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In this edition, nineteen (19) manuscripts scale through the eye of the needle of the Editor-in Chief. The title of the papers in this edition are: Assessment of client satisfaction with contraceptive services in public health care facilities in Zamfara State, Nigeria; Sociocultural and economic determinants of open defecation practices in Kano State, Nigeria; effect of simulation based training on midwives' skills in managing retained placenta with umbilical vein oxytocin injection in health facilities, Osun State, Nigeria; Nurses Level Of Preparedness In Management Of Patient With Viral Hemorrhagic Fever In Emergency Ward In University Of Ilorin Teaching Hospital, **Nigeria**; Nursing Education: A Sine Qua Non For Addressing The Healthcare Demands Of The 21st Century; Influence Of Nursing Training On Their Competency In Selecting Wound Dressing Materials At A Secondary Health Facility In Ilorin, Kwara State, Nigeria; Prevalence And Outcome Of Malaria Infection Among Children Below 11 Years In A Tertiary Healthcare Facility In Benin City From 2018-2020; Factors Influencing Prevalence Of Gender Based Violence Among Men And Women In Bagudo LGA Kebbi State, Nigeria; Knowledge Of Health Implications Of Rape And Associated Factors Among Male Undergraduates In Ahmadu Bello University Zaria, Nigeria; Quackery In Nursing, The Causes, Effects And Control Measures: The Nigeria Experience; Knowledge, attitude and practice of injection safety among nurses in Nigeria: a case study of University of Ilorin Teaching Hospital Ilorin, Kwara State, Nigeria; Awareness Of Computer Vision Syndrome Among Staff Of Information Communication And Technology Unit Of University Of Benin Teaching Hospital, Benin City, Edo State, Nigeria; Utilization Of Personal Protective Equipment Against Organic Dusts Among Poultry Farmers In Ona-Ara Local Government Area, Ibadan, Nigeria; Predictors Of Surgical Site Infection Amongst Post Operative Patients In Federal Medical Centre Lokoja, Nigeria; Evaluation Of The Involvement Of Nurses In Policies And Policy Formulation In Nigeria; Determinants of Stress and Coping Mechanisms among Nurses in Aminu Kano Teaching Hospital, Kano State, Nigeria; Influence Of Nursing Training On Their Competency In Selecting Wound Dressing Materials At A Secondary Health Facility In Ilorin, Kwara State, Nigeria; Adaptation To Stress And Academic Performance Of Students In Nursing Institutions In Oyo State, Nigeria; Medication Adherence And Quality Of Life Of Hypertensive Patients Attending Selected Hospitals In Port Harcourt, Rivers State, Nigeria; Perspectives Of Youth On The Legalization Of Abortion In North Central Nigeria.

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U.S. General Accounting Office. Feb., 1997, Telemedicine: federal strategy is needed to guide investments. Publication No. GAO/NSAID/HEHS-97-67. Retrieved Sept. 15,2000, from http://www.access.gpo.gov/su_docs/aces 160.shtml? /gao/index.html.

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GABRIEL EKEYI

ABSTRACT

Surgical Site Infections (SSIs) present a substantial challenge in postoperative patient management, contributing to prolonged hospitalization, escalated healthcare expenses, and heightened morbidity. This study sought to identify the factors influencing surgical site infections among postoperative patients in the surgical unit of the Federal Medical Centre Lokoja, Kogi State, Nigeria. A retrospective analysis was conducted on 6,503 surgical patients over the period spanning from 2015 to October 2019. Univariable and multivariable logistic regression models were employed to identify the factors influencing surgical site infections. Variables with a P-value < 0.05 were considered statistically significant, and the strength of association was expressed through odds ratios (OR) with 95% confidence intervals (CIs). During the study period, a total of 6,503 patients with surgical concerns were admitted to the hospital, all of whom provided consent and were included in the analysis. Findings of the demographic characteristics shows that majority of the respondents are young age group within ages 15 – 47years (46.5%), female (54.5%), employed (37.1%) with tertiary education (34.8%). The predicting likelihood factors that influence SSI complication are: middle age group were likely 3 times prone to SSI complication compared to other age as at last birthday (P< 0.05, Odd ratio- 2.71, CI: 6.72 – 0.10). Also, retirees were 2 times likely to be prone to SSI complication compared other group in the occupation (P< 0.05, Odd ratio- 2.21, CI: 4.92 – 1.66). Likewise, no formal education was 1 time likely to be prone to SSI complication compared other group in the education (P< 0.05, Odd ratio- 1.16, CI: 2.70 – 0.04). This study reveals that there is high prevalence rate at of surgical site infection with more not complicate cases of SSI in 2019 (93.9%) and complicated cases in 2015 (40.9%) and majority of respondents use steroid in 2019(3.7%), with history of smoking in 2018 (7.3%), hypovolemia in 2016 (2.5%), and history of diabetes in 2019 (4.5 %). Also, majority of respondents use immunosuppressive agents in 2016 (2.3%), prior infection to surgery in 2015 (9.3%), has formation of hematoma in 2019 (4.5%), It was discovered that majority of respondents' overall duration of peri operative surgical scrub is 3 – 6 minutes (64.5%), the duration of surgery is >120 minutes (40.4%) and the duration of hospital stay is >15 days (36.3%). This study indicates that majority of the surgery performed from 2015 to 2019 were successful (99.2%) The result shows that there was a significant association between age, gender, occupation and education were associated with SSI complication with significant value lesser than 0.05. In conclusion, from the results obtained through this study, the researcher, therefore, recommends that, government through the Ministry of Health should prioritize the management of Diabetes mellitus by carrying out public awareness campaigns and available medications for treating diabetes and other co-morbidity. The concerned bodies should focus on WHO surgical safety protocol and appropriately manage co morbidity to mitigate problem of SSI. It is expedient to apply infection prevention and control practices tailored towards prevention of SSI in specified health-care settings. Further study should be conducted on the prevalence, associated factory, bacterial aetiologies and antibiotic susceptibility patterns to address the emerging and gradually evolving nature of antimicrobial resistance.

