

DOES NON-PERFORATED APPENDICITIS NEED ANTIBIOTIC COVER IN CHILDREN?

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Abstract

This is a Prospective study to evaluate the effects of whether to use antibiotics or not in the treatment of non-perforated acute appendicitis in children.

One hundred & two children with acute appendicitis were operated upon by emergency open appendectomy in AL-Sadir Teaching Hospital, Basrah Child & Maternity hospital and AL-shefa'a General Hospital. In thirty six patients, the appendix was perforated or gangrenous and was excluded from the study. Regarding the remaining 66 patients, 50 patients received antibiotics whether pre-operatively or post-operatively and 16 patients did not receive antibiotics. Both groups were followed postoperatively for development of: fever, wound infection and intra-abdominal abscess for 3 weeks.

Post operative fever was observed in 11(22%) of those who received antibiotics compared to only 3(18.75%) of those who did not receive antibiotics. One (2%) of those who received antibiotics compared to zero of those who did not receive antibiotics developed wound infection. None of either groups developed intra-abdominal abscess. Thirty four (68%) of those who received antibiotics and 12(75 %) of those who did not receive antibiotics went home within 3 days of admission. where is 16(32 %) of those who received antibiotics and 4(25 %) of those who did not receive antibiotics stayed in the hospital for a period of 4 days.

In conclusion, No administration of antimicrobials to children with non-perforated acute appendicitis did not in anyway increases morbidity but in contrary it reduced hospital cost by way of less medication and shorter hospital stay. Add to this the less inconvenience to the family.

This study aimed to evaluate the benefit of antibiotics in the treatment of non-perforated acute appendicitis in children.

Patients & methods

During a 2 years period from January 2008 to January 2010, 102 children under the age of 12 years from both sexes with the diagnosis of acute appendicitis were admitted to AL-Sadir Teaching Hospital, Basrah Child & Maternity Hospital and AL-shefa'a General Hospital. The data were documented on special proforma which included: age, sex, details of symptoms, clinical and operative findings, antimicrobials if any and complications

Introduction

Acute appendicitis remains the most common condition requiring emergency surgery in children. It is not uncommonly associated with various complications, wound infection remains the commonest. To overcome this, prophylactic antibiotics have been used¹, but the use of antibiotics in acute appendicitis whether preoperatively or postoperatively has been always a controversial subject. Several questions still remains unanswered¹⁻³ whether a single antimicrobial agent is sufficient and if so should prophylaxis is directed against anaerobic or aerobic bacteria or both and whether antibiotics are really necessary in children with simple non perforated acute appendicitis.

subdivided randomly in to 2 groups: a **group** of 50 patients who received antibiotics whether pre or post operatively in form of injectable ampicillin alone 100 mg/kg/day in 4 divided doses or injectable 3rd generation cephalosporin alone 100-150 mg/kg/day in 2-3 divided doses for period of hospital stay. The other **group** of 16 patients who did not receive any antibiotics. Both groups were followed postoperatively for 3 weeks.

Statistical analysis was performed using SPSS for windows and any $P < 0.05$ was considered significant.

Results

One hundred two patients less than 12 years of age admitted with the diagnosis of acute appendicitis had appendicectomy. Of whom 36(35.3%) had perforated/gangrenous appendicitis. Of the remaining 66(64.7%) children with non perforated appendicitis, 50 patients received antimicrobial treatment pre or post operatively where as 16 did not receive any antimicrobials therapy. The various antimicrobials given and their doses are shown in table I .

encountered. The use of antibiotics in terms of the type of antibiotics as well as the duration of treatment were determined by the treating surgeon choice or patients allergy to drugs and what is available in hospital at night. The early complications looked for were post operative fever, wound infection, intra peritoneal & pelvic abscess. The number of days in the hospital was also recorded so as to estimate the morbidity of the patients. Provisional diagnosis (either appendicitis or not) made by senior house officer in the casualty unit. Emergency open appendicectomy done for all patients via Grid-iron incision and the state of appendix intra-operatively classified into; simple appendicitis and perforated/gangrenous appendicitis. Primary wound closure was done for all patients, all specimen sent for histopathology.

