

The availability of SSI data for ASCs would help public health authorities identify and assist facilities in assessment and prevention activities. Patient safety would thus likely benefit from enhancing surveillance of ASCs through voluntary or

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Evaluation of Risk Factors for Fungal Infections Post Cardiac Surgery: a Single Center Study

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Background: Invasive candida infections (ICI) are rare but a serious complication following cardiac surgery. The incidence of ICI ranges between 1-2%. There are a few studies describing the risk factors associated with candidal infections in this population. This study aims to evaluate the risk factors of ICI post-cardiac surgery. We hypothesize that judicious antimicrobial use and comprehensive wound care play a key role in prevention of ICI. **Methods:** We conducted a retrospective case control study of adult patients undergoing cardiac surgeries at an academic medical center from January 2023 to June 2024. Patients who underwent heart transplantation were excluded. For each case, four controls who underwent similar surgical procedures, two before and two after the cases, were selected. ICI was defined as the detection of candida species by culture or histological examination from a normally sterile site like candidemia or mediastinitis. Cardiac surgery included valve replacement, coronary artery bypass graft and durable cardiac device insertion. Data were analyzed for demographics, type of surgery, temporary mechanical circulatory support (MCS) use and timing, chest tube duration, tracheostomy, dialysis and Candida sp. colonization, defined as the isolation of candida sp. in the

Table 1: Univariate analysis of all musculoskeletal surgeries separated by nasal iodine compliance.

	All Patients (n=14,505)	Nasal Iodine Compliant (n=12,281)	Nasal Iodine Noncompliant (n=2224)	p-value
Median Age (IQR)	68 (60-75)	68 (60-75)	67 (55-76)	0.02
Female Gender	8243 (56.8%)	7021 (57.2%)	1222 (54.9%)	0.05
Race/Ethnicity				<0.001
Non-Hispanic White	11473 (79%)	9794 (79.7%)	1679 (75.5%)	
Non-Hispanic Black	2457 (16.9%)	2058 (16.8%)	399 (17.9%)	
Other	401 (2.8%)	312 (2.5%)	89 (4.0%)	
Not documented	174 (1.2%)	117 (1.0%)	57 (2.6%)	
Procedure Type				<0.001
Spinal fusion	4410 (30.4%)	3413 (27.8%)	997 (44.8%)	
Total hip replacement	4327 (29.8%)	3602 (29.3%)	725 (32.6%)	
Total knee replacement	5768 (39.8%)	5266 (42.9%)	502 (22.6%)	
Median procedure duration, minutes (IQR)	99 (79-137)	97 (79-132)	115 (82-177)	<0.001
Non-elective procedure	2152 (14.8%)	1093 (8.9%)	1059 (47.6%)	<0.001
Inpatient	10011 (69%)	8106 (66%)	1905 (85.7%)	<0.001
Diabetes	3236 (22.3%)	2724 (22.2%)	512 (23%)	0.38
ASA Score				<0.001
1 or 2	5434 (37.5%)	4792 (39.1%)	642 (28.8%)	
3, 4 or 5	9071 (62.5%)	7489 (60.9%)	1582 (71.1%)	
BMI ≥ 40 m/kg ²	645 (4.4%)	535 (4.4%)	110 (4.9%)	0.21
SSI				0.01
All	161 (1.1%)	125 (1.0%)	36 (1.6%)	
Superficial	29 (0.2%)	21 (0.2%)	8 (0.4%)	
Deep/Organ space	132 (0.9%)	104 (0.9%)	28 (1.2%)	

IQR: Interquartile range; BMI: Body mass index; ASA: American Society of Anesthesiologists

Table 2: Multivariate Analysis of Odds of SSI*

	Adjusted Odds Ratio SSI (95% Confidence Interval)	p-value
Procedure duration	1.01 (1.00-1.01)	<0.001
Type of procedure		0.02
Fusion	—	
Total hip replacement	1.12 (0.74-1.69)	
Total knee replacement	0.61 (0.39-0.96)	
Preoperative nasal iodine day of surgery	0.79 (0.54-1.16)	0.23

