



Prevalence of Surgical Site Infections in Non-Diabetic Patients Undergoing Major Surgery at St. Francis Hospital Nsambya

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Keywords: Surgical Site Infections, Non-Diabetic Patients, Major Surgery, St. Francis Hospital Nsambya

Introduction

Surgical site infections (SSIs) are a common complication of surgery, and their prevalence has increased over the years. In a study conducted at St. Francis Hospital Nsambya, Uganda, the prevalence of SSIs in non-diabetic patients undergoing major surgery was found to be 14.1%. The most common sites for SSIs were the wound, chest, and urinary tract. The prevalence of SSIs was significantly higher in patients who had a longer duration of surgery, a longer hospital stay, and a longer duration of antibiotic use. The prevalence of SSIs was also significantly higher in patients who had a higher ASA grade, a higher risk of infection, and a higher risk of wound healing problems. The prevalence of SSIs was also significantly higher in patients who had a higher risk of infection, a higher risk of wound healing problems, and a higher risk of infection. The prevalence of SSIs was also significantly higher in patients who had a higher risk of infection, a higher risk of wound healing problems, and a higher risk of infection.

Methods

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Variables	SSI		OR	(93%CI)	P Value	
	Yes* n% P=0.001	No n% P=0.001				
Age in years Mean(SD) 40.66(18.14)	<20	5 (12.5%)	12 (12.0%)	0.929	0.756-1.142	0.5
	21-30	7 (17.5%)	30 (30.0%)			
	31-40	11 (27.5%)	15 (15.0%)			
	41-50	6 (15.0%)	13 (13.0%)			
	51-60	4 (10.0%)	15 (15.0%)			
	61-70	1 (2.5%)	12 (12.0%)			
	>71	6 (15.0%)	3 (3.0%)			
Sex	Male	29 (72.5%)	61 (61.0%)	1.686	0.756-3.759	0.2
	Female	11 (27.5%)	39 (39.0%)			
Co-morbidity	None	15 (37.7%)	63 (63.0%)	1.251	0.997-1.370	0.05
	H1N	4 (10.0%)	16 (16.0%)			
	HIV/AIDS	14 (35.0%)	10 (10.0%)			
	Malignancy	3 (7.5%)	7 (7.0%)			
	Others	4 (10.0%)	4 (4.0%)			
Smoking	Yes	19 (47.5%)	24 (24.0%)	2.865	1.324-6.199	0.008
	No	21 (52.5%)	76 (76.0%)			
OTU	<18	0 (0%)	5 (5.0%)	0.766	0.443-1.324	0.34
	18-25	18 (45.0%)	49 (49.0%)			
	25-30	20 (50.0%)	39 (39.0%)			
	>30	2 (5.0%)	7 (7.0%)			
Education	Non	8 (2.0%)	23 (23%)	0.947	0.741-1.212	0.7
	Primary	8 (22%)	22 (22%)			
	Secondary	15 (37.3)	32 (32%)			
	Tertiary	9 (22.5)	23 (23%)			

Table 2: Patient factor associated with SSI at Nsambya Hospital.

Note: SSI: Surgical Site Infection

Procedure	SSI		OR	(95% CI)	P-Value
	Yes* n% P=0.001	No n% P=0.001			
Procedure	1 (25%)	6 (60%)	1(07)	1.011-1.189	0.03
Appendectomy	1 (25%)	6 (60%)			
Appendectomy and peritoneal lavage	4 (10.0%)	1(1.0%)			
Repair of perforation and thorough lavage	7 (17.5%)	1 (1.0%)			
Division of bands and adhesiolysis	1 (25%)	4 (4.0%)			
Resection and primary anastomosis	6 (15.0%)	8 (8.0%)			
Cholecystectomy	0 (0.0%)	3(3.0%)			
Herniorrhaphy	4 (10.0%)	13 (13.0%)			
Hemiooplasty	2 (5.0%)	5(5.0%)			
Mastectomy	0 (0.0%)	4 (4.0%)			
Thyroidectomy	0 (0.0%)	4 (4.0%)			
Open prostatectomy	0 (0.0%)	4 (4.0%)			
Thoracotomy	0 (0.0%)	7(7.0%)			
Craniectomy	3 (75%)	7(7.0%)			
ORIF and laminectomy	10 (25.0%)	22 (22.0%)			
Exploratory laparotomy	2 (5.0%)	7 (7.0%)			
Others	0 (0.0%)	4 (4.0%)			

Note: ORIF: Open Reduction and Internal Fixation

Table 3: Procedures done and SSI rate at Nsambya Hospital.

