



Efficacy of Antibiotic Prophylaxis with Vancomycin in Cardiothoracic Surgery (#881)

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Background

- Cardiothoracic (CT) surgeries tend to be long procedures requiring cardiopulmonary bypass (CPB), blood transfusions, and placement of medical devices which can increase the risk of surgical site infections (SSI).
- SSI are the most common and costly of all hospital-acquired infections.
- A high percentage of *Staphylococcus aureus* at Detroit Medical Center (DMC) is methicillin-resistant.
- Current DMC protocol recommends the addition of vancomycin for any procedures that involve placement of medical devices, including many cardiothoracic procedures.

Objective

- To compare incidence and type of SSI with vancomycin and cefazolin vs. cefazolin monotherapy for CT surgery prophylaxis.

Methods

- Primary outcome: incidence and type of SSI within 90 days of surgery
- Secondary outcomes: pathogens associated with SSI, length of hospital stay, duration of antibiotic treatment, and number of subsequent procedures

Inclusion Criteria	Exclusion Criteria
<ul style="list-style-type: none"> • Patients who underwent CT surgery at Sinai-Grace Hospital or Harper University Hospital between January 2008 and August 2017 • Received cefazolin or cefazolin and vancomycin for surgical prophylaxis 	<ul style="list-style-type: none"> • Less than 18 years of age • Baseline estimated creatinine clearance <15 mL/min or on dialysis • Received antibiotics for another indication within 7 days before or after the procedure • Active endocarditis • Trauma or emergency surgery • Heart transplant or pericardiectomy • Patient expiration within 24 hours of procedure

