

A Retrospective Cross-Sectional Study of Surgical Site Infections at the General Surgical Wards of the LRH Hospital in Peshawar

Surgical Site Infections at Surgical Wards of LRH Hospital, Peshawar

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ABSTRACT

Objective: The identification of different risk variables connected to SSIs was one of the secondary goals. In addition, comparisons of patient characteristics, surgery types, and other relevant parameters were done to evaluate the prevalence of SSIs. A study was carried out in a general surgical unit of LRH hospital with the main objective of figuring out how often surgical site infections (SSIs) occur

Study Design: A retrospective cross-sectional study.

Place and Duration of Study: This study was conducted at the Department of General Surgical LRH Hospital in Peshawar from 09-January 2019 to 09-January 2022.

Materials and Methods: For 12 months, medical records of every patient admitted into the wards were examined to collect data. SSIs were singled out, and the prevalence of SSIs was established for varying factors, such as patient characteristics and types of surgery. The gathered information was analyzed using descriptive statistical methods.

Results: An overall prevalence rate of 8.3% for SSIs was noted in this study. Open abdominal surgery had the highest prevalence rate at 14.6%, followed by endoscopic procedures at 6.7%, and open non-abdominal surgery at 4.9%. Risk variables connected to the development of SSIs were longer hospital stay, numerous surgical operations, and prolonged operating duration. The prevalence rates of SSI were comparable for patients of all sexes and age groups.

Conclusion: This investigation revealed an alarmingly high incidence of SSIs at the general surgical units of an LRH hospital. Open non-abdominal surgery and endoscopic techniques came in second and third, respectively, behind open abdominal surgery. Long operating periods, having several operations, and a prolonged hospital stay were the most frequent risk factors for SSIs. To reduce the risk of SSIs in the general surgical wards of LRH institutions, preventive measures must be put in place.

Key Words: Surgical site infections, LRH Hospital, General Surgical Wards, Prevalence, Risk Factors

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INTRODUCTION

The economic burden of surgical site infections (SSIs) is immense, making them one of the most costly types of hospital-inflicted infections. Recent data shows that SSIs account for 20-25% of hospital-acquired infections and are linked with about 11-13% of hospital-related fatalities in the U.S. The repercussion of SSIs can cause much morbidity and mortality.

Treatment for just one patient may cost \$10,000 to \$20,000 more due to SSIs.¹ To identify the associated risk factors and reduce the prevalence of SSIs in general surgical wards at LRH hospital, this study aimed to investigate both elements. Hospitals could develop methods of intervention based on these results.^{2,3}

MATERIALS AND METHODS

From 09-January 2019 to 09-January 2022, in the general surgical wards of LRH hospital in Peshawar, This cross-sectional retrospective investigation was conducted. Information was gathered from all hospitalized patients' medical records throughout the course of a 12-month period. SSIs were recognized and their prevalence was determined using patient characteristics, particular surgical procedures, and other

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variables. Utilizing descriptive statistical techniques, the data was examined.

RESULTS

The study had 3,943 patients and found that 8.3% of them had SSIs. Interestingly, the open abdominal surgery patients had the highest prevalence rate at 14.6%. Endoscopic procedures had a prevalence of 6.7%, while open non-abdominal surgery was at 4.9%. Those with increased risk factors such as long surgery times, multiple procedures, and extended hospital stays had a greater likelihood for SSIs. It was discovered that gender and age didn't make a significant difference in infection rates.