KEYWORDS: Predicting; Factors; Surgical Site Infection; Post Operative Patients

INTRODUCTION

The Centre for Disease Control and Prevention (2017) described surgical site infection (SSI) as infections occurring within 30 days of an operation at the site or part of the body where the surgery took place, or within a year if an implant is left in place and the infection is secondary to surgery. Exogenous sources, such

as breaches in sterile technique and operating room equipment may contribute, albeit much less frequently than endogenous flora. Bacteria within the tissue or organ space hinder the postoperative healing processes, and can lead to anastomotic leaks, wound dehiscence, and superficial incision infections (Collins, 2015).

According to National Nosocomial Infections Surveillance (2015) Postoperative wound infections, also known as surgical site infections (SSI), complicate the recovery course of many patients. Nosocomial infections are an important cause of preventable morbidity and mortality that prolong hospital stay by an average of eight days while the treatment cost and workload on health care facilities is increased many folds. Surgical site infection is the third most frequently reported nosocomial infection and is associated with substantial morbidity that can endanger a patient's life, increase the number of days in the hospital, and increase healthcare costs. (ZafarIqbal 2013, Scott 2009).

According to Fabry (2018), Hospital-acquired infections add to functional disability and emotional stress of the patient and may, in some cases, lead to disabling conditions that reduce the quality of life. Nosocomial infection is also one of the leading causes of death. (Fabry, Collins 2018) documented that the overall increase in the duration of hospitalization for patients with surgical wound infections was 8.2 days, ranging from 3 days for gynaecology to 9.9 for general surgery and for orthopaedic surgery. Prolonged stay does not only increase direct costs to patients or payers but also indirect costs, such as loss of work hours. The increased length of hospitalization for infected patients is the greatest contributor to economic cost necessitating a study on factors influencing SSI (Kidanie, 2019).

Important patient-related factors increasing the risk of an SSI include pre-existing infection, malnutrition, obesity, low serum albumin, elderly, smoking, and immunosuppressant (diabetes mellitus, irradiation (Dent, 2010). Surgery-related factors include contaminated surgeries, emergency surgeries, prolonged procedures, substandard sterilization, inadequate handling of instruments, and inadequate antiseptic surgical site preparation (Pathak, 2017). Physiological conditions that predispose to an increased incidence of SSI include multi-trauma, hemodynamic instability, shock, massive blood transfusions during the procedure, and postoperative hypothermia, hypoxia, and hyperglycaemia (Ansari 2019). Other independent predictors of SSI include abdominal surgeries, contaminated or dirty procedures, and three or more diagnoses upon hospital discharge. Delayed recognition and inappropriate management of SSI increases the length of hospital stay and treatment cost. Patients with SSI have increased the risk of mortality when compared to those without SSI (Alexander, 2019).

In a study conducted by Cheng et al., (2019), on Risk factors for surgical site infection in a teaching hospital: a prospective study of 1,138 patients in India. Results reviewed a total of 1,138 patients met the inclusion criteria, in whom 36 cases of infection occurred during the hospitalization period and two cases occurred after discharge. Multivariate analysis identified six independent parameters correlating with the occurrence of SSI: diabetes (odds ratio [OR] 6.400; 95% confidence interval [CI] 2.58215.866; P=0.000); cancer (OR 2.427; 95% CI 1.0285.732; P=0.043); pre-procedural white blood cell count more than 10×109/L (OR 6.988; CI 3.16515.425; P=0.000); wound classification (clean contaminated [OR: 7.893; CI: 2.24427.762; P=0.001]; contaminated [OR: 7.031; CI: 1.65229.922; P=0.008]; dirty [OR: 48.778; CI: 5.418439.164; P=0.001]); operative duration more than 120 minutes (OR 4.289 CI 1.77310.378; P=0.001); and postoperative drainage (OR 3.957; CI 1.42211.008; P=0.008). In conclusion, the data suggest that all these risk factors could be regarded as potential indicators of SSI and that relevant preventive measures should be taken to reduce SSI and improve patient outcomes.