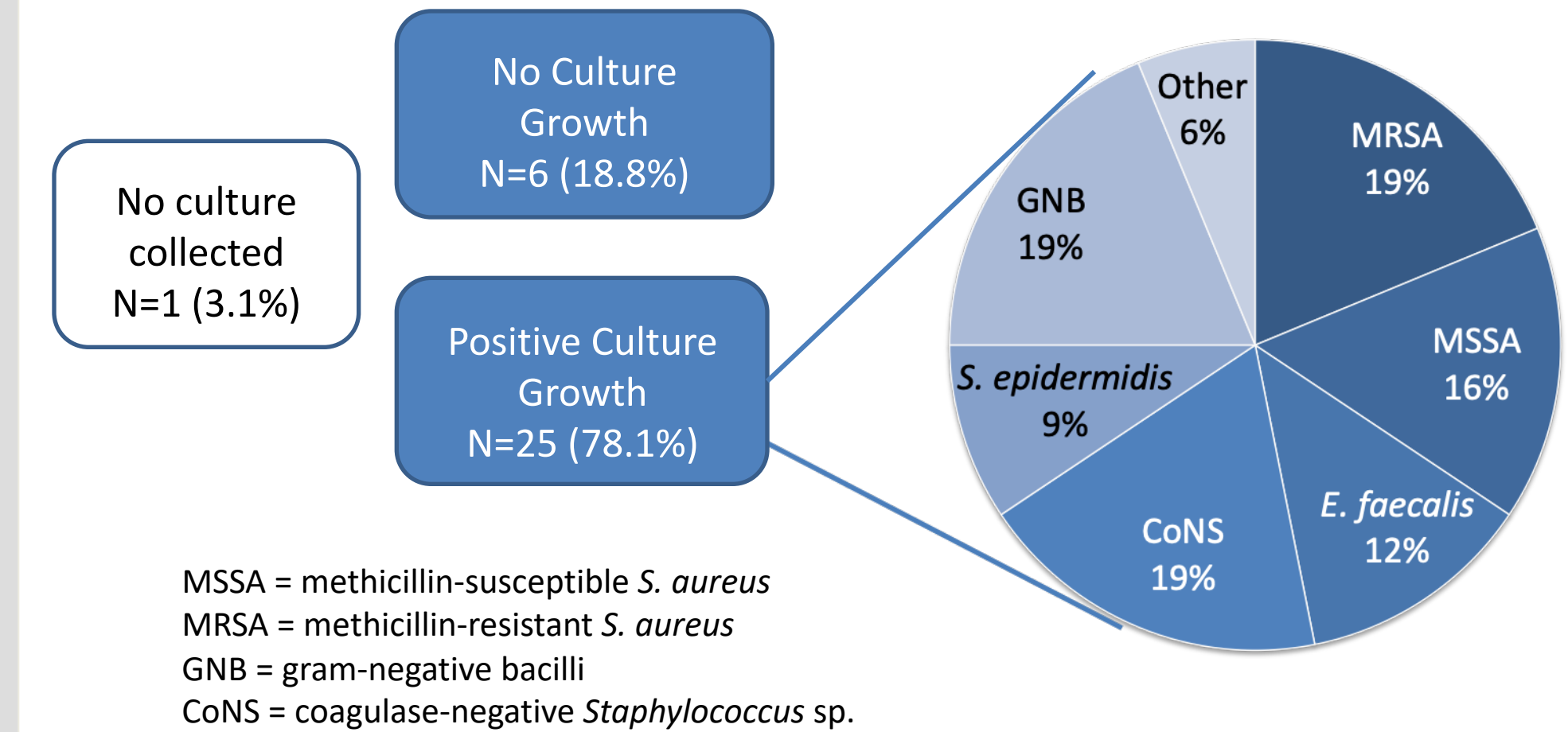
Baseline Characteristics

	Cefazolin (n=532)	Cefazolin + Vancomycin (n=296)	Significance
Age, years (mean ± SD)	61 ± 11	61 ± 10	p=0.40
Male (n, %)	336 (63%)	207 (70%)	p=0.05
African American (n, %)	379 (71%)	187 (63%)	p=0.02
BMI, kg/m ² (mean ± SD)	31 ± 27	30 ± 13	p=0.38
Smoker (n, %)	263 (49%)	170 (57%)	p=0.03
Diabetes (n, %)	201 (38%)	130 (44%)	p=0.08
Dyslipidemia (n, %)	421 (79%)	233 (79%)	p=0.89
Hypertension (n, %)	484 (91%)	277 (94%)	p=0.19
Procedure Type			
Coronary artery bypass graft (n, %)	370 (70%)	192 (65%)	p=0.17
Valve (n, %)	85 (16%)	75 (25%)	p=0.001
Both (n, %)	45 (9%)	15 (5%)	p=0.07
Urgent procedure (n, %)	355 (67%)	156 (53%)	p<0.001
Time on CPB, min (mean ± SD)	126 ± 47	140 ± 47	p=0.002
Time in OR, min (mean ± SD)	384 ± 79	417 ± 86	p<0.001

Primary Outcome

	Cefazolin (n=532)	Cefazolin + Vancomycin (n=296)	Significance
Surgical Site Infection (n, %)	25 (4.7%)	7 (2.4%)	p=0.095
Superficial (n, %)	7 (28%)	2 (29%)	-
Deep (n, %)	7 (28%)	2 (29%)	-
Organ/Space (n, %)	11 (44%)	3 (43%)	-

Secondary Outcomes



Consequences of SSI

Mean duration of hospital stay, days (range)	10 ± 5 (3-25)
Mean duration of antibiotic treatment, days (range)	29 ± 14 (3-55)
Number of incision and drainage operations	15
Number of SSI requiring wound vacuum-assisted closure	9

Limitations

- Retrospective, descriptive study
- Long study period
- Unmatched baseline characteristics
- Limited to patients readmitted to DMC

Conclusion

There was a reduction in the incidence of SSI when vancomycin was added to cefazolin for CT surgery prophylaxis, however the reduction was not statistically significant.

Disclosure: Authors of this presentation have nothing to disclose concerning financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation.