

ORIGINAL RESEARCH

Efficacy of postoperative antibiotics after appendectomy in patients with non-perforated appendicitis- A clinical study

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ABSTRACT

Background: Appendicitis is the most common cause of acute abdominal pain, requiring surgical intervention. The present study was conducted to assess efficacy of postoperative antibiotics after appendectomy in non-perforated appendicitis.

Materials & Methods: 76 patients undergoing appendectomy of both genders were divided into 2 groups of 38 each. Group I patients were not given any postoperative antibiotics and the group II patients received a single dose of cefuroxime sodium and metronidazole, 8 hours postoperatively. Open appendectomy was performed by the standard operating technique through right lower quadrant incision. Parameters such as duration of symptoms, duration of surgery and hospital stay was recorded.

Results: There were 26 males and 12 females in group I and 20 males and 18 females in group II. Duration of symptoms was 1.9 days in group I and 1.4 days in group II, duration of surgery was 52.3 minutes in group I and 54.8 minutes in group II. The mean hospital stay was 2.31 days in group I and 2.42 days in group II and surgical site infections was 10 days in group I and 5 days in group II. The difference was significant ($P < 0.05$).

Conclusion: Both groups were comparable in terms of surgical site infection.

Key words: Appendicitis, antibiotics, surgical site infection

INTRODUCTION

Appendicitis is the most common cause of acute abdominal pain, requiring surgical intervention and appendectomy is the most frequently performed emergency surgery.¹ Up to 20% of the population has a lifetime risk of developing acute appendicitis. Cases of nonperforated appendicitis (NPA) and perforated appendicitis (PA) are categorized as clean contaminated and contaminated, respectively.² Several studies have proven the efficacy of preoperative prophylactic antibiotics in reducing postoperative infectious complications after appendectomy.³ Therefore, probably all the patients undergoing appendectomy in our hospital are given preoperative prophylactic antibiotics.⁴ 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.⁵

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.⁶ However, the role of postoperative antibiotics in reducing the infective complications in NPA is still controversial. Clinical practice guidelines of the American Society of Health-System Pharmacists (ASHP) stated that antimicrobial

prophylaxis should be given before and after appendectomy.⁷ The antibiotic prophylaxis was identified as an effective intervention to prevent surgical site infections (SSIs) compared with placebo for patients who received appendectomy. Several investigations have showed that preoperative prophylactic antibiotics are recommended for reducing postoperative infections or complications.⁸ The present study was conducted to assess efficacy of postoperative antibiotics after appendectomy in non-perforated appendicitis.

MATERIALS & METHODS

The present study comprised of 76 patients undergoing appendectomy of both genders. The consent was obtained from all patients.

Data such as name, age, gender etc. was recorded. Patients were divided into 2 groups of 38 each. Group I patients were not given any postoperative antibiotics and the group II patients received a single dose of cefuroxime sodium and metronidazole, 8 hours postoperatively. All the patients received a pre-operative dose of cefuroxime sodium and metronidazole half an hour before surgery. Open appendectomy was performed by the standard operating technique through right lower quadrant incision. All the appendices were sent for histopathological examination. Parameters such as duration of symptoms, duration of surgery and hospital stay was recorded. Surgical site infection (SSI) was defined as pus discharge from the wound that necessitated wound opening and drainage. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

RESULTS

Table I Distribution of patients

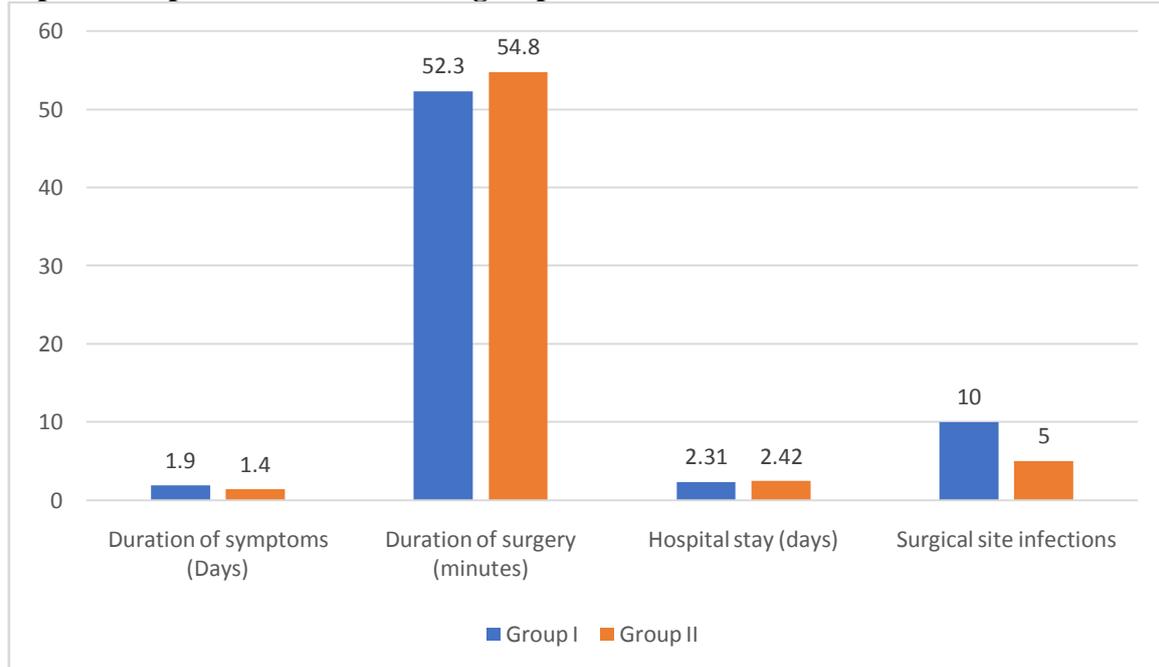
Groups	Group I	Group II
Status	No antibiotics	Postoperative antibiotics
M:F	26:12	20:18

Table I shows that there were 26 males and 12 females in group I and 20 males and 18 females in group II.

Table II Comparison between both groups

Groups	Group I	Group II	P value
Duration of symptoms (Days)	1.9	1.4	0.21
Duration of surgery (minutes)	52.3	54.8	0.34
Hospital stay (days)	2.31	2.42	0.51
Surgical site infections	10	5	0.01

Table II, graph I shows that duration of symptoms was 1.9 days in group I and 1.4 days in group II, duration of surgery was 52.3 minutes in group I and 54.8 minutes in group II. The mean hospital stay was 2.31 days in group I and 2.42 days in group II and surgical site infections was 10 days in group I and 5 days in group II. The difference was significant (P < 0.05).

Graph I Comparison between both groups

DISCUSSION

Appendectomy is the most common surgical procedure for treating appendicitis, and the mortality rate of appendicitis is high despite major advances in modern antibiotics.⁹ Although the mortality rate from an appendectomy is low (>1%) in high-, medium-, and low-income countries, the surgical mortality rates for appendectomy are quite high in low-middle-income countries (LMICs) (89/1000 operations).¹⁰ Previous studies have shown multifactorial issues related to the high mortality rate in appendectomy, especially in LMICs, and one of the common problems is the use of prophylactic antibiotics.^{11,12,13} World Health Organization mentioned that the incidence of appendicitis in Asia and Africa in 2004 consisted of 4.8% and 2.6% of the total population.¹⁴ Approximately 80,000 children become afflicted with appendicitis in the United States each year, compared to 4 per 1,000 children under 14 years old in other countries. Perforated appendicitis often occurs in children under the age of 18 years or adults above 50 years old.¹⁵ The present study was conducted to assess efficacy of postoperative antibiotics after appendectomy in non-perforated appendicitis.

In present study, there were 26 males and 12 females in group I and 20 males and 18 females in group II. Sadraei et al¹⁶ included one hundred and fifty-two patients, who underwent appendectomy for nonperforated appendicitis (NPA) and were randomized into two groups. Group A patients received a single dose of preoperative antibiotics (ceftriaxone and metronidazole) and group B patients received the same regimen, in addition, antibiotics were administered 24 hours postoperatively. Patients of both groups were followed-up for 30 days to assess the postoperative infectious complications. Both groups comprised 76 patients, as well both groups were compared in baseline characteristics. Statistically, there was no significant difference in rates of SSIs between both groups. None of the patients developed intra-abdominal collection. Single dose of preoperative antibiotics (ceftriaxone and metronidazole) was sufficient in reducing SSIs after appendectomy for NPA. Postoperative antibiotics did not add an appreciable clinical benefit in these patients.

We found that duration of symptoms was 1.9 days in group I and 1.4 days in group II, duration of surgery was 52.3 minutes in group I and 54.8 minutes in group II. The mean hospital stay was 2.31 days in group I and 2.42 days in group II and surgical site infections was 10 days in group I and 5 days in group II. Hussain et al¹⁷ included three hundred and

seventy- seven patients, who underwent appendectomy for NPA and were randomized into two groups. The patients in group A received a single dose of pre-operative antibiotics (cefuroxime sodium and metronidazole), while the group B patients received one more dose of the same antibiotics postoperatively. Patients of both the groups were followed-up for 30 days to assess the postoperative infective complications. Group A had 195, while group B comprised of 182 patients. The groups were comparable in the baseline characteristics. Statistically there was no significant difference in rates of SSIs between both the groups ($p = 0.9182$). Mean hospital stay was 2.29 ± 0.81 and 2.35 ± 0.48 days for group A and B respectively ($p = 0.4403$). None of the patients developed intraabdominal collection.

CONCLUSION

Authors found that both groups were comparable in terms of surgical site infection.

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