In a study conducted by Ansari, et al, (2019), Risk factors for SSI can be divided into patient factors and procedural factors; patient risk factors for wound infection include advanced age, malnutrition, hypovolemia, obesity, steroid use, diabetes, use of immunosuppressive agents, smoking, and coexistent infection at a remote site, while procedure-related risk factors include the formation of a hematoma, the use of foreign material such as drains, leaving dead space, prior infection, duration of surgical scrub, preoperative shaving, poor skin preparation, long surgery, poor surgical technique, hypothermia, contamination from the operating room, and prolonged perioperative stay in hospital. Surgical site infections are potential complications associated with any type of surgical procedure. Although SSIs are among the most preventable Hospital Acquired Infections (HAIs), they still represent a significant burden in terms of patient morbidity and mortality and additional costs (about 65%) to health system and service payers. (Purba, et al, 2018). SSI is the leading and most studied HAI in about 70% of hospitals in Low- and Medium-Income Countries (LMICs) of the word. (Purba, et al, 2018).

For these reasons, the prevention of SSI has received considerable attention from surgeons and infection control professionals, health care authorities, the media, and the public. Hence, this study assess the factors influencing surgical site infection amongst postoperative patients in the surgical unit of Federal Medical Centre Lokoja, Kogi State.

Objective of the study

The broad objective of the study is to determine the factors influencing surgical site infection amongst postoperative patients in the surgical unit of Federal Medical Centre Lokoja, Kogi State.

1. To predict likelihood factors influencing SSIs among postoperative patients in Federal Medical Centre Lokoja.
2. To determine the prevalence rate of surgical site infections in the theatre and surgical departments of Federal Medical Centre.
3. To identify the medical history SSIs among postoperative patients in Federal Medical Centre Lokoja.
4. To determine the outcome of the surgery surgical site infections in the theatre and surgical departments of Federal Medical Centre

HYPOTHESIS

H_{01}: There is no significant relationship between socio demographic characteristics and SSI complication.

METHODOLOGY

Research Design: This is a retrospective study.

Study Setting: The study setting of this research was Federal Medical Center Lokoja, Kogi State. The Federal Medical Centre, Lokoja was the former General Hospital Lokoja, built by the former Kabba Provincial Government in 1954 at the Headquarters of the Inland Waterways Authorized (NIWA), Adankolo, Lokoja. In 1958, the Hospital was relocated from Adankolo to its present site in the G.R.A, which is about Â½ km from the old site. The General Hospital assumed the status of a specialist Hospital in 1984 with the addition of the new wing of 4 wards, a Laboratory/ X-ray building, Store/ Laundry complex and a Mortuary under the aegis of the then Kwara State Government from which the present Kogi State was created in 1991. The present Federal Medical Centre, Lokoja came into existence on the 9th of November 1999 sequel to the agreement between the Federal Ministry of Health on behalf of the Federal Government of Nigeria and the Kogi State Ministry of Health for and on behalf of the Government of Kogi State. Following this agreement, the Specialist Hospital, Lokoja was upgraded to the status of a Tertiary Health Centre (Federal Medical Centre, Lokoja) in

accordance with the Federal Government Health Policy and a Medical Director was appointed on the 12th of November 1999 as the Chief Executive Officer of the Centre. Currently the chief Medical Director is Dr. Olatunde Alabi and it consist of the department of Anaesthesia, surgery, paediatrics, medicine, Nursing laboratory and other department like the laundry services, x-ray department, etc.

The Federal Medical Centre has the following staff strength: 100 Doctors consisting of consultants, Senior Registrar and Registrars. 240 Health Assistants and 272 Nurses of different specialty areas. The unit / wards under study consist of nurses working in the children, female and male surgical wards and theatre, making a total of 50 nurses in all. The Nurses working in these units/wards are chosen because of their relevance to the study.

Population of Study: This retrospective study extracted demographic, clinical and 5perioperative data from the medical record of Federal Medical Center Lokoja. Who underwent surgery and were discharged between January 2015 to December 2019. Patients were included if they were diagnosed and recorded as infected according to the Diagnosis of Nosocomial Infection and Standards for Hospital Infections promulgated by the Center for Disease Control. Patients were excluded if they received simple manual reduction, radiofrequency ablation, biopsy, bone traction and other noninvasive or simple operations. Patients were also excluded if they had malignant bone tumors, chronic osteomyelitis, infections in sites other than the surgical site or infections that existed before the surgery. This study was approved by the Research Ethics Committee of Federal Medical Center Lokoja. As it was a retrospective study, consent was waived from patients.

Sample and Sampling Technique: Retrospective study. The record of post-operative cases of 156 patients kept in medical record department were extracted between January, 2015 to December, 2019 was used.

Instrument for Data Collection: Clinical data was extracted from the Patient's folder kept in medical record department of Federal Medical Center Lokoja.