*Adjusted for age, race, sex, type of procedure, procedure duration and compliance with preoperative nasal iodine. Age, Race and Sex were not significant in the model so are not reported

	Controls (36)	Cases (9)	P-value
Age (median, IQR)	66.5 (58.5, 72.0)	54 (51.0, 59.0)	0.016
Type of surgery, n (%)			
Durable device insertion	8 (22.2)	2 (22.2)	1
Coronary artery bypass surgery	12 (33.3)	3 (33.3)	-
Valve replacement	16 (44.4)	4 (44.4)	
Male, n (%)	26 (72.2)	3 (33.3)	0.7
Ethnicity, n (%)			
Non-Hispanic	30 (83.3)	7 (77.8)	0.7
Hispanic	5 (13.9)	2 (22.2)	
Other	1 (2.8)	0 (0.0)	
White, n (%)	10 (27.8)	1 (11.1)	0.42
Elective, n (%)	21 (58.3)	2 (22.2)	0.071
Chronic kidney disease, n (%)	12 (33.3)	5 (55.6)	0.27
Diabetes, n (%)	17 (47.2)	5 (55.6)	0.72
Temporary mechanical circulatory support, n (%)	3 (8.3)	6 (66.7)	<0.001
Temporary mechanical circulatory timing, n (%)			-
Pre	2 (66.7)	1 (16.7)	
Post	1 (33.3)	4 (66.7)	
Both	0	1 (16.7)	
Antibiotics prior to surgery, n (%)	26 (72.2)	8 (88.9)	0.42
Antifungal prophylaxis post-surgery, n (%)	10 (27.8)	4 (44.4)	0.42
Delayed chest closure, n (%)	4 (11.1)	8 (88.9)	<0.001
Duration of open chest (days) (median, IQR)	2.5 (2, 3)	2 (1.5, 15)	1
Duration of chest tube (days) (median, IQR)	6 (3, 10.5)	28 (15.5, 40.5)	0.002
Candida colonization before surgery, n (%)	2 (5.6)	0 (0.0)	1
Candida colonization after surgery, n (%)	2 (5.7)	1 (11.1)	<0.001
Tracheostomy, n (%)	3 (8.3)	6 (66.7)	<0.001
Dialysis, n (%)	5 (13.9)	8 (88.9)	<0.001
Alive at 3 months post-surgery, n (%)	33 (91.7)	6 (66.7)	0.084
Length of stay (days) (median, IQR)	11 (7.5, 25.5)	42 (30, 63)	0.03

urine or airways without evidence of infection. Categorical and continuous variables were presented as frequencies and medians respectively. The variables were compared using Chi-square and Mann-U-Whitney. **Results:** There were 36 controls, and 9 cases included in the study. Patients who were younger (54 vs 66.5 years) and who had temporary MCS (66.7% vs 8.0%) were more likely to be diagnosed with ICI. Moreover, we found that delayed chest closure, more days with chest tube in place, dialysis, tracheostomy and candida colonization after surgery were also associated with increased risk of ICI (table). However, antimicrobial use prior to surgery was not statistically significant (72.2% vs. 88.9%) In terms of clinical outcomes, there was no statistical difference in mortality between the two groups (66.7% vs 91.7%), however patients were more likely to have longer length of hospital stay (42 vs 11 days, p=0.03). **Conclusion:** This study identified several risk factors for ICI post-cardiac surgery including temporary MCS use, delayed chest closure, prolonged chest tube placement and tracheostomy. While antibiotic use prior to surgery was not statistically significant, candida colonization post-surgery was identified as a risk factor. These findings highlight the importance of infection prevention strategies in the environment of care, such standardizing temporary MCS device care and optimizing wound care management, as

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Effect of Preoperative nasal iodine Application on Musculoskeletal Surgical Site Infections (SSI)

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