No statistical significance between groups

MICROBIOLOGICAL RESULTS



No statistical significance between groups

CEFTRIAXONE DOSING



Obese patients more likely to receive 1g for UTI/GYN (**p=0.014**); non-obese patients more likely to receive 1g for UTI/GYN (**p=0.010**), 2g for bacteremia (**p=0.028**), and 1g for other infection sources (**p=0.020**).

COMPOSITE PRIMARY OUTCOME

Variable N (%)	Total (n=101)	Obese (n=39)	Non-Obese (n=62)	P-value
Overall Clinical Failure	**49 (49)**	**24 (62)**	**25 (40)**	**0.038**
Change in Therapy	**26 (26)**	**14 (36)**	**12 (20)**	**0.064**
Persistent Leukocytosis	**39 (39)**	**21 (54)**	**18 (29)**	**0.013**
Fever	12 (12)	6 (15)	6 (10)	0.529
30-day reinfection	11 (11)	3 (8)	8 (13)	0.523

SECONDARY OUTCOMES

Variable N (%)	Total (n=101)	Obese (n=39)	Non-Obese (n=62)	P-value
30-day readmission	18 (18)	6 (15)	12 (19)	0.791
30-day inpatient all-cause mortality	8 (8)	5 (13)	3 (5)	0.255

CONCLUSION

- Obese patients treated with ceftriaxone had higher rates of treatment failure compared with non-obese patients
- While not statistically significant, there was numerically higher inpatient mortality in obese patients compared with non-obese patients
- Further examination is needed to assess impact of ceftriaxone dose and organism MIC on clinical failure in obese patients

Disclosures: The authors have nothing to disclose.

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