Method of Data Collection: Clinical data was extracted from the patients past record of those that undergone surgeries between the period of January 2015 to December, 2019 included general information such as identification number, name, sex, age, and surgical information such as surgical name.

Method of Data Analysis: The Research Data collected were analyzed using Descriptive analysis which involved the use of frequencies and percentages to ascertain the factors influencing surgical site infections in the Federal Medical Centre, Lokoja.

Ethical Consideration: ethical clearance letter was taken from the school and consent form obtained from the ADNS of the various wards. An authorization letter was gotten from the ethical committee of Federal Medical Center Lokoja.

RESULTS

Table 1 shows the socio-demographic characteristics of respondents. More than two-thirds of respondents (64.3%) belonged to the young age group, while more than one-quarter (25.9%) were in the middle age group, and a small portion (9.8%) were in the pediatric age group. Females constituted more than half of respondents (56.1%), while males made up 43.9%. Regarding employment status, more than half (50.9%) were employed, while 18.7% were students, and 12.2% were unemployed. The table also shows that 42.4% of respondents had secondary education, 34.3% had tertiary education, 21.2% had primary education, and 2.1% had no formal education. Analysis of the demographic characteristics reveals that the majority of respondents were in the young age group between 15-47 years (46.5%), female (54.5%), employed (37.1%), and had tertiary education (34.8%).

Table 1: Socio Demographic Characteristics of the Respondents
Distribution of respondents based on socio demographic of the Respondents

Variables	Frequency n= 6503	Percentage (%)
Age		
0-14 (Pediatric age group)	1580	24.3
15-47 (Young age Group)	3023	46.5
48-63 (Middle age group)	1900	29.2
Gender		
Male	2956	45.5
Female	3547	54.5
Occupation		
Employed	2414	37.1
Not employed	1289	19.8
Retiree	951	14.6
Clergy	197	3.0
Students	1652	25.5
Education		
No formal education	1117	17.2
Primary	1392	21.4
Secondary	1731	26.6
Tertiary	2263	34.8

Table 2 revealed logistic regression analysis predicting likelihood factors that influence SSI complication. From the result, middle age group were likely 3 time to prone to SSI complication compared to other age as at last birthday (P< 0.05, Odd ratio- 2.71, CI: 6.72 – 0.10). Also, retiree was 2 time likely to be prone to SSI complication compared other group in the occupation (P< 0.05, Odd ratio- 2.21, CI: 4.92 – 1.66). Likewise, no formal education was 1 time likely to be prone to SSI complication compared other group in the education (P< 0.05, Odd ratio- 1.16, CI: 2.70 – 0.04).

Table 2: Logistic Regression analysis predicting likelihood factors that influence SSI complication.

Variables	Statistical significance	Odds Ratio	Confidence interval	
			Upper Level	Lower Level
Age as at last birthday				
0-14 (Pediatric age group)	1(ref)			
15-47 (Young age Group)	0.12	0.59	1.15	0.30
48-63 (Middle age group)	0.03	2.71	6.72	0.10
Gender				
Male	0.06	2.67	7.50	0.95
Female	1(ref)			
Occupation				
Employed	0.87	0.96	1.56	0.59
Not employed	0.12	0.09	3.41	0.02
Retiree	0.01	2.21	4.92	1.66
Clergy	0.51	1.50	3.93	1.17
Students	1(ref)			
Education				
No formal education	0.01	1.16	2.70	0.04
Primary	0.08	0.29	1.17	0.07
Secondary	0.15	0.35	1.49	0.08
Tertiary	1(ref)			

Table 3 shows the prevalence of surgical site infection in Federal Medical Centre, Lokoja, Kogi from the period of January 2015 to January 2019. It found that majority of the prevalence of SSI complication (40.9%) was recorded in 2015. Also, at 2016 (37.7%) of SSI complication was reported while in 2018 (24.1%) of SSI complication was recorded. In 2017, 16.0% of SSI complication was recorded. Finally, the low SSI complication (6.1%) was recorded in 2019. This study reveals that there is high prevalence rate at of surgical site infection with more not complicate cases of SSI in 2019 (93.9%) and complicated cases in 2015 (40.9%)

Table 3 : Prevalence of Surgical site infection in Federal Medical Centre, Lokoja, Kogi **from the period of January 2015 to January 2019**

Years	Number of admitted patients (N= 6503)	Not Complicated	SSI Complicated (N= 1597)
2015	1211	715(59.1)	496(40.9)
2016	1329	828(62.3)	501(37.7)
2017	1442	1211(74.0)	231(16.0)
2018	1200	911(75.9)	289(24.1)
2019	1321	1241(93.9)	80(6.1)
Total	6503	4906(75.4)	1597(24.6)

Figure 1: Summary of line graph representative trend of Surgical site infection for the period of January 2015 to January 2019

The line graph shows the summary of trend of Surgical site infection for the period of January 2015 to January 2019 over the period of five years. It shows that, the SSI complication issues declined from 2015 to 2019 except in 2018 where there was an increase in SSI complications (23.9%).

