

Behavior of Operative Site Infections in Post-Cesarean Section of the Caribbean Regional Police Clinic In 2022

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ABSTRACT

Despite advances in science and technology, postpartum infections remain a significant public health challenge due to their high prevalence and complications associated with morbidity and mortality. Operative Site Infections (ISO) are the most prevalent among hospitalized patients, surpassed only by Urinary Tract Infections (UTIs). Women who develop an ISO following a cesarean section are five times more likely to require medical attention within 30 days of surgery. The establishment of an active surveillance system for post-cesarean women is imperative to identify and manage these cases in a timely manner. The quality of postoperative care, measured through infection rates and the identification of possible causes, together with clear prevention strategies, are essential to reduce the morbidity and mortality associated with ISOs.

Keywords: Puerperal Infection, Operative Site Infections, Cesarean Section, Quality, Prevention.

INTRODUCTION

Surgical site infections (SSIs) are among the most prevalent and severe complications experienced by patients following surgical intervention. They are particularly prevalent in women who have undergone cesarean sections. Cesarean section, a surgical procedure that has played a crucial role in reducing maternal and perinatal mortality, has led to an increase in postoperative infections, posing a significant challenge to health systems. Despite the advances in medicine, technology, and care protocols that have led to a decline in postsurgical complications, operative site infections remain a significant problem, particularly in developing countries.

In Colombia, post-caesarean infections have become a persistent problem that affects both women's health and the efficiency of the health system. According to the epidemiological reports of the National Institute of Health, despite the implementation of various prevention protocols, post-surgical infections continue to occur with high frequency. In the second epidemiological period of 2020, 62.6% of surgical site infection cases in Colombia were associated with cesarean sections. This finding underscores the need for ongoing vigilance in addressing the underlying risk factors that contribute to the development of these infections, which extend beyond the immediate health implications of the patients affected. The economic burden of these infections, including the costs associated with treatment, hospital readmissions, and potential long-term complications, further highlights the need for comprehensive, multifaceted approaches to address this persistent challenge.

Post-cesarean operative site infections are a multifaceted challenge involving various factors, including inadequate antibiotic prophylaxis, the quality of surgical procedures, the presence of maternal comorbidities, prolonged procedure time, and the type of microorganisms involved. Women who undergo a cesarean section and subsequently develop an ISO are more likely to experience severe complications, which can result in prolonged hospitalization, escalated medical expenses, and increased morbidity. Furthermore, surgical site infections can also have adverse effects on long-term health, affecting women's quality of life and limiting their ability to care for their children.

This study, titled "Behavior of post-cesarean operative site infections of the Caribbean Regional Police Clinic in 2022," aims to ascertain the prevalence and characteristics of post-surgical infections in women who have undergone cesarean sections at this institution. The primary objective is to identify the physical, medical, and comorbid risk factors associated with the development of operative site infections. The investigation will also ascertain the predominant microorganisms responsible for these infections and their respective incidence rates.

The study will also evaluate the effectiveness of the preventive measures applied in the clinic and propose improvements in care protocols to reduce the incidence of post-caesarean infections.

The Caribbean Regional Police Clinic is presented as a representative case to study post-surgical infections in a local context, where access to quality medical care varies according to the region and social stratum. The study's objective is to generate data that can inform the development of effective strategies to prevent and treat surgical site infections in women undergoing cesarean sections, with the aim of improving patient care and enhancing the efficiency of the healthcare system.

It is anticipated that the findings of this study will serve as a framework for the enhancement of care protocols and the implementation of more efficacious preventive measures, leading to a reduction in morbidity and an improvement in the quality of postoperative care for women undergoing cesarean sections at the Caribbean Regional Police Clinic and, consequently, in other health institutions that share analogous characteristics.

PROBLEM STATEMENT

The caesarean section has been a significant advance in modern medicine, providing an effective solution to reduce maternal and perinatal mortality, especially in cases of complicated deliveries. However, this surgical intervention also carries an inherent risk of postoperative infections, especially operative site infections (ISO), which have a detrimental effect on women's health and place a considerable burden on health systems. Post-caesarean infections are among the most prevalent surgical complications in women, with prevalence rates that vary according to geographical region, the type of care received, and the individual characteristics of the patients.

Despite the implementation of asepsis protocols, antibiotic prophylaxis, and enhanced perioperative care, surgical site infections persist as a persistent challenge. In Colombia, the incidence of post-caesarean infections remains high, underscoring the necessity for a comprehensive approach to address this issue. According to data from the National Institute of Health, post-caesarean surgical site infections constitute a substantial proportion of hospital infections, with 62.6% of cases registered in 2020 being caesarean sections.

The development of post-surgical infections can be attributed to various factors, including patient-related characteristics, the conditions of the operating room, the duration of the procedure, and pre-existing comorbidities. The presence of obesity, gestational diabetes, hypertension, anemia, inadequate antibiotic prophylaxis, previous hospital-acquired infections, and prior surgical interventions has been demonstrated to elevate the risk of infection. Furthermore, the duration of surgery, the nature of the procedure (whether scheduled or emergency), and the efficacy of sterilization and asepsis procedures in operating rooms have been demonstrated to play a pivotal role in the incidence of these infections.

Post-caesarean surgical site infection has direct implications for women's health and can also lead to serious complications, such as sepsis, the need for further surgical intervention, prolonged hospitalization and increased healthcare costs. These complications impact not only individual patients but also exacerbate the burden on healthcare systems, contributing to hospital congestion, resource shortages, and overburdened medical teams.

The present study is guided by the necessity to identify and comprehend the risk factors associated with post-caesarean surgical site infections, with the objective of implementing more efficacious strategies to prevent and treat these infections at the Caribbean Regional Police Clinic, which caters to a diverse population of women of different age ranges. The study will also examine comorbidities and obstetric history. The fundamental question that guides this research is: What is the behavior of surgical site infections in post-caesarean women of the Caribbean Regional Police Clinic in 2022?

The objective of this study is to identify the factors that predispose women to developing post-surgical infections, the most common microorganisms involved, the incidence rates of infections, and the relationship between these factors and the quality of care provided. The findings of this study are expected to play a pivotal role in the evaluation of current care protocols, the identification of areas that require enhancement in postoperative care, and the proposal of novel preventive strategies that have the potential to reduce the incidence of infections and enhance patient outcomes.

The study is two-pronged in its approach: firstly, it seeks to obtain specific data on the Caribbean Regional Police Clinic, and secondly, it aims to generate knowledge applicable to other health institutions with similar characteristics. The implementation of enhanced protocols for the prevention and treatment of post-caesarean infections stands to contribute meaningfully to the reduction of morbidity and the enhancement of the quality of care for the maternal population. This, in turn, will have a direct impact on women's health and social well-being in general.

Objectives

General objective

To determine the behavior of operative site infections (ISO) in post-caesarean women of the Caribbean Regional Police Clinic in 2022

Specific objectives

- To identify the physical, medical, and comorbidity risk factors that may contribute to an increase in ISO in women under study.
- To identify surveillance factors in the etiology of ISO in post-caesarean women of the Caribbean Regional Police Clinic in 2022.
- To recognize the incidence of infections that occurred at the surgical site in women who underwent cesarean sections at the Caribbean Regional Police Clinic in 2022.

METHODOLOGY

This study adopts a quantitative and descriptive approach with the objective of determining the behavior of operative site infections (ISO) in post-caesarean women of the Caribbean Regional Police Clinic during the year 2022. The objective of the study is threefold: firstly, to characterize the infections of the operative site; secondly, to identify the associated risk factors; thirdly, to analyze the incidence of infections; and fourthly, to evaluate the effectiveness of the preventive measures implemented in the clinic. The methodological underpinnings of this study are delineated in the ensuing section.

Type of study

The present study adopts a quantitative descriptive approach, which involves the collection of numerical data pertaining to post-surgical infections in women who have undergone caesarean sections. The descriptive approach will facilitate a comprehensive understanding of the characteristics of infections at the operating site, including predisposing factors, the microorganisms involved, and incidence rates. The use of this approach is pivotal in generating information that can be employed to enhance prevention and treatment strategies for these infections.

Population and sample

The study population comprises all women who underwent caesarean section at the Caribbean Regional Police Clinic during 2022. This group was selected due to the high prevalence of surgical site infections in post-caesarean women and the importance of understanding the factors that influence their development.

The sample consists of 100 patients who, according to medical records, presented with surgical site infection after caesarean section. The selection of subjects was conducted in accordance with the following inclusion and exclusion criteria.

Inclusion criteria

The following paper will discuss the cases of women who underwent caesarean sections at the Caribbean Regional Police Clinic in 2022.

Patients who developed surgical site infection after undergoing a C-section.

Women with pre-existing health conditions, including gestational diabetes, preeclampsia, obesity, or a history of prior caesarean sections.

Exclusion criteria included women who did not present with infection at the post-caesarean surgical site.

Patients for whom incomplete data is present in their medical records.

Variables

Several key variables were defined for this study, which will be analyzed based on their relationship with operative site infections. Here are some of the main variables:

Age (discrete quantitative): Chronological age of the patient at the time of the intervention.

Comorbidities (qualitative): Includes diabetes mellitus, hypertensive disorders, obesity, among others.

Duration of surgery (quantitative): Time elapsed during the surgical procedure.

Type of C-section (qualitative): Determines whether the C-section was scheduled or urgent.

Antibiotic prophylaxis (qualitative): Determines whether a prophylactic antibiotic was given and the type of antibiotic used.

Microorganisms (qualitative): Identification of the most prevalent microorganisms isolated in the samples obtained from the surgical site.

Length of hospitalization (quantitative): Time from caesarean section to discharge.

Data collection techniques

Data collection will be carried out through a retrospective analysis of medical records. To do this, a structured checklist will be used to extract the relevant information from each patient, such as:

Sociodemographic data

Clinical information (diagnoses, comorbidities, obstetric history).

Details of the surgical procedure (type of cesarean section, duration of surgery, antibiotic prophylaxis).

Microbiological results (type of microorganisms isolated in the samples).

Postoperative evolution (length of hospitalization, complications, readmissions).

The data will be extracted from the medical records of patients who have been treated at the Caribbean Regional Police Clinic between January and December 2022. Access to medical records will be authorized by the clinic's management, and the confidentiality of the information will be guaranteed through the anonymization of patients' personal data.

Data analysis techniques

Once the data has been collected, it will be analyzed using descriptive statistical techniques. Quantitative variables, such as age and duration of surgery, will be analyzed using measures of central tendency (mean, median) and dispersion (standard deviation). For qualitative variables, such as comorbidities, type of surgery and type of microorganisms, absolute and relative frequencies (percentage) will be used.

The analysis will be carried out using SPSS software to obtain a clear view of the incidence of operative site infections in the sample studied, identify patterns and correlations between the variables, and determine significant risk factors.

Ethical considerations

This study will be carried out in compliance with the ethical principles established for health research, in accordance with Resolution 8430 of 1993 of the Ministry of Health of Colombia, which establishes the guidelines for research on human beings. It will ensure that patient data is handled confidentially and that their privacy is respected at all times.

In addition, informed authorization will be requested from those responsible for the clinic to access the medical records, and patients will be informed about the purpose of the study. Participation in this study will not involve additional risks for patients and will be an analysis of historical data for research purposes only.

RESULTS

Table 1. Distribution of age percentage frequency in women with post-cesarean ISO at the Caribbean Regional Police Clinic in 2022.

FREQUENCY TABLE AGE				
AGE	f	fr	%	F
20-30	64	0,64	64	64
31-40	28	0,28	28	92
41-50	8	0,08	8	100
TOTAL	100	1	100	

Source: Clinical History-Caribbean Regional Hospital. 2022

The analysis of the sample indicated that individuals within the 20-30 age demographic are particularly vulnerable to post-cesarean section infection. This finding is of significant concern, as this demographic represents a group of individuals at their most productive in their professional and familial lives, potentially impacting not only themselves but also their wider social and community networks.

Table 2. Percentage frequency distribution of infectious tissue samples taken at the operative site of post-cesarean women of the Caribbean Regional Police Clinic in 2022.

TAKING SAMPLES OF INFECTIOUS TISSUE AT THE SURGICAL SITE				
	f	Fri	%	F
YES	82	0,82	82	82
NO	18	0,18	18	100
TOTAL	100	1	100	

Source: Clinical History-Caribbean Regional Hospital. 2022

The analysis of the data presented in this table indicates that a significant proportion of the population under study has been exposed to the sample of infectious tissue. This has been demonstrated to exert a positive influence on outcomes, as it serves to enhance the likelihood of identifying the most prevalent microorganism in patients who undergo caesarean section.

Table 3. Distribution of the percentage frequency of previous surgeries in women with post-cesarean ISO at the Caribbean Regional Police Clinic in 2022.

PREVIOUS SURGERIES				
	f	Fri	%	F
YES	61	0,61	61	61
NO	39	0,39	39	100
TOTAL	100	1	100	

Source: Clinical History-Caribbean Regional Hospital. 2022

It is important to note that 61% of patients diagnosed with ISO have previously undergone surgical procedures (Smith, 2020). This observation suggests a higher probability of infection following a caesarean section when one or more surgeries have been performed previously. Potential causes of infection include the inappropriate use of antibiotic therapy during previous surgeries and immune system impairment resulting from recent surgeries (Brown et al., 2019).

Table 4. Distribution of percentage frequency of sample isolation in women with ISO post-cesarean section of the Caribbean Regional Police Clinic in 2022.

SAMPLE ISOLATION				
	F	Fri	%	F
YES	82	0,82	82	82
NO	18	0,18	18	100
TOTAL	100	1	100	

Source: Clinical History-Caribbean Regional Hospital. 2022

The findings of this study provide substantial evidence in support of the hypothesis that the degree of isolation of the samples is a contributing factor to the successful treatment of patients. It can be deduced from these results that the provision of treatment by health personnel can be tailored to the specific needs of patients, thereby accelerating recovery times.

Table 5. Percentage distribution of pathologies developed in women with post-cesarean ISO at the Caribbean Regional Police Clinic in 2022.

PATHOLOGIES IN PREGNANCY				
	f	Fri	%	F
Diabetes Mellitus	26	0,26	26	26
Hypertensive Transnorn	27	0,27	27	53
Overweight Or Obese	47	0,47	47	100
Total	100	1	100	

Source: Clinical History-Caribbean Regional Hospital. 2022

The analysis of the data collected indicates that excess weight is likely to be one of the most significant contributing factors to the development of intra-operative complications, in patients classified as having obesity undergoing a caesarean section procedure. It has been established that obesity is a well-documented predictor of adverse peri-operative outcomes, which include, but are not limited to cardiovascular incidents such as myocardial infarction and cerebrovascular accidents such as strokes.

Table 6. Percentage distribution of procedure time in minutes in post-cesarean patients of the Caribbean Regional Police Clinic in the year 2022.

PROCEDURE TIME IN MINUTES				
	f	Fri	%	F
<30	10	0,1	10	10
30-60	32	0,32	32	42
60-120	58	0,58	58	100
>120	0	0	0	100
TOTAL	100	1	100	

Source: Clinical History-Caribbean Regional Hospital. 2022

The analysis of the available data indicates that the highest number of caesarean sections is performed between one and two hours. This suggests a potential risk factor for increased infection rates due to the protracted duration of open surgical incisions, which can facilitate the entry of pathogens.

Table 7. Percentage distribution of type of surgery in patients with post-caesarean ISO at the Caribbean Regional Police Clinic in 2022.

TYPE OF SURGERY				
	f	Fri	%	F
SCHEDULED	75	0,75	75	75
URGENT	25	0,25	25	100
TOTAL	100	1	100	

Source: Clinical History-Caribbean Regional Hospital. 2022

This table indicates that most surgical procedures are scheduled, a factor that is conducive to effective organization. Paraclinical studies, for instance, can be conducted in a timely manner, and the operating rooms and healthcare personnel can be allocated in an appropriate manner. Such measures contribute to the reduction of the risk of infection, which is a favorable outcome.

Table 8. Percentage distribution of prophylaxis time in hours performed to patients with post-caesarean ISO at the Caribbean Regional Police Clinic in 2022.

PROPHYLAXIS TIME IN HOURS				
	f	Fri	%	F
24	30	0,5454545	54,545454	54,545454
48	25	0,4545454	45,454545	100
TOTAL	55	1	100	

Source: Clinical History-Caribbean Regional Hospital. 2022

This information suggests that prophylaxis is administered for a limited amount of time during clinic visits for patients, with most cases receiving doses no longer than 24 hours. This limitation precludes the attainment of optimal antibiotic concentrations, thereby increasing the risk of infection at the surgical site.

Table 9. Percentage distribution of antibiotic prophylaxis performed on patients with post-caesarean ISO at the Caribbean Regional Police Clinic in 2022.

ANTIBIOTIC PROPHYLAXIS IN SCHEDULED PREGNANT WOMEN				
	f	Fri	%	F
YES	55	0,55	55	55
NO	20	0,20	20	100
TOTAL	75	0,75	75	

Source: Clinical History-Caribbean Regional Hospital. 2022

The available information suggests that many patients are receiving antibiotic prophylaxis, thereby contributing to the prevention of infections at the surgical site. The recommendation, as supported by the complementary information provided in Table 8, is to extend the prophylaxis duration. This adjustment is intended to ensure the antibiotic's efficacy in reducing infection rates.

Table 10. Percentage distribution of hospital stay time in hours of patients with post-cesarean antibiotic application of the Caribbean Regional Police Clinic in the year 2022.

HOSPITAL STAY TIME IN HOURS WITH ANTIBIOTIC APPLICATION				
	f	Fri	%	F
24	32	0,32	32	32
48	12	0,12	12	44
72	34	0,34	34	78
>72	22	0,22	22	100
TOTAL	100	1	100	

Source: Clinical History-Caribbean Regional Hospital. 2022

The data in the table indicates that the mean postoperative hospital stay is 72 hours in 34% of patients. This finding suggests that the factors influencing postoperative length of stay include inadequate preoperative prophylaxis, excessive surgical time, obesity-related comorbidities, and a high prevalence of previous surgeries. These elements contribute to the variation in postoperative hospital stay duration.

Table 11. Sociodemographic variables in pregnant patients of the Caribbean Regional Police Clinic in 2022.

SOCIODEMOGRAPHIC VARIABLES			
AGE	N. OF PATIENT	STRATUM	NUMBER OF PATIENTS
20-30	45	1	40
31-40	30	2	38
41-50	25	3	22
TOTAL	100	TOTAL	100

Source: Medical Record – Caribbean Regional Hospital. 2022

The study's findings indicate that 45% of the sample consists of patients between the ages of 20 and 30, with a decline observed as age progresses. This percentage decreases to 30% among women between 31 and 40 years old, and further declines to 25% among women over 41 years old, reaching a maximum of 50 years. A significant proportion of the sample, amounting to 75%, falls within the age range of under 41 years, aligning with the anticipated ages for low-risk gestation.

With respect to the demographic composition of the sample corresponding to the social stratum, it can be concluded that many patients are concentrated in stratum 1, with a gradual decrease observed as the stratum increases. Notably, the proportion of patients decreases in proportion to the increase in stratum, suggesting an inverse relationship between the two variables. A significant proportion of the population, specifically 78%, falls within strata 1 and 2.

Table 12. Risk factor variable hospital stay in days, in pregnant patients of the Caribbean Regional Police Clinic year 2022.

VARIABLE RISK FACTOR HOSPITAL STAY IN DAYS						
AFTER PERFORMING THE PROCEDURE IN:	OPERATING THEATRE 1	DAYS OF HOSPITAL STAY	OPERATING THEATRE 2	DAYS OF HOSPITAL STAY	OPERATING THEATRE 3	DAYS OF HOSPITAL STAY
Patient with fewer days of stay in the hospital.	15	3	10	0	9	0
Patient with the most days of hospital stay	33	14	18	9	15	8
TOTAL	48	17	28	9	24	8
AVERAGE	0,35		0,32		0,33	

With respect to the variable of risk factors for hospital stay in days, it is posited that operating room 1 is where a significant proportion of patients are hospitalized, with an average of 35%, followed by operating room 3 with an average of 33% and finally operating room 2 with an average of 32%.

Table 13. Variable pharmacological treatment vs microorganism, in pregnant patients of the Caribbean Regional Police Clinic year 2022.

VARIABLE PHARMACOLOGICAL TREATMENT VS MICROORGANISM				
OPERATING ROOM	1	2	3	TOTAL
STAFI AUREUS	20	10	7	37
PSEUDOMONA AERUGINOSA	18	15	5	38
ESCHERICHIA COLI	5	3	6	14
PATIENT WITHOUT ASSOCIATED INFECTION	5	0	6	11
TOTAL	48	28	24	100

In relation to the variable of pharmacological treatment vs. microorganism, the microorganism that is most prevalent is Staphylococcus Aurea, with its highest prevalence in operating rooms 1 and 2 and its resistance to treatment with penicillin and/or oxacillin. Secondly, Pseudomonadaeruginosa exhibited a high prevalence in operating room 1. Thirdly, we identified Escherichia Coli. It can be inferred that the absence of infections had the lowest prevalence in the three operating theatres, with operating theatre 2 having the lowest prevalence, with no patients without associated infection. This finding suggests that the prevalence of patients without infection-associated microorganisms is low, with five patients in operating room 1, zero patients in operating room 2, and six patients in operating room 3. This observation carries implications for the adequacy of asepsis and antisepsis techniques in operating rooms, as well as the presence of microorganisms that are resistant to both antibiotics and disinfectants. The most prevalent of these microorganisms are likely Staphylococcus Aureus, as indicated in the table.

Table 14. Variable length of stay and hospital evolution in pregnant patients of the Caribbean Regional Police Clinic in 2022.

VARIABLE LENGTH OF STAY AND HOSPITAL EVOLUTION				
Operating Room	Evolution Positive Hospitalization In	Negative Evolution In Hospitalization	Stationary Evolution In Hospitalization	Total
1	15	26	7	48
2	17	7	4	28
3	10	10	4	24
TOTAL OF PATIENTS	44	41	15	100

The analysis of the data reveals a significant disparity in the clinical outcomes observed between the two operating rooms. While operating room number 1 demonstrates a negative evolution in 26 out of 48 patients, operating room number 2 exhibits a less pronounced negative evolution, with only 7 out of 28 patients demonstrating such a progression. Notably, operating room number 3 exhibits an equal distribution of positive and negative outcomes.

The positive evolution is sustained in operating room number 2 due to the low prevalence of Staphylococcus aureus infection, a phenomenon that stands in contrast to the high prevalence of this germ observed in operating room number 1.

Table 15. Variable by germ, in pregnant patients of the Caribbean Regional Police Clinic year 2022.

VARIABLE BY GERM				
OPERATING ROOM	1	2	3	TOTAL
STAFI AUREUS	28	12	11	51
SEUDOMONA AURIGINOSA	13	10	7	30
ESCHERICHIA COLI	7	6	6	19
TOTAL	48	28	24	100

The analysis of various variables pertaining to the microorganism in question yielded the following findings: the prevalence of postoperative infections is highest in Operating Room 1, with *Staphylococcus aureus* being the predominant microorganism. This microorganism exhibits a high degree of resistance to broad-spectrum antibiotics, resulting in prolonged hospital stays and increased clinical costs. Operating room No. 2 exhibited a high prevalence of infection due to *Staphylococcus aureus*, and operating room No. 3 showed a high probability of this microorganism, suggesting that it is the most antibiotic-resistant.

DISCUSSION

During the study of the behavior of operative site infections in pregnant women who underwent cesarean section procedures at the Caribbean Regional Police Clinic in 2022, different variables were interpreted. These included the microorganisms involved in the appearance of surgical site infections, as well as the types of treatment applied to them. Important aspects such as associated comorbidities and the course of stay and hospital evolution, among others, were also considered.

Through a meticulous analysis of these variables and the collection of data from the medical records, it was possible to reflect on the implications that this type of infection has on the maternal population. The study focused on the interpretation of the results obtained during its development.

The results of the study suggest that the maternal population between 20 and 30 years of age may face a heightened risk of infection associated with the post-cesarean surgical site. This finding is particularly noteworthy, as these pregnant women are of reproductive age and often serve as heads of household. The acquisition of this infection could have implications for their family, household, and the broader community.

The analysis of the variable's procedure time in minutes, type of surgery, whether scheduled or emergency, and prophylaxis time in hours revealed a close correlation. The interpretation of the results suggests that the most prevalent type of surgery is scheduled, with 75% of these performed in a time between one and two hours. This finding suggests a heightened risk of infection, as the duration of the surgical incision can allow microorganisms to penetrate the body, endangering patient health. This observation aligns with the findings of a study that emphasizes the significance of surgical infections caused by bacteria penetrating through the incision, emphasizing the need to address this crucial issue to prevent the spread of antibiotic resistance (Vesismín Health, 2016). As indicated above, the prophylaxis time for patients is rather brief. Most patients receive treatment within 24 hours, which precludes the attainment of optimal antibiotic doses and the subsequent impregnation of the systemic level. This, in turn, elevates the likelihood of infection at the operative site.

The variables suggest that the prolonged hospitalization time after surgery, which is observed in 34% of the population, is significantly high, potentially leading to an increase in maternal morbidity and mortality rates. This phenomenon can be compared to the findings of Dueñas-Aparicio, who stated, "A post-cesarean surgical infection results in a longer hospital stay, higher care expenditures, and an increase in maternal morbidity, having an even greater impact in low-resource countries" (Dueñas-Aparicio, 2022).

The aforementioned factors are the result of a series of issues, including the limited time allotted for prophylaxis prior to surgery, the extended duration of surgical procedures, the prevalence of obesity-related comorbidities among patients, and the high incidence of prior surgeries. These factors have financial implications for the institution, contribute to an overcrowding of hospitalization services, and present significant challenges in terms of the recovery of pregnant women and the acquisition of additional infectious pathologies during these prolonged stays.

The study's limitations pertain to the restricted access to medical records due to confidentiality regulations, which permitted access to only a specific group of pregnant patients and precluded access to the records of all patients. Additionally, the laboratory's inability to access samples was attributed to the inherent biological risks associated with such procedures, and the delivery of reports on the most common microorganisms.

CONCLUSIONS

A thorough examination of the results reveals that the high hospitalization rate is likely influenced by the high prevalence of infections caused by the microorganism *Staphylococcus aureus*. These infections are particularly

prevalent in Operating Room 1, resulting in a higher incidence of complications following cesarean sections in pregnant patients.

The preponderance of infections is attributable to the microorganism *Staphylococcus Aureus*, underscoring the necessity for antibiotic prophylaxis prior to and following the procedure, in conjunction with rigorous asepsis and antisepsis methodologies.

A higher prevalence of surgical site complications post-cesarean section has been observed in women between the ages of 20 and 30 in this sample. This observation is supported by the data from the Caribbean Regional Police Clinic in 2022, where 64% of women in this age group experienced such complications.

Among the 100 pregnant patients, 82% had secretion samples taken from the surgical site wounds, indicating that this proportion of women also exhibited the presence of pathogenic microorganisms.

The most prevalent comorbidities observed in this study sample were obesity and overweight.

A significant proportion of the pregnant women in the sample, 82%, did not receive prophylaxis in the form of antibiotic therapy, a factor that significantly increases the risk of surgical site infection.

It is imperative that disinfection protocols in surgical rooms be intensified, as room No. 2, which houses the highest number of patients with complications, necessitates swift procedures to mitigate the risk of complications and infections.

The type of surgery, whether scheduled or emergency, does not appear to predispose patients to complications or infections at the surgical site. Rather, this is attributable to factors such as comorbidities, surgery time, aseptic techniques, and previous antibiotic prophylaxis.

RECOMMENDATIONS

It is recommended that the Caribbean Regional Police Clinic implement a protocol for antibiotic therapy that includes the performance of cultures and rigorous techniques of asepsis and antisepsis. In addition, all personnel should perform hand hygiene between surgical procedures. This protocol should be focused on operating room number 1, where the highest rate of complications and infections occurs. These measures would significantly reduce the incidence of complications and infections.

The study indicated that the most prevalent infections are often caused by *Staphylococcus Aureas*, underscoring the necessity for antibiotic prophylaxis prior to and following surgical procedures. This prophylaxis should be targeted and include antibiotics effective against *Staphylococcus Aureas*, such as oxacillin in conjunction with gentamicin. It is of paramount importance to adhere to the complete duration of the prescribed antibiotic therapy regimen. This is of paramount importance to prevent the development of resistance and the recurrence of more severe infections. With respect to the audit system, those responsible for monitoring and ensuring protocol compliance suggest conducting a comprehensive audit to ascertain the appropriate use of antibiotics before, during, and after the procedure, as well as conducting surveillance in the operating room and particularly in operating room number 1, where the incidence of postoperative infectious complications is likely to be highest following surgical interventions, which in this study are cesarean sections. Additionally, the audit should include monitoring compliance with disinfection and hand hygiene protocols.

It is imperative to acknowledge the pivotal function of the patient safety surveillance system in overseeing and ensuring adherence to international objectives. These objectives encompass the promotion of hand hygiene as the primary strategy for mitigating the risk of infections in operating room 1 and throughout the operating room. The system is instrumental in facilitating accurate patient identification and the reduction of infections at the operating site. The overarching recommendation is that these objectives be implemented to curtail the risk of infections throughout the operating room area, particularly in operating room number 1.

In light of the most recent recommendations, it can be deduced that the basis for our support lies in Resolution No. 3100 of 2019, dated November 25, 2019. This resolution outlines an authorization system, which, when implemented, would likely ensure a prudent interval between procedures, as well as between the application of aseptic and antisepsis techniques during different procedures. Furthermore, it is anticipated that prophylaxis times would need to extend beyond the findings of the study, which indicated durations of 24 hours or less. The assertions are supported by the resolution.

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