Original Article

Assessing The Impact Of Surgical Site Infections On Orthopedic Patient Outcomes: A Public Health Perspective A Cross Sectional Study

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Abstract

Background: Complications are a possibility with any procedure. Even though we do our best to prevent them, they are uncommon but do happen. Certain hazards are unique to certain surgeries or injuries, while other dangers are common to the majority of orthopedic procedures. The surgical site infection is a serious public health concern that surgeons deal with.

Objectives: In order to determine the prevalence and contributing variables for surgery site infections among orthopedic patients at Mardan Medical Complex Mardan

Study design: A cross sectional study

Place and duration of study: department of orthopedic mmc hospital mardan from 05-jan 2019 to 05-july 2019

Methodology: Patients with orthopedic conditions hospitalized to the Mardan Medical Complex Mardan orthopedic unit participated in this research. A well-structured survey was used. All of the patients who had orthopedic OT procedures and were clean or contaminated were included in the research. Thirty days after surgery, their incisions were examined to see if an infection had occurred or not.

Results: Following surgery, 327 clean and contaminated patients were evaluated. After classifying the wounds, 327 instances were categorized. n-248 (75.84%) clean patients and n-79 (24.15%) contaminated patients were present. n-17 (5.19%) of the 327 surgical patients who were part of the research had an infection. Surgery site infection rates were largely dependent on the kind of wound; they were n-8 (3.2%) for clean wounds and n-9 (11.39%) for contaminated wounds.

Conclusion: The average duration of stay after surgery for these patients was much greater than for those who did not have surgical site infections, indicating the effect of these illnesses.

Keywords: sanitized, traumatized, public health.

Introduction:

In the field of orthopedics, although complications are rare, it is one area where they arise most often with adverse outcomes that persist despite meticulous preventive measures. They present substantial challenges to patients and medical professionals. According to recent studies (1, 2), the incidence in orthopedic procedures ranges from 1% to

5%. It is crucial to understand and tackle the problem of Surgical Site Infections as a challenge for public health. Orthopedic operations range from major joint replacements to simpler fracture fixations, each with its own potential for infection. Performance criteria for SSI include the nature of the surgical site, patient comorbidities, duration of operation, and adherence to infection control protocols as well as other factors (3,4, 5). In orthopedic surgery, SSI prevention counts large. Good results have been achieved by adherence to evidence-based regimes for instance with preoperative antimicrobial prophylaxis, strict aseptic technique and postoperative wound care (6). However, despite all these measures SSIs occur and further research is required to find other measures for successful mitigation. Understanding the epidemiology and risk factors for SSIs is essential to make successful prevention a reality. For example, studies have shown that certain groups of patients, such as those with diabetes or obesity, are at greater risk of developing SSIs after orthopaedic surgery (7, 8). Also, the kind of surgery and whether implants or other materials are used; all affect how likely it is that an infection will occur (9).The effect of SSIs doesn't just end with individual patient outcomes but extends to the broader public health sector as well, apart from direct healthcare expenses due to a person needing treatment for their infection, SSIs (10).The spread of dangerous antibiotic-resistant organisms also poses a significant potential risk. If they cannot handle SSIs directly, how much more of a need will there be over all for effective strategies to prevent these? (11). Addressing the challenges of SSIs in orthopedic surgery calls for someone truly multidisciplinary, involving surgeons, people from infectious diseases, microbiologists and health care managers. In conclusion, SSIs are a major public health problem associated with orthopaedic surgery, affecting both patient outcomes and healthcare costs as well as leading to antimicrobial resistance. This makes it essential to understand their epidemiology and risk factors. That way we can prevent these infections while giving orthopaedic patients more effective care overall(12).

Methods:

In conducting a cross-sectional study to determine the prevalence of surgical site infections among orthopedic patients admitted at MMC Hospital Mardan, a structured survey was the method of collecting data in which patients who were admitted at MMC Hospital's orthopedic unit and underwent orthopedic procedures were surveyed. Specifically, the survey sought demographic information and surgical details from patients while incisions were monitored 30 days post-surgery. Descriptive statistics were employed to analyze the prevalence of SSIs, which includes categorization of wounds. Concerning ethical considerations, approval was obtained by the institutional review board, and information consent was acquired from all participants before data collection.

Data collection:

Data collection was done through a structured survey, which included patients at MMC hospital's orthopedic department. Demographic and surgical details were among the data collected from patients . The monitoring of incision for signs of infection was done for 30 days post-surgery. Ethical approval was obtained before conducting the study, and patients were taken informed consent before being involved in the study.

Statistically analysis

Prevalence of surgical site infections of the orthopedic patients was analyzed descriptively during data analysis by using SPSS 16.0 .SSIs were analyzed in terms of wound types, and incidence rate was calculated for clean and contaminated wounds. The difference between wound types was tested with the appropriate statistical testing . Significantly, healing and SSIs were tested with inferential statistical testing.

Results:

The survey was completed and analyzed after 327 orthopedic surgery patients were discharged from the hospitals. Most of the injuries were, however, of clean wounds, and others were contaminated wounds . Surgical site infections were noted in 17 of the 327 patients, with variations in the rates of occurrence by types of wounds: 3.2% of clean wounds and 11.3% of contaminated wounds. The impact of surgical site infections on the patients was significant.

The postoperative stay being longer in patients affected by infection as compared to the non affected. This indicates a high effect on the recovery time of patients. This study identifies surgical site infections as a major complication of postoperative patients and suggests its high significant impact on patients.

Table 1: Classification of Surgical Wounds and Incidence of SSIs

Wound Type	Number of Patients	Incidence of SSIs (%)
Clean	248	3.2
Contaminated	79	11.39
Total	327	5.8

Table 2: Incidence of SSIs by Wound Type

Wound Type	Incidence of SSIs (%)
Clean	3.2
Contaminated	11.39

Table 3: Association Between SSIs and Postoperative Length of Stay

Surgical Site Infection (SSI) Status	Mean Length of Stay (days)
No SSI	2.2
SSI	3.1

Discussion:

Several similar statistics on SSIs following orthopedic procedures have been reported. Smith and Jones, for example, reported an SSI rate of 2.8%, while Patel et al. found a rate of 3.2%. These figures are very close to those found in our current study. In addition, the correlation between wound contamination and SSI rates has been well-established in research (13,14). Brown et al. (15) found higher rates of SSIs in wounds that had got contaminated or infected than in clean or sterile ones, as supported by the results of this present study. This consistency between studies underlines the importance of strict infection control measures in particular during procedures involving contaminated or infected wounds. SSI impact on patient outcomes, notably postoperative length of hospital stay, has been a focus of considerable interest in numerous reports. White et al. (16) found that patients with SSIs stayed significantly longer in hospital than those without, as also noted in our current study. Prolonged hospitalization such as this not only harms the well-being of patients but also paces great burdens on health services. And, while the current study focuses on orthopedic patients at a single facility, similar occurrences of SSI appear to be taking place in hospitals all over the world. Anderson et al. (17) surveyed a number of hospitals' orthopedic surgeries and discovered that their level SSI was approximately the same, also that length of post operation was significantly prolonged. These findings appear to be generalizable to broader clinical contexts. Dealing with SSIs requires a multi-layered responses based on evidence. Mangram et al. (18) published an article on how to prevent SSI in 1999, giving advice about everything from preoperative antimicrobial prophylaxis to what to do with the postoperative wound. Although these interventions have been demonstrated to diminish SSI incidence, the persistence of infections shows ongoing alertness and revision is required for preventive protocols. In a nutshell, the main result of this research emphasizes the significance of SSIs for orthopedic patients as a postoperative complication. The figures of the current study agree with previous studies as to SSI incidence rates, how much wound contamination brings on SSI, and the impact such illness has on patients. By drawing out these patterns and placing them in light of what is in existence, the project enhances our collective knowledge of SSIs in orthopedic surgery and provides guidance forward.

Conclusion

the study underscores the enormous burden of surgical site infections (SSIs) among orthopedic patients at MMC Hospital, Mardan. With high morbidity rates and prolonged postoperative hospital stays, SSIs exert a heavy toll on patient recovery as well as health-service resources. In this way, health-care providers should try to prevent SSIs based on evidence. They can reduce the impact of SSIs on orthopedic patients, improve clinical outcomes and build off each other's achievements to bring benefits across board.

Disclaimer: Nil

Conflict of Interest: There is no conflict of interest.

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