

AN UPDATED GUIDELINES ON POST-OPERATIVE WOUND MANAGEMENT

¹Dr. Sangita Santosh Nimbalkar, ²Manish R. Malani

^{1,2}Surgery Associate Professor, Vedantaa Institute of Medical Sciences, Saswand, Dhundalwadi, Palgahr (Maharashtra)

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Corresponding author: Manish R. Malani

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Abstract

Introduction: management and prevention of wounds after a surgical procedure, are important and debatable topics. Optimal adoption of guidelines for proper prevention and management of post-surgical wounds must be carried out by any surgeon or institute. Postoperative wound care is done by cleaning and dressing the wounds after the surgical procedure, preventing them from getting contaminated with the external surfaces or the microorganisms on the patient's body. Surgical Site Infection (SSI) is the infection associated with healthcare in which the infection occurs in the wound after an invasive surgical procedure. A minimum of 5% of the patients who undergo surgical procedures will develop surgical site infections. This study draws the attention of the clinicians to a proper set of guidelines for post-operative care to minimize post-operative complications.

Materials and Methods: this study is a Retrospective Cohort design. The study was considered 92 patients who had various types of surgery from during the period of 10 months. The patients who had intra-abdominal surgery are only included. The study divided 92 patients into 2 groups. In each group, 46 patients were assigned based on following NICE guidelines on postoperative wound management. Patients, for whom the NICE guidelines were followed properly at every aspect, were assigned to the first group (Group 1). Otherwise, the patients were assigned to the second group (Group 2). The study adopted a list comprising of NICE guidelines which are applicable to this study. The study assessment was done by observing the appearance of Surgical Site Infection among the patients, 3 to 7 days post-surgery.

Results: it as found that 91.30% of the Group 1 patients showed significant improvement in terms of resolution while only 13.04% of the patients in improved significant without any surgical site infection (SSI).

Conclusion: the study results show that the patients who were given post-operative care according to NICE guidelines had much lesser Surgical Site Infection (SSI) as compared to those who were not given post-operative care according to NICE guidelines.

Keywords: surgical site infection, postoperative care, nice guidelines, wound management

Introduction

Management and prevention of wounds after a surgical procedure, are important and debatable topics. Optimal adoption of guidelines for proper prevention and management of post-surgical wounds must be carried out by any surgeon or institute. Reviewing wound physiology and several works of literature are very important in this regard [1]. The management of postoperative wounds is necessary as it helps in preventing wound dehiscence and infection at the surgical site. The general practitioners who play an important role in the management of sub-acute infections have to be well aware of the physiology of wound healing and also the principles in the management of wound healing and postoperative care of the wound. The important elements that are to be followed in the management of postoperative wound are to review the wound from time to time, good cleaning and dressing of the wound should be done, and also recognizing the wound early and to provide good and effective treatment for the complications that are associated with wound healing [2]. The principle behind the aim of postoperative wound care is the same regardless of the wound healing mechanism. It

helps in healing the wounds rapidly with no associated complications and with the best aesthetical and functional results. [2]

The wounds that are intended to be healed by the primary wound healing mechanism should have their wound edges approximated together. In the initial phases of healing, there is only less tensile strength as the collagen remodelling has not occurred, hence additional support in the form of sutures, tapes, or staples are used for complete remodelling and epithelialization of the wound [3]. The wounds should be kept clean to prevent the development of surgical site infections the wounds should be kept as clean as possible [4].

Necessity of Post-Surgical Wound Management

The necessity to have postoperative wound management is to prevent infections at the surgical site, wound dehiscence. Postoperative wound care is done by cleaning and dressing the wounds after the surgical procedure, preventing them from getting contaminated with the external surfaces or the microorganisms on the patient's body [5]. Surgical Site

Infection (SSI) is the infection associated with healthcare in which the infection occurs in the wound after an invasive surgical procedure. Bacteraemias, postoperative urinary and respiratory tract infections, diarrhoeas related to antibiotics are the other types of infections that are associated with a post-surgical procedure. They mainly affect the patients after the surgical procedures. A minimum of 5% of the patients who undergo surgical procedures will develop surgical site infections [6].

