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Dr. Parmod Kumar
Assistant Professor, Department of General Surgery, Glocal Medical College And Super speciality Hospital and Research Center, Mirzapur Pole, Dist. - Saharanpur, Uttar Pradesh, India
Email Id:
dr.parmodgarg@gmail.com

Dr. SK Bhatia
Professor, Department of General Surgery, N.C. Medical College and Hospital, Israna, Panipat, Haryana, India
Email Id:
skbhatia2606@gmail.com

Corresponding Author:
Dr. SK Bhatia
Professor, Department of General Surgery, N.C. Medical College and Hospital, Israna, Panipat, Haryana, India
Email Id:
skbhatia2606@gmail.com

Post-operative antibiotics after appendectomy in non-perforated appendicitis: A clinical study

Dr. Parmod Kumar and Dr. SK Bhatia

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Abstract
Background: Appendicitis is most common between the ages of 10 and 20 years, but no age is exempt. The present study was conducted to assess efficacy of postoperative antibiotics after appendectomy in non-perforated appendicitis.
Materials & Methods: 80 patients undergoing appendectomy were divided into 2 groups of 40 each. Group I patients received a single dose of cefuroxime sodium and metronidazole, 8 hours postoperatively and the group II patients were not given any postoperative antibiotics. Parameters such as duration of symptoms, duration of surgery and hospital stay and surgical site infection (SSI) was recorded.
Results: There were 25 males and 15 females in group I and 20 males and 20 females in group II. The duration of surgery was 56.2 minutes in group I and 54.1 minutes in group II, duration of symptoms was 1.5 days in group I and 2.1 days in group II. The mean hospital stay was 2.52 days in group I and 2.31 days in group II. 6 patients in group I and 12 in group II had surgical site infections. The difference was significant ($P < 0.05$).
Conclusion: It was observed that administration of postoperative antibiotics after appendectomy in non-perforated appendicitis has no effect on occurrence of surgical site infection.

Keywords: Antibiotics, appendicitis, surgical site infection

Introduction
Appendicitis is the most common abdominal emergency. Appendicitis is most common between the ages of 10 and 20 years, but no age is exempt [1, 2]. A male preponderance exists, with a male to female ratio of 1.4:1; the overall lifetime risk is 8.6% for males and 6.7% for females in the United States [3]. Since the 1940s the incidence of hospital admission for acute appendicitis has been falling, but the reason for this decline is not clear [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]. However, the role of postoperative antibiotics in reducing the infective complications in NPA is not well clear. The American Society of Health-System Pharmacists (ASHP) stated that antimicrobial prophylaxis should be given before and after appendectomy [6]. The antibiotic prophylaxis was identified as an effective intervention to prevent surgical site infections (SSIs) compared with placebo for patients who received appendectomy [7]. 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 80 patients undergoing appendectomy of both genders. All patients were explained regarding the study in vernacular language and their written consent was taken.
Data such as name, age, gender etc. was recorded. Patients were divided into 2 groups of 40 each. Group I patients received a single dose of cefuroxime sodium and metronidazole, 8 hours postoperatively and the group II patients were not given any postoperative antibiotics. All the patients received a pre-operative dose of cefuroxime sodium and metronidazole half an hour before surgery. Open appendectomy was performed by same surgeon. Parameters such as duration of symptoms, duration of surgery and hospital stay and surgical site infection (SSI) was recorded. Data thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

Results

Table I: Distribution of patients

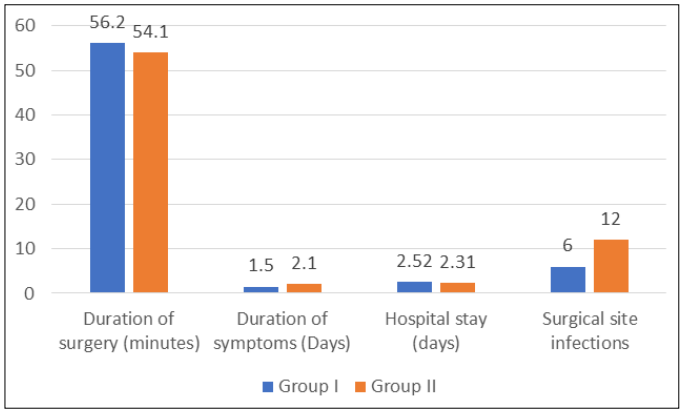
Groups	Group I	Group II
Method	Postoperative antibiotics	No antibiotics
M:F	25:15	20:20

Table I shows that there were 25 males and 15 females in group I and 20 males and 20 females in group II.

Table II: Comparison of parameters in both groups

Groups	Group I	Group II	P value
Duration of surgery (minutes)	56.2	54.1	0.90
Duration of symptoms (Days)	1.5	2.1	0.62
Hospital stay (days)	2.52	2.31	0.91
Surgical site infections	6	12	0.02

Table II, graph I shows that duration of surgery was 56.2 minutes in group I and 54.1 minutes in group II, duration of symptoms was 1.5 days in group I and 2.1 days in group II. The mean hospital stay was 2.52 days in group I and 2.31 days in group II. 6 patients in group I and 12 in group II had surgical site infections. The difference was significant ($P < 0.05$).



Graph I: Comparison of parameters in both groups

Discussion

Acute appendicitis is probably the most common surgical emergency worldwide [9]. Since its first accurate description by Fitz in 1886 and the first appendectomy performed by Treves in England, appendectomy became the preferred treatment of acute appendicitis [10]. Although appendicitis is a very common disease, nowadays it has a still poorly understood etiology, with a very heterogeneous clinical pattern of presentation, varying from simple uncomplicated appendicitis to generalized peritonitis due to perforation [11]. 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. Perforated appendicitis often occurs in children under the age of 18 years or adults above 50 years old [12]. The present study was conducted to assess efficacy of postoperative antibiotics after appendectomy in non- perforated appendicitis.

In present study, there were 25 males and 15 females in group I and 20 males and 20 females in group II. Hussain *et al.* [13] in their study on 327 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.

We observed that duration of surgery was 56.2 minutes in group I and 54.1 minutes in group II, duration of symptoms was 1.5 days in group I and 2.1 days in group II. The mean hospital stay was 2.52 days in group I and 2.31 days in group II. 6 patients in group I and 12 in group II had surgical site infections. Sadraei *et al.* [14] 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.

de Wijkerslooth *et al.* [15] in their study a total of 1863 patients were included: 1321 (70.9%) with phlegmonous appendicitis, 181 (9.7%) with gangrenous appendicitis, and 361 (19.4%) with perforated appendicitis. Infectious complications were more frequent in patients with gangrenous versus phlegmonous appendicitis. This association was no longer statistically significant in multivariable analysis. There was no significant difference in infectious complications between ≤24 hours (n = 57) of postoperative antibiotics compared with >24 hours in patients with gangrenous appendicitis.

Conclusion

Authors found that it was observed that administration of postoperative antibiotics after appendectomy in non- perforated appendicitis has no effect on occurrence of surgical site infection.

References

1. Coakley BA, Sussman ES, Wolfson TS, Bhagavath AS, Choi JJ, Ranasinghe NE, *et al.* Postoperative antibiotics correlate with worse outcomes after appendectomy for nonperforated appendicitis. J Am Coll Surg. 2011;213:778-83.
2. Al-Mefreji KA. Antibiotics prophylaxis in non-perforated appendicitis: a prospective study. Al-Kindy Col Med J. 2006;3:49-51.
3. Tang E, Ortega AE, Anthone GJ, Beart RW Jr. Intra-abdominal abscesses following laparoscopic and open appendectomies. Surg Endosc. 1996;10:327-8.
4. Van Wijck K, De Jong JR, Van Heurn LW, Van der Zee DC. Prolonged antibiotic treatment does not prevent intra-abdominal abscesses in perforated appendicitis. World J Surg. 2010;34:3049-53.
5. Henry MC, Walker A, Silverman BL, Gollin G, Islam S, Sylvester K, *et al.* Risk factors for the development of

abdominal abscess following operation for perforated appendicitis in children: a multicenter case-control study. Arch Surg. 2007;142:236-41.
6. Bauer T, Vennits BO, Holm B, Pedersen J, Lysen D, Galatius H, *et al*. Danish multicenter study group III. Antibiotics prophylaxis in acute non-perforated appendicitis. Ann Surg. 1989;209:307-11.
7. Fraser JD, Aguayo P, Leys CM, Keckler SJ, Newland JG, Sharp SW, *et al*. A complete course of intravenous antibiotics vs. a combination of intravenous and oral antibiotics for perforated appendicitis in children: a prospective, randomized trial. Pediatr Surg. 2010;45:1198-202.
8. St Peter SD, Tsao K, Spilde TL, Holcomb GW 3rd, Sharp SW, Murphy JP, *et al*. Single daily dosing ceftriaxone and metronidazole vs. standard triple antibiotic regimen for perforated appendicitis in children: a prospective randomized trial. J Pediatr Surg. 2008; 43:981-5.
9. Mui LM, Ng CS, Wong SK, Lam YH, Fung TM, Fok KL, *et al*. Optimum duration of prophylactic antibiotics in acute nonperforated appendicitis. ANZ J Surg. 2005;75:425-8.
10. Le D, Rusin W, Hill B, Langell J. Postoperative antibiotics use in non-perforated appendicitis. Am J Surg. 2009;198:748-52.
11. Mui LM, Ng CS, Wong SK, *et al*. Optimum duration of prophylactic antibiotics in acute nonperforated appendicitis. ANZ J Surg. 2005;75:425-8.
12. Le D, Rusin W, Hill B, Langell J. Postoperative antibiotics use in non-perforated appendicitis. Am J Surg. 2009;198:748-52.
13. Hussain MI, Alam MK, Al-Qahatani HH, Al-Akeely MH. Role of postoperative antibiotics after appendectomy in non-perforated appendicitis. J Coll Physicians Surg Pak. 2012 Dec 1;22(12):756-9.
14. Sadraei-Moosavi SM, Nikhbakhsh N, Darzi AA. Postoperative antibiotic therapy after appendectomy in patients with non-perforated appendicitis. Caspian journal of internal medicine. 2017;8(2):104.
15. de Wijkerslooth EM, de Jonge J, van den Boom AL, van Geloven AA, Bemelman WA, Wijnhoven BP, *et al*. Snapshot Appendicitis Study Group. Postoperative outcomes of patients with nonperforated gangrenous appendicitis: a national multicenter prospective cohort analysis. Diseases of the Colon & Rectum. 2019 Nov 1;62(11):1363-70.