Impact of Antimicrobial Stewardship on Tracheitis Treatment in Children

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INTRODUCTION

- Antimicrobial Stewardship Programs (ASP) are effective in optimizing antibiotics while decreasing unnecessary use
- There is a lack of data on the impact of ASP in high risk children
- Antibiotics are commonly overused in the treatment of tracheitis in critically ill patients
- ASP performs reviews and provides recommendations to optimize or stop antibiotic therapy in many tracheitis cases
- **Our question**: What is the clinical impact Children's Mercy's (CM) ASP on tracheitis treatment?
- **Hypothesis**: Those who follow an ASP recommendation are no more likely to experience a tracheitis treatment failure

METHODS

- Data were extracted from CM ASP repository high risk patients (NICU, PICU, and Hem/Onc) treated for tracheitis between 1/1/2009-1/31/2011
- Chart review performed to confirm tracheitis diagnosis and treatment failure (TF)
- TF defined as resuming antibiotics for tracheitis within 14 days of completing original tracheitis treatment
- Descriptive statistics were applied to the patient population data
- Fischer Chi-square test applied to compare groups who did or did not fail treatment

RESULTS

Overall ASP Reviews:

- 116 tracheitis cases reviewed
- 52 cases received an ASP recommendations: 25 optimize therapy; 27 stop therapy

Table 1. Demographics of high risk children with tracheitis

		Patients (N=116)	*Percent*
Sex			
	Male	56	54
	Female	48	46
Age (Median)	Years	12.5	
Race			
	White	64	62
	Black	17	16
	Hispanic	12	12
	Other/Unknown	11	11
Med Service			
	ICN:	71	61
	PICU	32	28
	Med/surg	13	11

Table 2. Comparison of children who did and did not experience tracheitis treatment failure

		Treatment Failure		
		No [N= 99]	*Yes [N=17]*	*Chi-square*
Received ASP Recommendation				*0.44*
	Yes	46 (89%)	6 (12%)	
	No	53 (83%)	11 (17%)	
Agree with recommendation (n=51)				*0.999*
	Yes	30 (88%)	4 (12%)	
	No	15 (88%)	2 (12%)	
Agree with recommendation to stop treatment (n=27)				*0.999*
	Yes	11 (92%)	1 (8%)	
	No	13 (87%)	2 (13%)	
Duration of treatment		6.0 days	6.3 days	*0.101*

SUMMARY

- Neither the duration of antibiotic treatment nor agreeing with an ASP recommendation were associated with tracheitis failure
- High risk patients are more likely to receive multiple courses of antibiotics and ASP is important in this population
- Strengths of this study include a robust ASP database and a well-established ASP team
- Weakness include a complicated patient population requiring extensive chart review and limited sample size

CONCLUSION

- Agreement with ASP did not result in more treatment failures. Further investigation is needed to evaluate the impact of ASP on antibiotic optimization and duration in this high risk population.

Credits/Disclosures/References

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