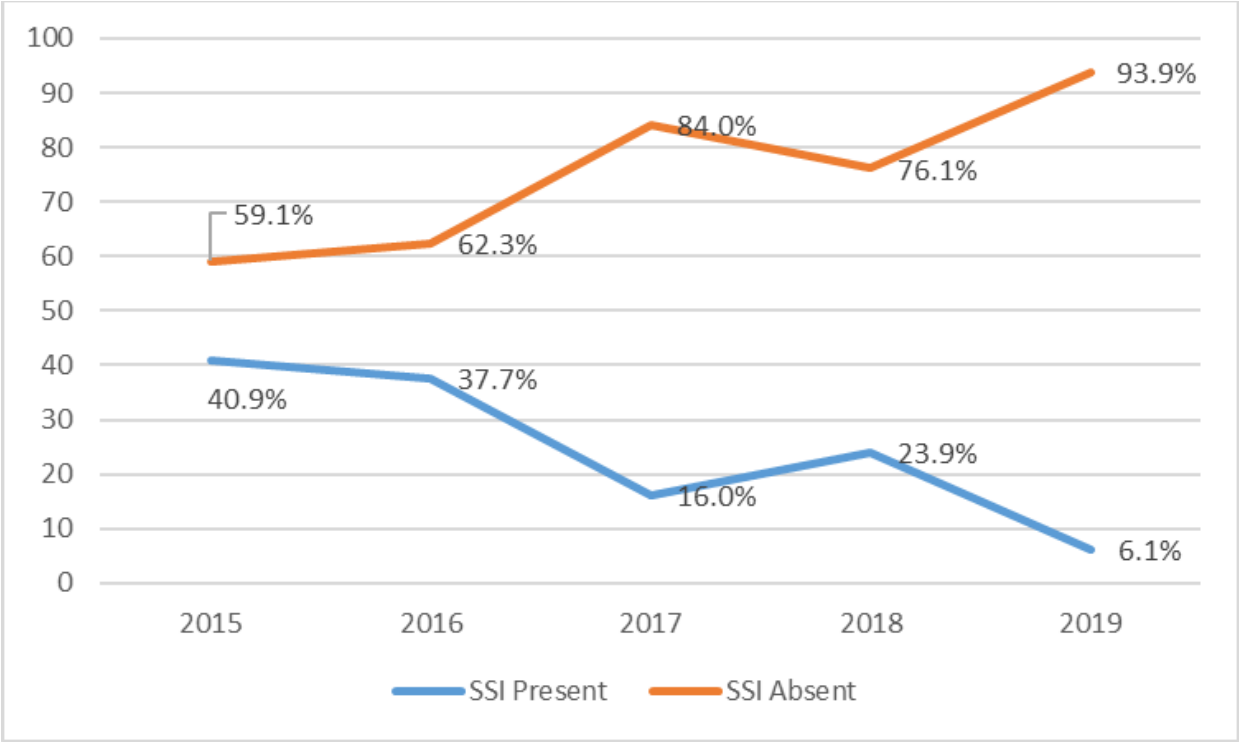

Table 4 shows the medical history retrieve from the record of surgical patient in Federal Medical Centre, Lokoja, Kogi from the period of January 2015 to January 2019. It was found out that 3.7% of the admitted patient were in 2019 used steroid, 7.3% in 2018 out of the years sample had majority history of smoking, Smokers are prone to infections. Their level of immunities reduces. Patients in this condition if operated is bound to face problems of surgical site infections.2.5% in 2016 had hypovolemia, 4.5% of the patient admitted in 2019 had history of diabetes. Diabetic patients have challenges in the area of body nutrients, and so wound healing is also poor. 2.3% in 2016 were using immunosuppressive agents, 2015 had a highest (9.3%) infection prior to surgery. It was observed that there was delayed in post operative wound healing among this set of patients, because their immunity became low. They developed nosocomial infections post operatively. This study reveals that majority of respondents use steroid in 2019(3.7%), with history of smoking in 2018 (7.3%), hypovolemia in 2016 (2.5%), and history of diabetes in 2019 (4.5 %). Findings shows that majority of respondents use immunosuppressive agents in 2016 (2.3%), prior infectionto surgery in 2015 (9.3%), has formation of hematoma in 2019 (4.5%), It was discovered that majority of respondents' overall duration of peri operative surgical scrub is 3 – 6 minutes (64.5%), the duration of surgery is >120 minutes (40.4%) and the duration of hospital stay is >15 days (36.3%)

