



Role of Oral Metronidazole as an Antibiotic Prophylaxis in Cases of Non-Perforated Appendectomy

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ABSTRACT

Appendectomy for non-perforated appendicitis has now become one of the most common abdominal operations. The rate of infections post open appendectomy without antibiotic prophylaxis is still high. The use of antibiotics pre operatively has become necessary but the choice remains still controversial. Metronidazole being cheap and effective against anaerobic and gram negative bacteria is considered a good option. In this study, 100 patients were selected and a comparative study was done between preoperative oral metronidazole administration and no prophylaxis and results were found that single oral metronidazole dosage for prophylaxis in cases of non-perforated appendectomy was found very effective.

Keywords: Appendicitis, Appendectomy, Prophylaxis, Metronidazole.

1. INTRODUCTION

Acute appendicitis is one of the most common cause of acute abdominal pain for which surgical intervention is required especially in young adults. It has become so common that appendectomy is the most frequently performed operation in an emergency set up these days¹. Acute appendicitis if not operated may lead to gangrene and perforation of the appendix which become a life threatening condition and immediate laparotomy becomes necessity then. The role of antibiotic prophylaxis in cases of non-perforated appendectomy has been a matter of controversy since long. Without any antibiotic prophylaxis would infection rate ranges to around 10%²cases of a non-perforated appendectomy. There are a number of antibiotics that can be used as prophylaxis in cases of a non-perforated appendectomy. The American Society of health system pharmacists recommends prophylaxis with cephalosporins for an uncomplicated appendectomy. However, the latter drugs are known to have allergic side effects and costly also. Metronidazole is among the most effective drugs against anaerobic organisms and has been used widely for various gut surgeries. As the role of oral antibiotics in the treatment of acute appendicitis following appendectomy has not been adequately addressed in the literature, the aim of the present study is to compare the infection rate after open appendectomy for non-perforated appendicitis receiving oral metronidazole as prophylaxis.

2. METHODS

This study was done in Department of general surgery, Patna medical College Hospital from 2015-2017 in 100 patients of adult and paediatric age group. The study was approved by the ethical committee of PMCH. The patients were included in the study after thorough clinical examination and radiological examination to confirm the diagnosis which included an ultrasound of the abdomen and CT scan. Those patients who had diabetes mellitus were on steroid therapy and had known allergy to metronidazole were excluded from the study. After receiving informed consent from the patient, 50 patients were put in the category who received oral metronidazole (500 mg/ dose for adults, 7-10 mg/kg/dose for those aged < 15 years) 2 to 3 hours before operation. 50 patients were put in the control group who did not receive oral metronidazole preoperatively. The standard operating protocol was followed for all and open appendectomy through right lower quadrant Gridiron incision was done for all the patients. In post-operative period, wounds were inspected daily for signs of infection, defined as the discharge of pus requiring surgical drainage signs of cellulitis requiring antibiotic therapy. Outcomes of surgery were compared with previous studies and results noted.

3. RESULTS

During the study period, 100 patients were considered. Their demographic data is shown in the table.

	STUDY GROUP	CONTROL GROUP
MEAN AGE	27.8	26.2
MALE/ FEMALE	31/19	28/22
DURATION OF SYMPTOMS (hours)	19	17
DURATION OF OPERATION(minutes)	50	48

There was no significant difference between the two groups in terms of age, sex, duration of symptoms and duration of the operation. Post-operatives the observations made regarding the rate of infection and Hospital stay in the table below.

	STUDY GROUP	CONTROL GROUP	P-VALUE
RATE OF INFECTION (%)	6	4%	0.861
HOSPITAL STAY(days)	2.3	2.7	0.293

The rate of infection did not show any significant difference between the groups. Also, the duration of hospital stay was equal in all complicated appendicitis in the study group.

4. DISCUSSION

In patients with no perforated appendicitis, the use of prophylactic antibiotics has been questioned in various literature^{3,4}. There are however certain studies⁵ that indicate, without prophylaxis, the infection rate is significant and ranges from 10 to 20%. In the present study, the infection rate after use of antibiotic prophylaxis was around 5%, which is in agreement with the previous studies⁶.

Oral metronidazole has been demonstrated to have a bioavailability of nearly hundred percent which is almost identical to intravenous administration. It approaches maximum concentration about one hour after injection. In this present study, metronidazole was administered orally and was shown to be effective in reducing the rate of wound infections. Also, the oral administration was associated with significant cost savings.

5. CONCLUSION

In conclusion, this study shows that a single dose of oral metronidazole prior to operation can provide sufficient prophylaxis for non-perforated appendicitis, indicating that oral administration of antibiotics can be substituted for parental administration.

6. BIBLIOGRAPHY

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