The rate of infection at the surgical site may range from a spontaneous wound discharge that lasts for about 7 to 9 days to a postoperative complication that is life-threatening to the patient like the infection to the sternum after open-heart surgery [7]. Most of the infections at the surgical site are caused due to the contamination of the incision with the micro-organisms present on the patient's body during the surgical procedure. The infections that are caused by the micro-organisms from outside after the surgical procedure are very rare. Most of the infections at the surgical site can be prevented. Proper preventive measures have to be taken in the pre-operative, intra-operative, and post-operative phases to reduce the risk of infections [8].

Surgical site infections show a significant effect on the patient's quality of life, it is associated with morbidity of life and the patient has to stay in the hospital for an extended period. In addition to all these the surgical site infection affects the health care providers financially. The recent advances in anaesthesia and surgery helped in identifying the patients who are at great risk for surgical site infections after surgery and are separated. Nowadays there is an increase in the number of infections in primary care as the patients are discharged from the hospital immediately after the surgery [9].

Assessment of postoperative wound management

Successful management of the wound depends completely on the knowledge of the health care provider and their understanding of the physiology of normal wound healing, the method of closure of the wound, and the treatment given to the resultant wound, based on this knowledge the health care providers can give systemic patient assessment and can also consider any complications that are related to wound healing [10].

NICE guideline for the management of postoperative wound

The National Institute For Health And Care Excellence present in the United Kingdom has made some recommendations for the management of postoperative wounds to prevent or reduce the rate of surgical site infections [11]. The recommendations of NICE include cleaning and dressing the wound, treatment with antibiotics, and debridement of the wound.

Cleaning and dressing

An antiseptic has to be used for changing the dressings without touching the wounds. The wound should be left for 48 hours without touching after the surgery, sterile saline should only be used for cleaning the wounds during this period. The patient should be advised to take bath carefully 48 hours after the surgery. Tap water has to be used for cleaning the wounds if the wound is opened for draining the pus. An interactive dressing has to be used for a surgical wound that are tending to heal by secondary intention. The patient is referred to a health care professional for advice on the appropriate dressings that are to be used for surgical wounds that are healing by secondary intention [4].

Sometimes cleaning the wounds is necessary as it helps in clearing the wounds of debris like the exudates or the devitalized tissues that may interrupt the wound healing process. In such situations, irrigation of the wound gently with a syringe rather than bathing has to be performed to avoid trauma to the wound and also to maintain a healing environment to the wound. If the wound cleaning is performed excessively it may delay the wound healing.[12]. The dressing is another important component in wound healing. A good dressing has to maintain a moist environment and promote healing of the wound, it should also be able to remove the excessive exudates which may lead to wound maceration, it acts as a barrier against fluid and bacterial contamination, adhering to the skin but is atraumatic on removal [13].

Treatment with antibiotics

If surgical site infection like cellulitis is suspected because of the treatment failure the patient is given antibiotics as the treatment of choice. The antibiotic that covers the most causative organism should be chosen by considering the microbial tests and also the local resistance factors [4].

Debridement

For minor dehiscence, primary closure and debridement can be done but for deep and major wounds, negative pressure dressing and continuous tension devices should be used [14]. Gauze, eusol, enzymatic treatments should be used for the debridement of the wounds at the surgical sites [4].

In another side, there are guidelines when the followings should not be used to reduce the risk of surgical site infections. This may include topical anti-microbial agents which should not be used for the wounds at the surgical site that are healing by primary intention. Gauze, eusol, mercuric anti-septic solutions should not be used for the wounds at the surgical site that are healing by secondary intention [4].

This study draws the attention of the clinicians to a proper set of guidelines for post-operative care to minimize post-operative complications.

Literature Review

There is an increase in the risk of complications of surgical wounds like the hematoma, abscess, seroma formation associated with caesarian in obese patients. This article mainly focuses on the available measures that help in decreasing wound complications. The use of prophylactic antibiotics, avoiding the drainage of subcutaneous tissue, and the closure of the subcutaneous tissue helps in reducing the complications associated with surgical wounds. The data collected from the patients of general surgery states that the use of vacuum-assisted devices helps in faster healing of the superficial wound infections and reclosure of the wound surgically is preferable in wounds that are healing by secondary intention when there is no sign of any wound infection [15]. A cross-sectional study was conducted to describe the management of surgical wound practices of nurses. In this study, a sample of 60 nurses from different surgical units was taken. Of the observed 60 samples, post-procedure hand hygiene procedures were less practised than pre-procedural hand hygiene practices. One-third of the nurses did not use clean and sterile gloves. More than half of the 60 nurses did not give post-operative patient education. Despite the guidelines and the recommendations given, there is a lot of difference seen in the recommendations and the guidelines given and the wound management clinically [16].