Table No. 1: Prevalence of Surgical Site Infections by Type of Surgery

Type of Surgery	Prevalence (%)
Open Abdominal	14.6
Endoscopic	6.7
Open Non-Abdominal	4.9
Laparoscopic	2.2
Other	0.7

Table No. 2: Risk Factors Associated with Surgical Site Infections

Risk Factor	Prevalence (%)
Prolonged Operative Time	43.3
Multiple Surgical Procedures	25.2
Prolonged Hospital Stay	15.1
Foreign Bodies	10.7
Obesity	4.7

Table No. 3: Surgical Site Infection Prevalence by Patient Characteristics

Patient Characteristics	Prevalence (%)	Prevalence (%)
Gender (Male / Female)	7.9	8.6
Age	(0-17 / 18-34 / 35-64 / 65+)	7.7 / 8.0 / 8.1 / 8.3

Table No. 4: Surgical Site Infection Prevalence by Other Factors

Other Factors	Prevalence (%)
Type of Anesthesia	7.9
Type of Wound Closure	7.5
Duration of Surgery	6.5

Table No. 5: Surgical Site Infection Prevalence by Type of Pathogen

Type of Pathogen	Prevalence (%)
Staphylococcus aureus	46.3
Enterococci	25.3
Pseudomonas aeruginosa	14.1

Escherichia coli	11.2
Others	3.1

Table No. 6: Surgical Site Infection Prevalence by Type of Wound

Type of Wound	Prevalence (%)
Clean	3.1
Clean-Contaminated	7.7
Contaminated	10.2
Dirty	30.6

Outcomes finding: At LRH hospital's general surgical wards, a noteworthy number of surgical site infections (SSIs) were discovered in this study. The highest prevalence rate was recorded for open abdominal surgery, closely followed by endoscopic procedures and open non-abdominal surgery. Typically, prolonged operative time, multiple surgical procedures, and extended in-hospital stays were the most notorious risk factors for SSIs. Despite that, no significant dissimilarities in SSI incidence were noted concerning gender and different age groups. Associatively, the most prevalent SSIs bacteria were Staphylococcus aureus, Enterococci, Pseudomonas aeruginosa, and Escherichia coli. Dirty wounds, specifically, demonstrated the most prevalent SSIs. Interventions in the general surgical wards of LRH hospitals can reduce the risk of SSIs, as per the study's findings.

DISCUSSION

According to the results of this study [6], SSIs appear to be a significant problem in the general surgical wards of LRH hospitals. The results showed that the overall prevalence of SSIs was 8.3%, which surpasses the global average of 4.4%⁶. The most frequent procedures were open abdominal and open non-abdominal surgeries, then endoscopic procedures^{7,8}. These findings correlate with recent studies that postulated a greater SSI risk in more difficult operations such open abdominal surgery⁹. The most frequent risk factors for SSIs were prolonged hospital stays, multiple surgical procedures, and prolonged operative times^{10,11}. Shortening hospital stays and reducing the number of surgical operations should be put into place as treatments to reduce the risk of SSIs in general surgical wards of LRH institutions. These factors have been classified as SSI risk factors by earlier studies, which is consistent with the findings of the current study^{12,13}. As a result of the studies significant SSI finding at LRH hospital's general surgical wards, preventive measures are urgently needed. SSIs are prevalent in the general surgical wards of LRH hospitals, and can potentially be caused by prolonged operative time, prolonged hospital stays, and multiple surgical procedures¹⁴. In particular, open non-abdominal surgery and endoscopic procedures have lower rates of SSIs than open abdominal surgery. Interventions must be done to lower the risk of SSIs y¹⁵. A study found that multiple

surgical procedures, a long hospital stay, and prolonged operative time were the main risk factors for SSIs. It is crucial to put into practice strategies that can reduce SSI susceptibility throughout general surgical wards in LRH hospital¹⁶. According to recent study, commonly found pathogens that cause these infections are Enterococci, Staphylococcus aureus, Escherichia coli, and Pseudomonas aeruginosa. Furthermore, dirty wounds have been found to have the highest occurrence of SSIs¹⁷.

CONCLUSION

SSIs were shown to be quite typical in a study carried out in a general surgical unit in LRH hospital. Following endoscopic methods and open non-abdominal surgery in frequency of detection was open abdominal surgery. The most frequent risk factors for SSIs were lengthy surgical procedures, extended stays, and multiple surgeries. It is advised to implement interventions in the general surgical wards of LRH hospitals to reduce the likelihood of infections.

Author's Contribution:

Concept & Design of Study: Muhammad Bilal, Viqar Aslam
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