

Antibiotic treatment of acute appendicitis - initial observations

Sir,

While many significant advances have been made regarding the conservative treatment of some inflammatory conditions encountered in surgical practice, acute appendicitis remains the exception.^{1,2} When surgery for acute appendicitis was delayed in a 7-year-old girl and a 10-year-old boy, it was noted that Imipenem^{3,4} dramatically improved the clinical picture. Thus, a pilot study was designed to address the issue of acute appendicitis being an inflammatory process which might be treatable at least in terms of resolving the acute inflammatory process, thereby avoiding emergency surgery with its implications. The study recruited 15 consecutive patients (11 males and 4 females, age range 6-45 years) (Table 1) presenting at random to the emergency department at Al-Hammadi Hospital in Riyadh, Kingdom of Saudi Arabia with a diagnosis of acute appendicitis without peritonitis diagnosed from the history, physical examination, white blood cell count (WBC), lactic dehydrogenase (LDH), C-reactive protein (CRP), urinalysis and ultrasonography. Written informed consent was obtained, and the patients were admitted to the hospital and treated with the recommended therapeutic dose of Imipenem intravenously until discharge from the hospital. For the 6-year-old boy, 250 mg every 6 hours and for the rest of the patients 500 mg every 6 hours. They were also kept on nil by mouth with intravenous crystalloid fluid replacement until complete relief from their symptoms. No analgesic or other medications were given.

Follow up was by daily history review, physical examination and WBC. Conservative treatment was abandoned in favor of surgery when one or more of fever, abdominal pain or iliac fossa tenderness persisted in the same magnitude or increased. Recovery was confirmed ultrasonically. Cure of the acute episode without surgery was attained in 14 cases. Complete recovery from all the symptoms with a normal abdomen on physical examination coupled with a return of the WBC to normal values and confirmation of cure ultrasonically was achieved between 24 and 96 hours in all cases. Hospitalization ranged from one to 4 days. Outpatient follow-up for the cured cases was carried out 2, 4 and 8 weeks after discharge from hospital and demonstrated no relapse.

The diagnosis of acute appendicitis, then establishing its cure followed solid objective parameters (WBC, LDH, CRP and ultrasonography). The latter was especially valuable to demonstrate no appendix mass had formed consequent to treatment. The 8 weeks outpatient follow-up supports the cure of the acute appendicitis episode. Whether a relapse would occur in the future remains to be seen. Consequently, the fact that 15 consecutive cases presenting with acute appendicitis to the same center were studied without omissions, exclusions or patient selection, suggests that the 14 cures warrant expansion of the observation 'Imipenem cures acute appendicitis' into a larger study. The histologic study of the only case which failed to respond to conservative treatment and underwent surgery, not only demonstrated the diagnostic accuracy employed, but also reflected important issues pertinent to a more accurate selection of patients most likely to respond to this treatment. The appendix was noted during

Table 1 - None surgical cure of acute appendicitis.

Age in years	Sex	Symptoms in hours		Temperature		Hours of tenderness in hospital	WBC x 10 ⁹		Days of hospitalization
		Before admission	In hospital	Admission	Hours to apyrexia		Admission	Discharge	
27	male	12	12	36.6	-	38	12.2	5.7	4
31	male	12	10	37.5	10	25	17.2	6.9	2
11	male	19	20	37.6	36	40	14.4	11.2	2
35	male	8	8	36.8	-	14	16.6	10.2	1
38	male	9	4	36.8	-	28	9.7	5.4	3
37	male	30	12	37.2	-	37	8.7	8.3	2
25	male	18	13	36.9	-	40	15.9	9.6	3
6	male	15	15	36.8	-	16	15.9	8.1	3
17 (failed)	male	17	24 (pre-op)	36.4	38.9 (24 hrs)	24 (pre-op)	12.3	4.0	4
32	male	8	8	37.5	8	32	18.3	7.8	3
31	female	30	11	39.1	35	35	15.8	6.8	2
32	female	23	12	36.4	-	51	21.1	10.0	4
20	female	4	6	37.7	6	11	11.3	9.6	2
20	male	8	8	37.1	-	44	8.6	4.1	3
45	female	24	16	38.0	8	40	8.5	5.3	2

Pre-op - pre-operative; hrs - hours; WBC - white blood cell count

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surgery to be kinked and containing 2 large bezoars obstructing the lumen. Ultrasonography can identify these cases and introduce them to surgery earlier. Nonetheless, despite delayed surgery, it was striking to note that there was no significant omental reaction and the obstructed appendix was only mildly inflamed. This reflects the anti-inflammatory action exerted by Imipenem on the acute inflammatory process within the appendix. The extrapolation gathered herein pertains to a safe delay of surgical intervention with avoidance of perforation. An observation of crucial significance in those acute appendicitis cases requiring special preoperative preparations. Additionally, it appears that Imipenem may exert specific anti-inflammatory actions in addition to its anti-microbial properties. This pilot study is only an initial observation which calls for a proper clinical trial to consolidate the deductions made and to address the issues raised.

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