A randomized control study was conducted to compare the effectiveness of the wound healing process in case of negative pressure wound therapy versus a standard dressing in patients with revised hip surgery. 110 patients were taken as samples for the study. The results of the study suggested that the routine use of negative pressure wound therapy is not beneficial but it is useful in patients once the specific risk factors for the wound healing were determined [17]. The management of surgical wounds has been changed over the past decade. The change that took place in the healing of the wound from the dry environment to the moist environment is the development of new wound care products. There is an increase in the variety and the number of wound care products that are available in the consumer market. This led to acceptability and accessibility of a particular type of product based on the lifestyle of an individual. The implications of effective and efficient wound healing are massive for both the patient and the economy. This article mainly presents the results of the postoperative wound management study and also the need for the regular assessment of the wounds is demonstrated along with the length of stay in the hospital [18].

The important part of postoperative wound management is the optimal management of the wounds at the surgical sites. The principal aim of postoperative wound care is to facilitate the closure of the wound along with the prevention of possible complications and also improving the aesthetic and functional aspect of the wounded area.

The health care professionals are responsible to optimize the acute wound healing process, observe the progress of wound healing and also prevent the possible complications associated with wound healing. The dressings that are used for the wounds should have an extended wear time and have to be transparent as it helps in early recognition of the wound without the need for a change of the dressing, it should also have the potential to decrease the effect on the patient and the economy. This article reviews the use of leukomed control dressing, is launched recently for surgical wound care. It is flexible, transparent, breathable, and the wound can be easily visible without the need for a change of dressing [19]. A randomized control trial was conducted to examine the safety of the patient after missing the first-day review following a phacoemulsification cataract surgery. 362 patients were taken as samples, they were randomly discharged on the same day of surgery or for the next day review, and a review was done two weeks after the surgery. Of the 362 patients, 174 patients were randomized for next day review, treatment was done for 14 patients for the increase in the intraocular pressure. The main intention of discharging the patients on the same day of the surgery with a pre-planning to review them 2 weeks after the surgery was associated with a decrease in the frequency of ocular complications. The difference in the proportions on achievement of a good visual outcome among the two groups based on the visual acuity and a 4 month of quality life has no significance [20].

Methods

This study is a Retrospective Cohort design. The study was considered 92 patients who had various types of surgery during the period of 10 months. The patients who had intra-abdominal surgery are only included. Out of 92 patients, 51 patients (55.43%) were males while 41 patients (44.56%) were females.

This study is mainly concerned with the prevention of postoperative complications by following NICE guidelines. However, in many patients, NICE guidelines are not followed properly at every step. This study attempted to show the efficiency of NICE guidelines.

The study divided 92 patients into 2 groups. In each group, 46 patients were assigned based on following NICE guidelines on postoperative wound management. Patients, for whom the NICE guidelines were followed properly at every aspect, were assigned to the first group (Group 1). Otherwise, the patients were assigned to the second group (Group 2).

NICE guidelines

The study is concerned about whether NICE guidelines were followed and the extent it was followed for each of the groups. This study adopted a list based on the NICE guidelines which are shown below (Table 1).

Table 1: List adopted from NICE guidelines that is used in this study

Wound Dressing
Sterile saline was used during cleansing the wound
Changing of Surgical Wound Dressing at an regular interval
Non-touch technique for changing the dressing
Patients showered after 48 hours post surgery
Use of Antimicrobial
Topical antimicrobial should not be used
Broad coverage antimicrobial regimen should be given
If in case, SSI is suspected, antimicrobial should be prescribed according to the likely organism

Main Study and Assessment

The Group 1 patients were given treatments as listed in Table 1. In Group 2, the patients did not cover each aspect of Table 1. The study showed the consequence of following NICE guidelines among post-operative patients.

