Use of antibiotics in non-perforated appendicitis

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Abstract:
This study was done to compare the efficacy of postoperative antibiotic therapy in patients undergoing appendicectomy in non-perforated appendicitis. We conducted appendicectomy both laparoscopic and open method in 102 cases of non-perforated appendicitis. Most of our cases [91] were between the age of 18 to 25 years. Youngest was 15 years and oldest was 45 years, with male predominance. The study was conducted during the period 2012 to 2015. We compared the results between the two groups of patients one group received postoperative antibiotic & other group did not. Our results denote that there is no much difference between the two groups as far as wound site infection and hospital stay is concerned.

Key words: Appendicectomy, antibiotics, Therapy.

INTRODUCTION:
Acute appendicitis is the most common cause of an acute abdomen requiring surgical intervention with an estimated life time risk of 6 to 20%. Catarrhal appendicitis is initially a mucosal and submucosal inflammation. Eventually the whole appendix is swollen and turgid. The acute inflammatory response spontaneously resolve or swelling of the lymphoid tissue may lead to obstruction. Then it may proceed to gangrene and perforation. Two studies were found which were designed to evaluate the efficacy of post operative antibiotics in addition to pre operative antibiotics in non perforated appendicitis. The highest frequency of occurrence is from 10 to 30 years. Diagnosis essentially remains clinical; ALVARADO Scoring system was used in all cases. A score of 7 or more is strongly predictive of acute appendicitis, other investigations like U.S.G abdomen, C.B.P, are corroboration. 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 metronidazole to reduce the surgical site infection in non-perforated appendicitis.

This study was conducted with the objective that use of post-op antibiotic in appendicectomy does not alter course of SSI (Surgical site infections) in non-perforated appendicectomy.

MATERIAL AND METHODS
This is a prospective study performed on 102 patients admitted in our institute during the period 2012 to 15. 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 & Group-B. Group-A: Consisted of 52 patients and they received antibiotics during both pre and post operative period 
Group-B: Consisted 50 patients received one single dose of pre operative antibiotic.

Exclusion criteria: Patients with Diabetes Mellitus, HIV Infections, ultrasound diagnosed perforated appendicitis, Patients on steroids, Hypoproteinaemia, Severe anemia were excluded.

Investigations like USG abdomen, CBP, CUE, RBS, Viral Screening, Protein Status were done routinely.

Specimens of all the patients were subjected to Histopathological examination. Two patients in each group showed normal findings. All other cases were proved to the inflamed appendicitis.

The procedures included were both laparoscopic and open method appendicectomies. 52 patients underwent open appendicectomy, remaining 50 patients underwent laparoscopic appendicectomy. We monitored the vitals and surgical site infections. The cases were discharged on 3rd or 7th post operative day depending upon the type of procedure [laparoscopic on third day and open on seventh day]. Out of 52 patients in Group-A Seven had wound site infection
whereas 50 patients in Group-B six patients had surgical site infection. The Infected wound was drained and pus swab was sent for culture and sensitivity. The culture report came as MRSA (Methicillin Resistant Staph. Aureus) and E.Coli, which were sensitive to tazobactum and Amikacin.

RESULTS:

Table 1: Age and sex wise distribution

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Group A</th>
<th>Group B</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
</tr>
<tr>
<td>&lt; 18</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>18 to 25</td>
<td>30</td>
<td>16</td>
<td>31</td>
</tr>
<tr>
<td>&gt; 25</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Grand total</td>
<td>102</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Surgical site infection (SSI)

<table>
<thead>
<tr>
<th></th>
<th>Group A</th>
<th>Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSI Negative</td>
<td>45%</td>
<td>44%</td>
</tr>
<tr>
<td>SSI Positive</td>
<td>7%</td>
<td>6%</td>
</tr>
<tr>
<td>Total</td>
<td>52%</td>
<td>50%</td>
</tr>
</tbody>
</table>

OR = 0.88, X² = 1.234

This signifies that there is no statistical difference between the two comparative groups regarding overall surgical site infections.

DISCUSSION:

Most studies to-date have compared the use of pre operative antibiotic with or without short course of post op antibiotics. Our study was designed to evaluate the efficacy of using post operative antibiotic in addition to pre operative antibiotics in non-perforated appendicitis. In our study we used ceftriaxone and metrogyl as antibiotics of choice. In our study males were predominantly affected and commonest age group was between 20 to 30 years. The mean age was 25 years. Negative appendicectomies were less in our study. In our study 12.5% of patients developed surgical site infection. The infection rate was comparable to other groups.

We compared our results with that of two well known studies. Liberman et al⁴ performed a prospective, double blind, randomized controlled study in which 3 groups of patients with non perforated appendicitis received preoperative cefotetan, cefoxitin. Or preoperative cefoxitin followed by 3 postoperative doses of cefoxitin had a significantly higher wound infection rate (11.1%) compared with the group that received both preoperative and postoperative cefoxitin (1.9%).

Mui et al⁵ investigated wound infection rates in 3 groups of patients with non perforated appendicitis; 1 group received 1 preoperative does of cefuroxime and metronidazole, the second group received an additional 3 postoperative doses, and the third group received postoperative antibiotics for an additional 5 consecutive days. This study found no statistically significant difference in the wound infection rates among the 3 groups (6.5, 6.4, and 3.6 respectively). In our study we found the similar results. (No statistically significant infection rates were found between the two groups).

CONCLUSION:

In the present study we found that the use of post operative antibiotics did not reduce the rate of surgical infection in non perforated appendicitis. The incidence of acute appendicitis is more⁶ common in males than females, the peak being 18 to 25 years of age. Our study showed that MRSA, E-Coli are the commonest bacteria in wound infections in post operative cases. Use of antibiotics during post operative period in addition to single dose of antibiotic preoperatively does not alter the postoperative surgical site infections significantly.

REFERENCES:

2. Charlotte Haldane et al. The Aklvarado scoring system is an accurate diagnostic tool in acute appendicitis. BestBests Medline2008;1-3


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