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ORIGINAL ARTICLE

EVALUATION OF SURGICAL SITE INFECTION IN PATIENTS WITH POSTOPERATIVE DEXAMETHASONE AFTER POSTERIOR SPINAL SURGERY

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ABSTRACT

Background: Surgical site infection is a potentially fatal side effect of spine surgeries. This study aimed to evaluate surgical site infection in patients receiving postoperative dexamethasone following posterior spinal surgery.

Materials & Methods: This was an observational study done in Lady Reading Hospital Peshawar from Sep: 01, 2020 to Feb: 28, 2021. Forty six patients were enrolled and divided equally in two groups. Group A patients who were given dexamethasone post operatively, while Group B patients were given no such treatment. Surgical site infection (SSI) after posterior spinal surgery was assessed on clinical features. Any patient complaining of post-op moderate to severe backache that is not relieved with rest, and had difficulty in movements, along with local surgical site soreness, was labeled as having SSI. The SPSS version 25.0 was used to analyze all of the gathered data.

Results: The overall mean age of the 46 patients was 41.3% for female and 58.7% for male patients, with a range of 41.80 ±8.90 years. Six (20.0%) of the patients in group A experienced postoperative deep wound infection. While in group B patients only 2 patients experienced postoperative deep wound infection. Statistical analysis was done that shows P-Value of 0.69 between the two groups that was statistically insignificant.

Conclusion: Incidence of documented infection rate in the literature after straightforward laminectomy surgeries is 1-2%, but we observed much higher ratio (20%) in patients receiving dexamethasone. This may be due to so many reasons but we recommend further studies to prove that.

KEY WORDS: Dexamethasone; Spinal Surgery; Surgical Site Infection.

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INTRODUCTION

One of the most serious issues that can arise in patients who have had spine surgery is an infection at the surgical site. Surgical site infection is potentially fatal side effect of spine surgeries. Infection of the postoperative spinal wound raises the patient's morbidity and medical expenses. Despite the creation of preventative antibiotics, improvements in surgical procedure, and postoperative care, wound infection still negatively affects patient outcomes following spinal surgery.[1] Despite the creation of prophylactic medicines, advancements in surgical technique, and postoperative care, wound infection still poses a threat to the success of patients after spine surgery.[2] In a study by Veeravagu et al.[3], it was discovered that patients who develop surgical wound infections after spinal interventions have longer hospital stays, higher death rates, and greater rates of return to the operating room (OR) than those who do not. After spinal surgical procedures, wound infections increase morbidity and substantially raise

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healthcare administration costs.[4-6] Postoperative infections are more common following more invasive procedures like as fusion with instrumentation than they are following minimally invasive procedures like discectomy.[2, 7] For laminectomy procedures, the rate of postoperative infection varies between 1 and 2%.[8, 9] The frequency of postoperative infection varies between 2.4 and 8.5% for instrumented spinal fusions.[8]

According to studies, postoperative steroids administered following posterior spine procedures lessen postoperative discomfort and the need for postoperative analgesia.[10] However, due of the concern that it can impede wound healing and raise the infection rate, surgeons are still reluctant to use postoperative steroids for pain control and to reduce the need for analgesia.[11] But there is no proof to support these fears.[11,12] This study's primary objective was to assess the surgical site infection in patients with postoperative dexamethasone after posterior spinal surgery.

MATERIALS AND METHODS

This was an observational study conducted at Neurosurgery department, Lady Reading Hospital, Peshawar from Sept: 01- 2020 to Feb: 28- 2021.

WHO sample size calculator was used to calculate the sample size and sample size of 46 patients was determined, with a confidence level (1-α):95%.[12]

All adult patients of both genders who underwent posterior spinal surgical operations, and had Symptom lasted more than 6 weeks were included in the study. Individuals with a history of diabetes or having a positive history of past spinal surgical procedure were excluded from study.

After approval from hospital ethical committee, 46 patients were selected and equally randomized into two groups by lottery method. Group A participants received intravenous postoperative dexamethasone while Group B patients did not received that after posterior spinal surgical procedures. Both groups received routine analgesics and antibiotics as part of their postoperative care. For at least three months, all the patients were followed. Surgical site infection (SSI) after posterior spinal surgery was assessed on clinical features. Any patient complaining of post-op moderate to severe backache that is not relieved with rest, and had difficulty in movements, along with local surgical site soreness, was labeled as having SSI. The SPSS version 25.0 was used to analyze all of the gathered data.

RESULTS

There were total 46 patients in our study, in which 27(58.7%) were male and 19 (41.3%) were female. The mean age was 41.8 ± 8.90 years.

Surgical site infection was observed in 6(20%) in group A, 2(12.5%) in group B, showing P-Value of 0.69 and that was statistically insignificant.

As far as the procedures are concerned in whom posterior spinal surgeries are done, majority are disc issues as shown in table: 2.

Table 1: Surgical site infection based on Group (n=46)

Groups	No Surgical Site Infection	Surgical Site Infection	P-Value
Group A	24 (80.0%)	6 (20.0%)	0.69
Group B	14 (87.5%)	2 (12.5%)	

Table 2: Different pathologies where posterior spinal surgery had been done.

Pathologies	Frequency	Percentage
Prolapsed lumbar intervertebral disc	32	69.6
Lumbar stenosis	9	19.6
spinal space-occupying lesions	5	10.9

DISCUSSION

The management of SSI following spine surgery can be challenging and frequently calls for extended hospital stays, continuous antibiotic medication, wound debridement, irrigation, or equipment removal.[13, 14] Early detection, debridement, irrigation, and the prescription of antibiotics tailored to the patient's culture are the typical steps in treating spinal SSI.[15] In order to lower post-op pain and the dose of analgesics, some surgeons inject locally steroids postoperatively.[16-18] The primary objective of our study was to compare the Surgical Site Infection

following Posterior Spinal Surgery in patients who received local steroid injections versus those who do not received that. So in our study only 6 patients develop infection in dexamethasone treated patients while only 2 patients developed infection in patients' group who were not treated by dexamethasone. So dexamethasone treated patients have more chances to develop infection as compared to those not treated by dexamethasone. A study done by Fletcher ND et al. in 2020 on patients after posterior spinal fusions for the treatment of adolescent idiopathic scoliosis, observed that postoperative dexamethasone reduced their demand for opioids by 40% and improved their clinical results. But our results are different from Fletcher ND et al.,[10] as we noticed clear but not significant difference between the two groups as compared to his study, in which he did not noticed any raise in infections.

CONCLUSION

We draw the conclusion that the infection rate after postoperative dexamethasone was much higher than the control group. Any-how more research is indicated on large scale basis to confirm our results.

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CONFLICT OF INTEREST
Authors declare no conflict of interest.
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AUTHORS' CONTRIBUTION

The following authors have made substantial contributions to the manuscript as under:

Conception or Design:	NH, RH, MU
Acquisition, Analysis or Interpretation of Data:	NH, RH, MU, HUR, AJ, ZIM, MS
Manuscript Writing & Approval:	NH, RH, MU, HUR, AJ, ZIM, MS

All the authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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