Thus, the assessment of this study was made by the appearance of Surgical Site Infection (SSI) in the patients

of each group. Surgical Site Infection (SSI) has been categorised as shown in the table below (Table 2). This table is adopted from the ASEPSIS scoring method [21]. The number of patients found in each assessment result was noted and the corresponding group (Group 1 or 2) was mentioned.

Table 2: Adopted list of Surgical Site Infections categorically

Healed satisfactorily
Disturbance of healing
Minor infection
Moderate infection
Severe infection

Result

The study divided the patients into 2 groups, namely, Group 1 containing patients who received treatments according to NICE guidelines and Group 2 containing patients who did not receive treatments according to NICE guidelines. After 3-7 days post-surgery, 91.30% of the Group 1 patients showed significant improvement in terms of resolution while only 13.04% of the patients in

improved significant without any surgical site infection (SSI). In Group 1, 6.52% of the patients had wound healing disturbance as compared to 26.08% of the patients in Group 2. In Group 2, 6.52%, 21.73%, 32.60% of the patients had severe, moderate and minor infections while in Group 1, only 1 patient had a minor infection. Nobody registered moderate to severe infection in Group 1. The summary of the number of patients with SSI in each group is given below (Table 3 and Figure 1).

Table 3: The number of patients with specific SSI in each group

Surgical Site Infection category	Number of patients from Group 1 (n =46)	Number of patients from Group 2 (n =46)
Healed satisfactorily	42 (91.30%)	06 (13.04%)
Disturbance of healing	03 (6.52%)	12 (26.08%)
Minor infection	1 (2.17%)	15 (32.60%)
Moderate infection	0	10 (21.73%)
Severe infection	0	03 (6.52%)

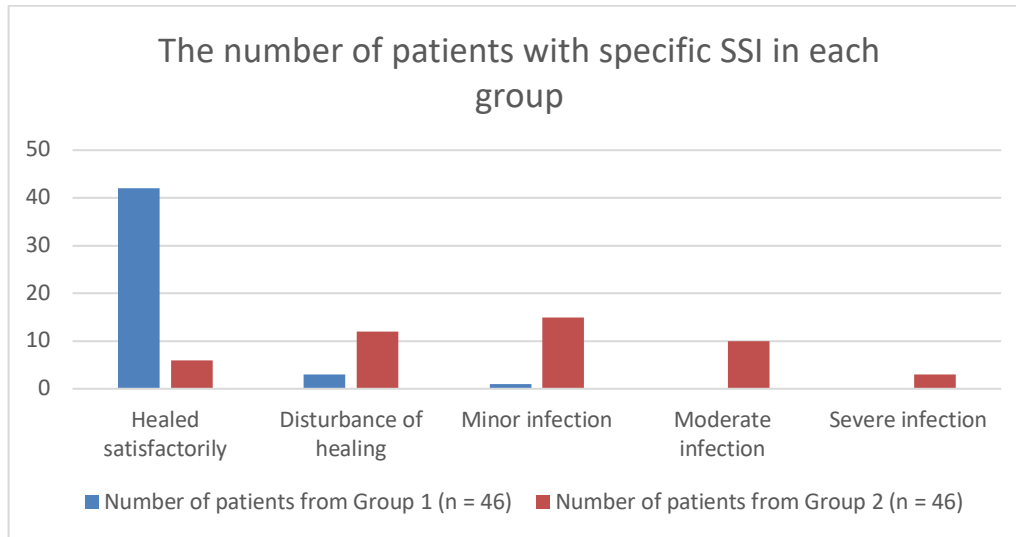


Figure 1: Graphical representation of the number of patients with specific SSI in each group

Discussion

The study results show that the patients who were given post-operative care (listed in Table 1) according to NICE guidelines had much lesser Surgical Site Infection (SSI) as compared to the patients who did not receive post-operative care according to NICE guidelines. This shows following NICE guidelines prevents SSI among post-operative patients.

Conclusion

The study has concluded that the NICE guidelines are significantly efficient in the prevention of SSI and must be followed for the care of post-surgical patients. The study also suggests conducting larger studies that can be more demographically varied to find the efficacy of NICE guidelines in different races, situations, economies. This would help to improve and keep the NICE guidelines updated and efficient.

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