Elective appendicectomies, severely inflamed appendix, perforated/gangrenous appendicitis and appendicular mass/abscess were excluded from this study. The remaining patients were

Table I: Antimicrobials cover for those with non perforated appendicitis.

<i>Antibiotics</i>	<i>No. of patients</i>
Injectable 3 rd generation cephalosporin alone 100-150 mg/kg/day	18
Injectable Ampicillin alone 100 mg/kg/day	32

Table II: Age and sex distribution

<i>age</i>	<i>Received antibiotics</i>		<i>Receive no antibiotics</i>		<i>total</i>
	<i>male</i>	<i>female</i>	<i>male</i>	<i>female</i>	
3-6year	6	---	---	---	6
>6-9year	10	5	4	1	20
>9-12 year	21	8	7	4	40
	37	13	11	5	
<i>total</i>	50		16		66

11(68.75%) of those who did not receive antibiotics were *males*, and 13(26%) of those who received antibiotics & 5(31.25%) those who did not receive antibiotics were *females*.

This table shows age and sex distribution among those who received antibiotics and those who did not receive antibiotics. Thirty seven (74%) of those who received antibiotics and

Table III: Histopathological findings of appendicitis.

<i>state of appendix</i>	<i>No. of Patients</i>
Simple appendicitis	66
Severely inflamed, perforated and gangrenous appendicitis .	36
total	102

simple acute appendicitis and 36 of them were either *severely inflamed, perforated or gangrenous appendicitis*.

This table show the results of histopathological examination of acute appendicitis. Sixty six of them were

Table IV: Post operative complications.

<i>Type of complication</i>	<i>patients received antibiotics</i>	<i>patients not receive antibiotics</i>
Fever	11 (22%)	3(18.7%)
Wound infection	1 (2%)	0 (0.0%)
Intra-abdominal abscess	0 (0.0%)	0 (0.0%)
Discharged with in 3 days	34 (68%)	12 (75%)
Discharged in < 3 days	16 (32%)	4 (25%)

Thirty four (68%) of those who received antibiotics and 12(75%) of those who did not receive antibiotics went home within 3 days of admission, where as 16(32%) of those who received antibiotics and 4 (25%) of those who did not receive antibiotics stayed in the hospital for periods of 4 days. No **mortality** in either groups . **The mean length** of hospital stay was 3.25 days for those who did not receive antibiotics and 3.32 days for those who received antibiotics

Table IV, show distribution of post operative complications among children with simple acute appendicitis whether received antibiotics (50) or did not receive antibiotics (16), 11(22%) of those who received antibiotics & 3(18.75 %) of those who did not receive antibiotic develops **fever**, 1(2%) of those who received antibiotics & zero of those who did not receive antibiotics developed post operative **wound infection**. None of either groups developed postoperative **intra-abdominal abscess**.

days and (3.25) days for those who did not receive antibiotics, (p=565).

In comparison to other study done in Saudi Arabia by Al-Salem AH *et al*⁶, we get a relatively good results for those who did not receive antibiotics as shown in figure1 and figure2.

stayed in the hospital for period of 4 days(3rd post operative day), this result of delay in passage of flatus and delay in taken oral .

The mean length of hospital stay in those who received antibiotics (3.32)