Table 4: Medical History of Respondents

Variables	2015 F (%)	2016 F (%)	2017 F (%)	2018 F (%)	2019 F (%)	Overall F (%)
Steroid use						
Yes	19(1.6)	21(1.6)	43(3.0)	33(2.7)	49(3.7)	165(2.5)
No	1,181(98.4)	1,308(98.4)	1,399(97.0)	1,178(97.3)	1,272(96.3)	6,338(97.5)
History of smoking						
Yes	86(7.2)	62(4.7)	103(7.1)	88(7.3)	56(4.2)	395(6.1)
No	1,114(92.8)	1,267(95.3)	1,339(92.9)	1,123(92.7)	1,265(95.8)	6,108(93.9)
Hypovolemia						
Yes	23(1.9)	33(2.5)	16(1.1)	13(1.1)	28(2.1)	113(1.7)
No	1,177(98.1)	1,296(97.5)	1,426(98.9)	1,198(98.9)	1,293(97.9)	6,390(98.3)
History of diabetes						
Yes	21(1.8)	37(2.8)	45(3.1)	28(2.3)	60(4.5)	191(2.9)
No	1,179(98.2)	1,292(97.2)	1,397(96.9)	1,183(97.7)	1,261(95.5)	6,312(97.1)
Use of immunosuppressive agents						
Yes	13(1.1)	30(2.3)	26(1.8)	21(1.7)	22(1.7)	112(1.7)
No	1,187(98.9)	1,299(97.7)	1,416(98.2)	1,190(98.3)	1,299(98.3)	6,391(98.3)
Prior infection						
Yes	112(9.3)	78(5.9)	67(4.6)	54(4.5)	72(5.5)	383(5.9)
No	1,088(90.7)	1,251(94.1)	1,375(95.4)	1,157(95.5)	1,249(94.5)	6,120(94.1)
Formation of hematoma						
Yes	11(0.9)	55(4.1)	17(1.2)	28(2.3)	60(4.5)	171(2.6)
No	1,189(99.1)	1,274(95.9)	1,425(98.8)	1,183(97.7)	1,261(95.5)	6,332(97.4)
Duration of preoperative surgical scrub						
3-6 minutes	775(64.6)	863(64.9)	926(64.2)	779(64.3)	851(64.4)	4,194(64.5)
7-10 minutes	398(33.2)	440(33.1)	486(33.7)	404(33.4)	443(33.5)	2,171(33.4)
11-14 minutes	27(2.2)	26(2.0)	30(2.1)	28(2.3)	27(2.1)	138(2.1)
Duration of surgery						
<15 minutes	34(2.8)	29(2.2)	22(1.5)	24(2.0)	25(1.9)	134(2.1)
15-30 minutes	55(4.6)	60(4.5)	69(4.8)	53(4.4)	61(4.6)	298(4.6)
30-60 minutes	194(16.2)	217(16.3)	239(16.6)	203(16.8)	215(16.3)	1,068(16.4)
60-120 minutes	436(36.3)	486(36.6)	525(36.4)	440(36.3)	485(36.7)	2,372(36.5)
>120 minutes	481(40.1)	537(40.4)	587(40.7)	491(40.5)	535(40.5)	2,631(40.4)
Duration of hospital stay						
1-3 days	42(3.5)	41(3.1)	50(3.5)	41(3.4)	36(2.7)	210(3.2)
4-6 days	77(6.4)	82(6.2)	88(6.1)	76(6.3)	91(6.9)	414(6.4)
7-9 days	110(9.2)	130(9.8)	138(9.6)	111(9.2)	119(9.0)	608(9.3)
10-12 days	257(21.4)	282(21.2)	306(21.2)	260(21.4)	289(21.9)	1,394(21.4)
13-15 days	280(23.3)	314(23.6)	335(23.2)	280(23.1)	310(23.5)	1,519(23.4)
>15 days	434(36.2)	480(36.1)	525(36.4)	443(36.6)	476(36.0)	2,358(36.3)

Table 5 shows the outcome of the surgery done between the 2015 and 2019. From the result of the descriptive it was deduct that only 1% of the total percent of those operate on in 2015 was not successful, 0.5% in 2016, 0.7% in 2017 while 1.2% of the operation carry out was on unsuccessful and 0.8% in 2019. This study indicates that majority of the surgery performed from 2015 to 2019 are successful (99.2%)

Table 5: Outcome of the Surgery

Years	Successful F(%)	Not Successful F(%)	Total
2015	1199(99.0)	12(1.0)	1211(100.0)
2016	1323(99.5)	6(0.5)	1329(100.0)
2017	1432(99.3)	10(0.7)	1442(100.0)
2018	1185(98.8)	15(1.2)	1200(100.0)
2019	1310(99.2)	11(0.8)	1321(100.0)
Total	**6449(99.2)**	**54(0.8)**	**6503(100.0)**

Hypothesis one: There is no significant relationship between socio demographic characteristics and SSI complication**.**

Table 6 shows the chi-square test used to test the association between socio demographic characteristics and status. The result shows that there was a significant association between age, gender, occupation and education were associated with SSI complicationwith significant value lesser than 0.05.

Table 6: Relationship between socio demographic characteristics and SSI complication.

