

ORIGINAL ARTICLE

EFFICACY OF POSTOPERATIVE ANTIBIOTICS AFTER APPENDECTOMY IN PATIENTS WITH NON PERFORATED APPENDICITIS- A CLINICAL STUDY

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ABSTRACT:

Background: Acute appendicitis is the most common cause of an acute abdomen requiring surgical intervention.

Materials and Methods: This study was conducted in department of general surgery from January 2014 to December 2015 which included 57 patients who were divided into 2 groups. Group-A: Consisted of 30 patients who did not receive post-operative antibiotic. Group-B: Consisted 27 patients who received post-operative antibiotics. Patients of both the groups were followed-up for 30 days to assess the postoperative infective complications. **Results and Conclusion:** Statistically there was no significant difference in rates of surgical site infection between both the groups. This study concluded that Single dose of pre-operative antibiotics (cefuroxime and metronidazole) was sufficient in reducing the surgical site infection after appendectomy for NPA. Postoperative antibiotics did not add an appreciable clinical benefit in these patients.

Key words: acute abdomen, surgical intervention, surgical site infection, pre-operative antibiotics, non perforated appendicitis.

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INTRODUCTION

The vermiform appendix is considered by most to be a vestigial Organ. Its importance in surgery results only from its propensity for inflammation, which results in the clinical syndrome known as acute appendicitis. Acute appendicitis is the most common cause of an acute abdomen requiring surgical intervention with an estimated life time risk of 6 to 20%, with the highest frequency occurring at ages from 10 to 30 years.¹ Cases of non-perforated appendicitis (NPA) and perforated appendicitis (PA) are categorized as clean contaminated and contaminated respectively. Patients with perforated appendicitis after appendectomy are universally treated with a variable course of postoperative therapeutic antibiotics because of heavy contamination of wound and peritoneal cavity. However, the role of postoperative antibiotics in reducing the infective complications in NPA is still controversial.²

If untreated the acute appendicitis leads to perforation with abscess or secondary peritonitis with bacteraemia and septicemia. Several studies have been conducted to determine the efficacy of perioperative antibiotic use as a means of preventing post operative surgical site infections. Most of the studies support single preoperative dose of second generation cephalosporins and metronidazole⁴ to reduce the surgical site infection in non-perforated appendicitis.^{3,4}

Therefore, this study was conducted to determine the efficacy of Postoperative antibiotics in reducing the surgical site Infections (SSI) after open appendectomy in patients with non-perforated appendicitis (NPA).

MATERIALS AND METHOD

This study was conducted in department of General Surgery between January 2014 to December 2015, after the approval of departmental research and ethical committee. All the patients were diagnosed to have non

perforated acute appendicitis. Diagnosis was basically made by clinical examination i.e., tenderness at Mcburny’s point. Patients were divided into two groups.

Group-A: Consisted of 30 patients who did not receive post-operative antibiotic.

Group-B: Consisted 27 patients who received post-operative antibiotic.

Patients with Diabetes Mellitus, HIV Infections, ultrasound diagnosed perforated appendicitis, Patients on steroids, Hypoproteinaemia, Severe anemia, immunocompromised or pregnant, were excluded from the study. Patients who were found to have complicated appendicitis (gangrenous, perforated, appendicular mass or abscess) or normal appendix per-operatively were also excluded. Investigations like USG abdomen, RBS, Viral Screening, Protein Status were done routinely.

All the patients received a pre-operative dose of cefuroxime sodium and metronidazole. Open appendectomy was performed by the standard operating technique through right lower quadrant incision. The wound was closed primarily in all the patients after washing with normal saline. All the appendices were sent for histopathological examination.

The rates of SSIs for both the groups were calculated and categorical variables were compared by chi square test. The p-value of < 0.05 was considered as statistically significant.

RESULTS

TABLE 1: Age and sex wise distribution

Age (years)	Group A		Group B	
	Male	Female	Male	Female
<20	5	4	4	2
20-30	10	8	7	8
30-40	1	2	2	2
Total	16	14	13	12

Table 1 shows age and sex wise distribution of patients. In group A, out of 30 patients, 16 were males and 14 were females. In group B, out of 27 patients, 13 were males and 14 were females.

TABLE 2: Surgical site Infection

	Group A	Group B
SSI negative	41%	40%
SSI positive	6%	5%
Total	47%	45%

SSI- surgical site infection.

In Table 2, Group A shows 6% SSI positive and group B shows 5% SSI positive patients.

DISCUSSION

The efficacy of pre-operative antibiotics in reducing the risk of SSI following appendectomy has been well established in the literature.⁵ However, the role of postoperative antibiotics in these patients has not been clearly defined. Only few studies have evaluated specifically the clinical benefits and the disadvantages of administering postoperative antibiotics in addition to adequate pre-operative antibiotics prophylaxis.⁶

The incidence of postoperative SSIs after appendectomy in patients with NPA has been reported to range from 0% to 11%. The stage of the disease process at the time of operation and the use of appropriate prophylactic antibiotics significantly affects the risk for postoperative SSIs in addition to patient's factors.^{7,8}

Most studies to date have compared the use of pre-operative antibiotic with or without a short course of post operative antibiotics with a placebo alone. In our study we used Ceftriaxone and metronidazole as antibiotics of choice to cover Gram Positive, Gram Negative and Anaerobic group of micro-organisms that are responsible for wound infection.^{9,10} In addition we used monofilament suture material 2-0 prolene or skin stapler instead of routine silk or thread for skin approximation in order to prevent chance of skin infection because of braided suture materials.¹¹ In our study out of 57 patients 29 patients are male and 28 patients are female. In our study majority of cases are of between 20-30 years of age, comparable with Subhajeet et al¹² study show age range of 09-57years and mean age was 25.8 years which is similar to our study.

Mui and coworkers¹³⁻¹⁵ conducted a randomized trial on 269 patients to define the optimum duration of prophylactic antibiotics in NPA. They found no significant difference in the wound infection rate between three study groups, who received varied period of prophylactic antibiotics.

They concluded that single dose of pre-operative antibiotic could adequately prevent the postoperative infective complications.¹⁵

In the present study, there was no significant difference between the rates of SSIs among the patients with NPA, who did (group B) and who did not receive postoperative antibiotics (group A). Therefore, the addition of postoperative antibiotics with single dose of pre-operative antibiotic did not reduce the rate of SSIs further in patients with NPA.

CONCLUSION

Authors conclude that single dose of pre-operative antibiotics (cefuroxime and metronidazole) was sufficient in controlling the SSIs after appendectomy for NPA. Postoperative antibiotics did not provide significant additional clinical benefit in these patients.

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