

Synopsis for Dissertation Submitted



The IIHMR University, Jaipur

for the partial fulfilment for the award of the degree of
Master of Business Administration (MBA)
in
Hospital and Health Management

By

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2024

Synopsis

"Antibiotic Prophylaxis in Surgery: Patterns, Outcomes, and Recommendations"

Introduction

Antibiotic prophylaxis in surgery is a critical intervention aimed at preventing surgical site infections (SSIs), which are among the most common complications in surgical patients. SSIs lead to increased morbidity, extended hospital stays, and higher healthcare costs. Despite well-established guidelines, compliance with antibiotic prophylaxis protocols remains variable, impacting patient outcomes. This study investigates the patterns and outcomes of antibiotic prophylaxis in surgery, identifies gaps in current practices, and offers recommendations to enhance compliance and reduce SSIs. The research was conducted at Paras Hospital, Gurugram, over a two-month period from April 1 to May 31, 2024.

Conceptual Framework

The conceptual framework for this study is built on the principles of infection prevention and control, particularly focusing on the timing and selection of antibiotics for surgical prophylaxis. Key elements include:

Antibiotic Selection: Appropriate choice of antibiotic based on the type of surgery and patient factors.

Timing of Administration: Administering the prophylactic antibiotic within a specific time frame before incision.

Compliance: Adherence to established guidelines for antibiotic prophylaxis.

Outcomes: Incidence of SSIs and their correlation with compliance levels.

Research Gap

Despite extensive guidelines and research on surgical antibiotic prophylaxis, there remains a gap in understanding the real-world compliance rates and the specific reasons for non-compliance in diverse healthcare settings. Existing studies often lack granular data on the timing of antibiotic administration and its direct impact on SSI rates. Additionally, the attitudes and practices of surgeons regarding prophylactic antibiotic administration, especially when patients are already on antibiotics, are not well-documented. This study aims to fill these gaps by providing detailed analysis and insights based on data from a tertiary care hospital.

Research Questions

What are the current patterns of antibiotic prophylaxis in surgical procedures at Paras Hospital, Gurugram?

What is the compliance rate with established guidelines for surgical antibiotic prophylaxis?

What are the primary reasons for non-compliance with prophylactic antibiotic guidelines?

How does the timing of antibiotic administration affect the incidence of SSIs?

What are the outcomes associated with compliance versus non-compliance in terms of SSI rates?

How do surgeon attitudes towards prophylactic antibiotics impact compliance rates?

Research Objectives

To analyze the patterns of antibiotic use in surgical prophylaxis at Paras Hospital, Gurugram.

To determine the compliance rate with established antibiotic prophylaxis guidelines.

To identify the primary reasons for non-compliance with prophylactic antibiotic protocols.

To assess the impact of the timing of antibiotic administration on SSI rates.

To compare the outcomes (SSI rates) between compliant and non-compliant cases.

To evaluate the attitudes of surgeons towards the administration of prophylactic antibiotics when patients are already on antibiotic therapy.

Research Design:

This study utilizes a retrospective cohort design to analyse data from patient records. The aim is to evaluate the effectiveness of different antibiotic prophylaxis regimens and identify factors associated with successful prevention of SSIs.

Study Location:

The study was conducted at Paras Hospital, Gurugram, a multi-specialty hospital with a wide range of surgical departments.

Study Duration:

Data collection covered surgical procedures performed from April 1, 2024, to May 31, 2024.

Study Population:

The study included patients who underwent surgical procedures at Paras Hospital Gurugram during the specified study period.

Inclusion Criteria:

- Patients who underwent surgical procedures between April 1 and May 31, 2024.
- Patients who received antibiotic prophylaxis as part of their surgical care.
- Complete patient records including date of surgery, type of surgery, department, antibiotics administered, incision time, and relevant remarks.

Exclusion Criteria:

- Patients with incomplete or missing data on key variables.
- Patients who did not receive prophylactic antibiotics.
- Patients with pre-existing infections at the surgical site.

SAMPLE SIZE: The sample size was determined based on the total number of eligible surgical cases at Paras Hospital Gurugram during the study period

SAMPLING TECHNIQUE: Comprehensive **sampling** method, where all eligible cases within the defined timeframe were included in the study. This approach ensured that the study captured a complete and representative dataset of the hospital's surgical procedures and prophylactic practices during the specified period

Data Collection:

Data were extracted from the hospital's electronic medical records system, focusing on the following variables:

- **Date of Surgery:** The specific date on which the surgery was performed.
- **Surgery Done:** The type of surgical procedure conducted.
- **Department:** The medical department responsible for the surgery.
- **Antibiotics:** Details of the antibiotics administered for prophylaxis, including type and dosage.
- **Incision Time:** The time when the surgical incision was made.

Data Analysis:

- **Descriptive Statistics:** Summarize patient demographics, types of surgeries, departments, and antibiotic usage patterns.
- **Incidence Rates:** Calculate the incidence of SSIs within 30 days post-surgery for different antibiotic regimens and surgical procedures.
- **Comparative Analysis:** Compare SSI rates across different surgical departments and antibiotic prophylaxis protocols.
- **Correlation Analysis:** Assess the relationship between the timing of antibiotic administration and the occurrence of SSIs.

Outcomes Measured:

- **Primary Outcome:** Incidence of surgical site infections (SSIs) within 30 days post-surgery.
- **Secondary Outcomes:** Factors associated with reduced SSI rates, including timing and type of antibiotic prophylaxis, type of surgery, and department.

Ethical

The study was conducted in accordance with ethical guidelines and approved by the Institutional Review Board (IRB) of Paras Hospital Gurugram. Patient confidentiality was maintained by anonymizing data and using unique health identifiers (UHIDs)

Considerations:**Plan of Analysis**

The analysis will involve both quantitative and qualitative methods:

Descriptive Statistics:

Frequency and percentage distribution of surgeries, antibiotic usage, compliance, and non-compliance cases.

Calculation of SSI rates in compliant versus non-compliant groups.

Qualitative Analysis:

Thematic analysis of interviews with surgeons to understand their attitudes towards prophylactic antibiotics and reasons for non-compliance.

- Tentative Chapter Plan
- Introduction:
- Literature Review:
- Methodology:
 - Research design and approach.
 - Study setting and duration.
 - Data collection methods and tools.
 - Sampling technique and sample size.
 - Inclusion and exclusion criteria.
 - Data Analysis:
 - Results:
 - Detailed findings on patterns of antibiotic use, compliance rates, reasons for non-compliance, and SSI outcomes.
 - Discussion:
 - Interpretation of results in the context of existing literature.
 - Implications for clinical practice and policy.
 - Limitations of the study.
 - Conclusion:
 - Summary of key findings.
 - Contributions to the field.

- Future research directions.
- Acknowledgements
- Recognition of individuals and institutions that contributed to the research.
- References:
- Comprehensive list of all sources cited in the dissertation.