Variables	SSI		χ^2	P
	Complication	Not complication		
Age				
0-14 (Pediatric age group)	28(0.6)	1552(97.1)	61.27	0.01*
15-47 (Young age Group)	17(1.1)	3006(61.3)		
48-63 (Middle age group)	30(1.9)	1879(38.7)		
Gender				
Male	1069(66.9)	1887(38.5)	23.27	0.01*
Female	530(33.1)	3017(61.5)		
Occupation				
Employed	845(13.0)	1569(24.1)	26.94	0.01*
Not employed	280(4.3)	1000(15.4)		
Retiree	151(2.3)	800(12.3)		
Clergy	7(0.1)	190(2.9)		
Students	316(4.9)	1315(20.2)		
Education				
No formal education	1089(16.7)	28(0.4)	45.13	0.01*
Primary	480(7.4)	912(14.0)		
Secondary	0(0.0)	1731(26.6)		
Tertiary	30(0.5)	2233(34.3)		

DISCUSSION

This study determines the factors influencing surgical site infection amongst post operative patients in Federal Medical Centre Lokoja between January 2015 to December 2019. In pursuit of achieving this, the study sought to assess to investigate the factors influencing SSIs among postoperative patients in Federal Medical Centre Lokoja, determine the management preventive strategies among Nurses in the care of patients with surgical site infections in the theatre and surgical departments of Federal Medical Centre, and to make recommendations to mitigate the occurrences of SSI.

Socio-demographic Characteristics of the Respondents.

Findings from this study revealed that there were 6503 patient records that were retrieve for this study. Findings of the demographic characteristics shows that majority of the respondents are young age group within ages 15 – 47years (46.5%), female (54.5%), employed (37.1%) with tertiary education (34.8%). The result of this study is different from what Kyamulesire& Namutebi (2023) where they reported that majority of the patient were between40-49 with secondary education as level of their education in their study. Also, this study is similar to Kyamulesire& Namutebi (2023) where majority of their respondents are female and were employed. This study is not in support of another study in Benin Republic by Degbey et al, (2021) who reported that average age of the operated was 49 years old with a minimum of 3 years and a maximum of 89 years.

The Predicting Likelihood Factors Influencing Surgical Site Infection Amongst Post Operative Patients

Findings revealed predicting likelihood factors that influence SSI complication as middle age group were likely 3 time to prone to SSI complication compared to other age as at last birthday. Also, retiree was 2 time likely to be prone to SSI complication compared other group in the occupation. Likewise, no formal education was 1 time likely to be prone to SSI complication compared other group in the education.

Prevalence of Surgical Site Infection in Federal Medical Centre, Lokoja, Kogi State.

This study reveals that there is high prevalence rate at of surgical site infection with more not complicate cases of SSI in 2019 (93.9%) and complicated cases in 2015 (40.9%). This results contradicts result by Yang et al, (2020) who reported 3.1% prevalence rate. This study is not in line with Kyamulesire& Namutebi (2023) who reported prevalence rate at of surgical site infection as 45% and classified SSI as deep and superficial infections. This study is in agreement with Mohan, et al. (2023) who observed that 59% had superficial SSI, and the rest 41% had deep ones. This result is not in line with study conducted by Okere (2019) in Ahmadu Bello University who found that the most frequently reported was the superficial incision SSIs occurring in 62.5% (95% CI: 0.333–0.848), higher preponderance was observed among patients with dirty wounds (52.7%, 95% CI: 0.367–0.682).

Medical History files of the Patients

The findings of the present study revealed that the medical history retrieve from the record of surgical patient in Federal Medical Centre, Lokoja, Kogi from the period of January 2015 to January 2019. This study reveals that majority of respondents use steroid in 2019(3.7%), with history of smoking in 2018 (7.3%), hypovolemia in 2016 (2.5%), and history of diabetes in 2019 (4.5 %). Findings shows that majority of respondents use immunosuppressive agents in 2016 (2.3%), prior infectionto surgery in 2015 (9.3%), has formation of hematoma in 2019 (4.5%), It was discovered that majority of respondents' overall duration of peri operative surgical scrub is 3 – 6 minutes (64.5%), the

duration of surgery is >120 minutes (40.4%) and the duration of hospital stay is >15 days (36.3%). This is in agreement with kana et al (2024) whose respondents had history of diabetes. They further penned that diabetes will suppress the immune systems function, decreasing the patient resistance and becoming prone to infection. Infection can aggravate the inflammatory response of the wound and interfere with the normal healing process.This result is not in line with Amrutham R et al, (2017) who reported that Majority of surgical cases operated in between 24-72 hours and among them 11 (6.14%) developed SSIs. 41 patients waited for surgery up to 1 week, among them 22 (53.65%) developed SSI. Out of 28 patients waited for more than one week 12 (42.86%) developed SSI. This study is in agreement with Yang e t al, (2020) who found that 9.9% had diabetes mellitus and 28.5% had hypertension. It was also found in the study that (2.1%) of the respondents had less than 15 minutes of surgery duration, (4.6%) had 15-30 minutes duration of surgery, (16.4%) had 30-60 minutes duration of surgery, (36.5%) had duration of 60-120 minutes of surgery, and (40.4%) of the patients had more than 120 minutes of surgery duration. This study supports Shakir et al (2014) who noted that among the study participants 51 (16.67%), 161 (52.61%), and 48 (15.69%) were smokers, chat chewers, and alcohol drinkers, respectively.

