

A Clinical Study on Use of Single Dose of Prophylactic Antibiotic Vs Full Course of Post Operative Antibiotic in A Case of Acute Appendicitis: A Randomized Prospective Study.

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I. Introduction

Appendicitis is a disease of modern civilization. Acute appendicitis is the most common acute surgical abdomen. Post operative complications occur in 5% of the patients with uncomplicated appendicitis, 30% in complicated appendicitis. The diagnosis of appendicitis and executing early surgery within 24 hours is mandatory to reduce incidence of complications. Appendicitis has been the hunting ground for testing various combination of systemic antibiotics. The ideal regime should cover both gram positive aerobes and gram negative aerobes. Various antibiotic prophylaxis has been shown to minimize the incidence of SSI and duration of hospital stay. Our study concentrates on use of single dose of prophylactic antibiotic VS full course post operative antibiotic in acute appendicitis.

II. Materials And Method

150 patients were randomly divided into two groups A and B each containing 75 patients, after applying the inclusion and exclusion criteria. Inclusion criteria includes all the patients to be diagnosed with acute uncomplicated appendicitis. Exclusion criteria includes appendicular mass or abscess or perforation or gangrenous appendix, nursing and lactating women, patients who are comatose, in shock, impaired renal functions, patients allergic to cephalosporin's group of drugs and those not willing to enter the trial. Group A received only pre operative dose of antibiotics and Group B received full 7 days antibiotics. Both the groups received inj.cefotaxim 1gm and inj.metronidazole 1gm.

Evaluation and treatment protocol: The following were recorded in all patients at the beginning of the trial. General and physical examination, routine haematological and biochemical investigations, microscopic examination of urine, chest X-ray, ECG, ultrasound of the abdomen, all female patients were subjected to gynaecological examinations (PA/PV). Standard operative protocol was followed in both the groups. After the surgery specimen was sent for HPE. Group A received no post operative antibiotics. Group B received antibiotics till POD-7. Patients in both the groups were assessed for the following 1.Age & sex distribution 2.Rate of wound infection 3.Duration of hospital stay 4.Cost effectiveness in uncomplicated acute appendicitis. All the observations were carefully documented and statistical analysis made by chi-square method and calculating the S.D and P value.

Statistics: In the present study 150 patients were evaluated.

The sex distribution in both the group are as follows

Treatment Groups	Male%	Female%
A	49(65.33%)	26(34.67%)
B	48(64%)	27(36%)

The chi-Square value is 0.03 and P value is 0.8644. From the above values its clear that the sex distribution in both the treatment groups is comparable. The male to female ratio is 1.82:1 in our study. The age distribution in both the groups are as follows

Age range	Group A	Group B
12-20	26(34.66%)	27(36%)
21-30	31(41.33%)	33(44%)
31-40	13(17.33%)	12(16%)
41-50	5(6.66%)	3(4%)

Mean age in Group A is 25.24 years. Mean age in Group B is 25.28 years. P value is 1.0000(insignificant). From the above study it is clear that the maximum number of appendicitis occurs in age group of 21-30 years.

The rate of wound infection in males and females are as follows

Wound infection	Male %	Female%
Absent=137	89(59.33%)	48(32%)
Present=13	8(5.33%)	5(3.33%)

The chi-square value is 0.06 the P value is 0.8050(insignificant). Thus from the above study, sex does not seem to affect the development of wound infection. The infection rate in Group A is 9.33% and that of in Group B is 8%. The P value is 0.7717 which is not significant and thus we can infer that the administration of single dose of antibiotic regime does not alter the rate of wound infection as compared to the other group.

The duration of hospital stay in both the groups as follows

Treatment group	0-8 days	>8 days
Group A	68	7
Group B	69	6

Mean duration of hospital stay in Group A is 7.58 days. Mean duration of hospital stay in Group B is 7.52 days. Since the p value is not significant the duration of hospital stay in both the groups does not differ.

The cost effectiveness of both the groups as follows.

Cost factors	Group A	Group B
Cost of hospitalization per patients	80.52	80.08
Cost of therapeutic antibiotics	56.84	48.72
Cost of prophylactic antibiotics	145	353.40
Savings per patient	199.64	0.00

From the above study it is clear that the study group is more cost effective.

III. Discussion

Appendicitis appears to be a spectrum of surgical disease in which the use of antibiotic ranges from prophylactic to therapeutic. Post appendectomy sepsis in majority of patients is caused by poly microbial flora, thus the antibiotic effective against both aerobes and anaerobes would be appropriate since synergy exists between two pathogenic group.

A combination of cefotaxim and metronidazole was selected in our study as it satisfies all our criteria required for an effective prophylaxis and its universal availability in our surgical wards. In a study conducted by Donovan et al in 1979, wound infection rate of 20% after removing a normal appendix was reported and infection rate of 30% after removing a complicated appendicitis. The above study supports the fact that the antibiotics prophylaxis against wound infection is thus warranted and there is a significant reduction of wound infection from 30% to 9.33%. A similar study by Lau WY in 1983 was done and reported reduction in infection rate to 8.97%. A similar study was conducted by MandBussettil, Sir Drumm, Sir Wong and Yiu and reported the same. In our present study the infection rate is 9.33% in group A who received single dose of prophylactic cefotaxim and metronidazole. Thus our results are comparable to other authors.

IV. Conclusion

The administration of single pre operative dose of antibiotic is safe and effective in preventing post operative wound infection as compared to 7 day regime. Age of the patient is important factor contributing to development of wound sepsis. The duration of hospital stay is does not differ. There was a net saving of Rs.199.64 per patient who were put on single dose prophylactic antibiotics.

Reference

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