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Vancomycin Auc Monitoring In Individuals With Cystic Fibrosis

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Background

- Methicillin resistant *Staphylococcus aureus* (MRSA) infects 20-25% of people with CF (pwCF) and is associated with increased morbidity
- Treatment of pulmonary exacerbations (PE) often requires hospitalization including increased respiratory treatments and IV antimicrobials
- IV vancomycin (IV VANC), which is commonly used for MRSA infections, requires serum concentration monitoring to ensure efficacy and minimize toxicity
- Previous monitoring guidelines suggested trough concentrations to predict efficacy and toxicity; recent guidelines recommend using area under the curve (AUC) modeling
- Children's Mercy Kansas City (CMKC) changed IV VANC monitoring from trough to AUC measurement on 01 May 2020

Methods

- A retrospective chart review collected trough monitoring data for all pwCF that received IV VANC at CMKC from 01 January 2019 to 31 December 2019
- Data for all pwCF treated with IV VANC after the AUC monitoring change was prospectively collected from 01 May 2020 to 28 February 2021
- Data collection included: patient demographics, details of IV VANC therapy (dose, frequency, total exposure, nephrotoxicity), and monitoring data (serum concentrations and AUC modeling)
- Descriptive statistics were used to assess pre- and postimplementation data. Chi-squared and t-test were used to determine differences between groups

LOVE WILL.

Vancomycin AUC Monitoring in Individuals with Cystic Fibrosis

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Children's Mercy Kansas City

Trough Concentration 01.01.2019 to 12. 25 individuals received 42 co

Demographic Characteristic	n = 25
Female Sex	14 (56)
Median Age (years)	14.02 (4.25-20.25)

Vancomycin Therapy Characteri

Mean Treatment Duration (days)

Mean Daily IV VANC Exposure (mg/

Number of Treatment Courses Achi Therapeutic Target (n, %) Mean Time to Therapeutic Concent

Mean Number of Phlebotomies

duration of treatment, or number of phlebotomies

• More treatment courses achieved therapeutic targets with AUC monitoring compared to trough monitoring • AUC monitoring resulted in a significant decrease in mean time to therapeutic concentration by 57.39 hours

Results						
n Monitoring 2.31.2019 courses of IV VANC			AUC Concentration Monitoring 05.01.2020 to 02.28.2021 15 individuals received 8 courses of IV VANC			
= 25			Demographic Characteristic		n = 15	
(56)		Fema	Female Sex		5 (63)	
02 (4.25-20.25)		Medi	Median Age (years)		17.96 (7.60-20.10)	
Details of Vancomycin Therapy						
ristic	Trough I	Monitoring	AUC Monitor	ring		
	10.46 <u>+</u> 4	.88	9.62 <u>+</u> 2.99		p = 0.53 95% Cl = -1.85 to 3.55	
g/kg/day)	71.34 <u>+</u> 1	0.63	75.25 <u>+</u> 10.72		p = 0.23 95% Cl = -10.34 to 2.50	
nieving	18 (43)		15 (100)		p ≤ 0.0001	
ntration (hours)	86.33 <u>+</u> 7	5.80	28.94 <u>+</u> 27.32		p = 0.0092 95% CI = 15.28 to 99.50	
	3.71 <u>+</u> 1.6	51	3.73 <u>+</u> 1.62		p = 0.97 95% Cl = -0.99 to 0.95	

Conclusions

• Changing to AUC monitoring for IV VANC among pwCF was not associated with a significant change in daily IV VANC exposure,