Outcome of the Surgery

This study indicates that majority of the surgery performed from 2015 to 2019 are successful. This result is not in line with Amrutham R et al, (2017) who reported that Majority of surgical cases operated in between 24-72 hours and among them 11 (6.14%) developed SSIs.

Relationship between socio demographic characteristics and SSI complication.

The result shows that there was a significant association between age, gender, occupation and education were associated with SSI complication with significant value lesser than 0.05.

Implication of the study to Nursing Practice

Surgical site infection (SSI) remains a common and widespread problem, which contributes to significant morbidity and mortality, prolongs hospital stays, and consequently increases healthcare costs. Sources of SSIs include the patient's own normal flora, organisms present in the hospital environment that are introduced into the patient by medical procedures, specific underlying diseases, trauma, or burns that may cause a mucosal or skin surface interruption.

Surgical site infections can be minimized by early identification and optimization of medical comorbidities like diabetes, anaemia and hypertension and foster BMI. Surgical site infections cannot be completely eradicated; however, it can be curtailed by proper evaluation of the patient so that the burden of the disease, both for patients and the healthcare service providers can be reduced in terms of the morbidity and mortality. It can also bring down the hospitalization days and its cost.

As surgical site infections take a massive toll on resources and cause morbidity and mortality, there are many general rules and guidelines in place to prevent them in the first place. These include preoperative skin preparation, using films on the skin, theatre sterility rules, perioperative and postoperative prophylactic antibiotics, and dressings. Also, improving the patient's natural defense mechanisms such as early mobilization and improving nutritional status.

During the perioperative period, patients encounter a large spectrum of health professionals especially nurses who are directly or indirectly involved in modifying factors responsible for developing postoperative wound infections. Preoperatively it is essential to identify and address modifiable risk factors and appropriately counsel the patient regarding anticipated risk. While the screening process is often done by nursing staff and anesthetists, the discussion of risks is usually discussed with the surgeon during the consenting process. Intraoperatively, all theatre staff including

nurses is responsible for maintaining sterility and ensuring optimal theatre time, temperature, and available instruments. Postoperatively, ward doctors, nurses, dietitians, physiotherapists, and assistants are all going to influence recovery and, therefore, postoperative wound infection rates.

CONCLUSION

Surgical site infection (SSI) is a common healthcare problem. The process of wound site infection is complex and involves interplay between several biological pathways at the molecular level. Surgical site infections account for high morbidity and mortality. The etiology of postoperative wound infection is complicated by the heterogeneous nature of these infections, varying by geographical region, surgical subspecialty, and the wide array of procedures performed. Risk factors can be divided into patient factors and procedural factors. Patient risk factors for wound infection include advanced age, malnutrition, hypovolemia, obesity, steroid use, diabetes, use of immunosuppressive agents, smoking, and coexistent infection at a remote site. This aligns with objective number 2 of this research work (to determine factors influencing surgical site infections). Procedure-related risk factors include hematoma formation, use of foreign material such as drains, presence of dead space, prior infection, duration of surgical scrub, preoperative shaving, poor skin preparation, prolonged surgery, poor surgical technique, hypothermia, operating room contamination, and extended perioperative hospital stay.

Surgical site infections can be minimized by early identification and optimization of medical comorbidities such as diabetes, anemia, hypertension, and body mass index (BMI). While surgical site infections cannot be completely eradicated, they can be curtailed through proper patient evaluation, thereby reducing the burden of disease for both patients and healthcare service providers in terms of morbidity, mortality, hospitalization duration, and associated costs. In this study, the higher incidence of SSI was attributed to risk factors such as age, gender, comorbid conditions, blood transfusion, prolonged preoperative waiting time, and antibiotic usage. The most common factors associated with SSIs were diabetes, blood transfusion, extended hospital stay, and prophylactic antibiotic usage. Staphylococcus aureus was the most common organism associated with SSI, with the majority of organisms showing multiple drug resistance. Implementation of proper infection control measures and antibiotic policies can help reduce SSIs.

RECOMMENDATIONS

Based on the findings of this study, the researcher recommends the following:

1. **Government Action on Diabetes Management** – The Ministry of Health should prioritize diabetes mellitus management by conducting public awareness campaigns and ensuring the availability of essential medications. Given that diabetes is a chronic condition that can impact the treatment outcomes of other comorbidities and medical interventions, proactive measures are crucial.
2. **Addressing Surgical Site Infections (SSI)** – To mitigate the issue of SSIs, healthcare authorities should enforce adherence to the WHO Surgical Safety Protocol and ensure the proper management of comorbid conditions. Additionally, implementing infection prevention and control practices tailored to specific healthcare settings is essential.
3. **Further Research on Antimicrobial Resistance** – Additional studies should be conducted to explore the prevalence, associated risk factors, bacterial causes, and antibiotic susceptibility patterns of infections. This will help address the growing challenge of antimicrobial resistance and guide more effective treatment strategies.

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