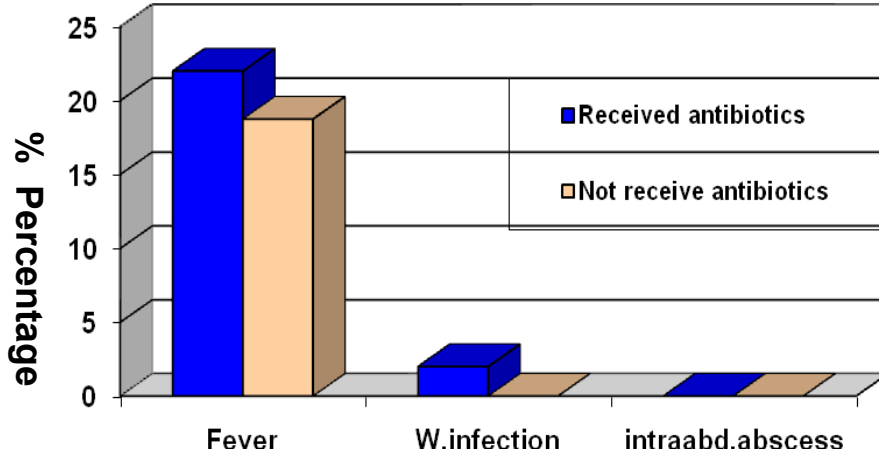


Fig. 1: Incidence & types of complications

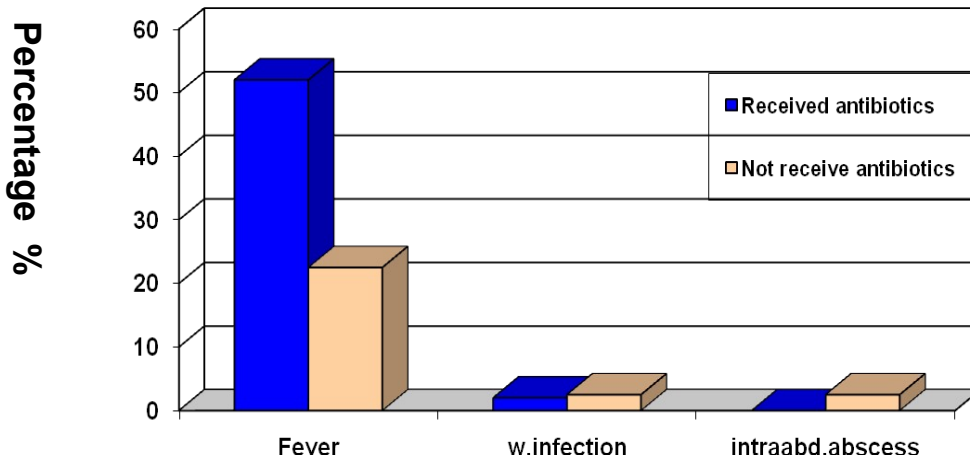


Fig.2: Study by AL-Salem AH, Qais aruddin S & Varma K K in Saudi Arabia.

contrary it reduced hospital cost by way of less medication and shorter hospital stay. Add to this, the less inconvenience to the family.

In conclusion, none administration of antimicrobials to children with non perforated acute appendicitis did not in any way increases morbidity but in

References

1- Joseph J. Wizorek and Robb R. Winney. Acute Abdominal Pain and Appendicitis. Doharty GM, Lowney JK, Reznik SI, Smith MA. Washington manual of surgery. 2ndEd. Philadelphia. Lippencott Williams&Wilkins .1999; Chapter 14, P 240-255.
 2- P. Ronan O'Connell. The vermiform appendix. RCGRussel, NSWilliams, CJK Bulstrode. Bailey & Loves short practice of surgery 23rd Ed. Arnold Puplisher.2000; Chapter 59, P 1076-1081.

- 3-Gorecki WJ, Grochowski JA. Are antibiotics necessary in non perforated appendicitis in children? A double blind randomized controlled trail .*Medical ScienceJournal*. 2000;7(2): 289-92.
- 4-Frank C, Bohner H, Yang Q, *et al*. Ultrasonography for diagnosis of acute appendicitis: Results of a prospective multicenter trail .*World JSurg* 1999;23:141.
- 5- Kaiser S, Frenckner B, Jorulf HK: Suspected appendicitis in children: US and C-T A prospective randomized study .*Radiology* 2002;223:633.
- 6-AL-Salem AH, Qaisaruddin S,Varma KK. Does non perforated appendicitis need antibiotic cover in children. *Saudi medical journal* 1998;19:399-401.