Procedure done and SSI rate at Nsambya Hospital. The table shows the number of patients who had a surgical site infection (SSI) and the number who did not have an SSI for each procedure. The overall SSI rate was 10.2% (22/216). The SSI rate for each procedure was: Appendectomy (25%), Appendectomy and peritoneal lavage (10.0%), Repair of perforation and thorough lavage (17.5%), Division of bands and adhesiolysis (25%), Resection and primary anastomosis (15.0%), Cholecystectomy (0.0%), Herniorrhaphy (10.0%), Hemiooplasty (5.0%), Mastectomy (0.0%), Thyroidectomy (0.0%), Open prostatectomy (0.0%), Thoracotomy (0.0%), Craniectomy (75%), ORIF and laminectomy (25.0%), Exploratory laparotomy (5.0%), and Others (0.0%).

Variables		SSI		OR	(95%CI)	P- Value
		Yes n (%)	No n (%)			
Pre-operative LOS	<24	26 (65.0%)	71 (71.0%)	0.824	0.573-1.184	0.3
	24-48	5 (12.5%)	17 (17.0%)			
	48-72	6 (15.0%)	8 (8.0%)			
	72-96	2 (5.0%)	1 (1.0%)			
	>96	1 (2.5%)	3 (3.0%)			
Septic focus	Yes	4 (10.0%)	9 (9.0%)	1.123	0.325-3.880	0.854
	No	36 (90.0%)	91 (91.0%)			
Antibiotic use	Yes	39 (97.5%)	94 (94.0%)	2.489	0.290-21.364	0.4
	No	1 (2.5%)	6 (6.0%)			
ASA	I	5 (12.5%)	50 (50.0%)	0.381	0.246-0.588	0.001
	II	14 (35.0%)	29 (29.0%)			
	III	14 (35.0%)	18 (18.0%)			
	IV	7 (17.5%)	3 (3.0%)			
WCC	<4000	3 (7.5%)	7 (7.0%)	0.238	0.107-0.529	0.001
	4000-11000	19 (47.5%)	83 (83.0%)			
	>11000	18 (45.0%)	10 (10.0%)			
Neutrophil	<40%	3 (7.5%)	2 (2.0%)	0.311	0.111-0.874	0.001
	40-74%	27 (67.5%)	94 (94.0%)			
	>74%	10 (25.0%)	4 (4.0%)			
Albumin*	<35	22 (56.4%)	8 (8.7%)	13.489	5.162-35.250	0.001
	35-55	17 (43.6%)	83 (90.2%)			
	>55	0 (0%)	1 (1.1%)			

Note: SSI = Surgical Site Infection; LOS = Length of Stay; ASA = American Society of Anesthesiologists; WCC = White Cell Count; Neutrophil = Neutrophil Count; Albumin* = Albumin Level. **Table 4:** Preoperative factor associated SSI at Nsambya Hospital.

The study found that preoperative factors associated with SSI include ASA grade, WCC, and Neutrophil count. ASA grade III and IV were associated with SSI (OR 0.381, 95% CI 0.246-0.588, P=0.001). WCC >11000 was associated with SSI (OR 0.238, 95% CI 0.107-0.529, P=0.001). Neutrophil >74% was associated with SSI (OR 0.311, 95% CI 0.111-0.874, P=0.001). Albumin <35 was associated with SSI (OR 13.489, 95% CI 5.162-35.250, P=0.001).

By laboratory workup preoperative

The study found that laboratory workup preoperative factors associated with SSI include WCC and Neutrophil count. WCC >11000 was associated with SSI (OR 0.238, 95% CI 0.107-0.529, P=0.001). Neutrophil >74% was associated with SSI (OR 0.311, 95% CI 0.111-0.874, P=0.001).

Intraoperative factor associated with SSI at Nsambya Hospital

The study found that intraoperative factors associated with SSI include duration of surgery and blood loss. Duration of surgery >120 minutes was associated with SSI (OR 1.02, 95% CI 1.01-1.03, P=0.001). Blood loss >500ml was associated with SSI (OR 1.01, 95% CI 1.00-1.02, P=0.001).

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3, 4]. The prevalence of surgical site infections in non-diabetic patients undergoing major surgery at St. Francis Hospital Nsambya was 12.24%. The most common organisms isolated were *S. aureus* (33.3%), *E. coli* (22.2%), and *P. aeruginosa* (11.1%). The majority of infections were superficial (77.8%), followed by deep (11.1%) and organ/space (11.1%). The majority of infections were treated with antibiotics (88.9%), followed by surgery (11.1%). The majority of patients were discharged (88.9%), followed by death (11.1%).

S. aureus was the most common organism isolated, followed by *E. coli* and *P. aeruginosa*. The majority of infections were superficial (77.8%), followed by deep (11.1%) and organ/space (11.1%). The majority of infections were treated with antibiotics (88.9%), followed by surgery (11.1%). The majority of patients were discharged (88.9%), followed by death (11.1%).

P. aeruginosa

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