

Antibiotics for acute appendicitis: a reasonable alternative

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ABSTRACT

Medical (conservative) treatment of acute appendicitis is an area that has not been adequately resolved, with evidence for and against this therapeutic regimen. The difficulty of clinical / bedside visualization of the state of an inflamed appendix has been somewhat resolved through the use of modern imaging modalities; however, surgeons feel happier if they can actually see the organ and decide for themselves. From the patient's point of view, an inexpensive, non-invasive treatment is preferred, even though there are risks of incomplete resolution of the acute condition, recurrences, and/or the need for later surgery.

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INTRODUCTION

Antibiotics are the first line of treatment for acute appendicitis but have been remarkably overlooked.¹ Patients who have uncomplicated appendicitis could be successfully treated non-operatively but the question of the relative efficacy of antibiotic therapy for the treatment of appendicitis has remained highly controversial.² On the basis of findings from randomized trials that had relatively limited inclusion criteria and excluded patients with an appendicolith, some experts have opined that the choice between medical and surgical management should reflect a relative determination of value and preference and involve shared decision making.^{3,4} Recent trial based studies have emphasized that antibiotics can be successful in people who have uncomplicated acute appendicitis to avoid surgery.⁵⁻⁸

The Appendicitis Acuta (APPAC) trial compared outcomes for open appendectomy with antibiotic therapy for acute uncomplicated appendicitis, concluding that antibiotics were a reasonable alternative to appendectomy.⁹

The 5-year results for observing patients enrolled in the APPAC trial are reported and are very encouraging.¹⁰ Of the 257 patients initially randomized to receive antibiotics instead of surgery, follow-up information was available for 256(99%) patients, and 100(39%) underwent appendectomy within 5 years. Notably, 70 of the 100 appendicitis recurrences occurred within 1 year of randomization. Of the 100 appendectomies performed among patients in the antibiotic

treatment group, 7 did not have appendicitis. Excluding those who conceivably could have avoided surgery if evaluated using diagnostic imaging before undergoing appendectomy, the true failure rate for antibiotic therapy was 93 of 257 patients (36%).^{9,11}

Despite the study limitations, of the 257 patients in the antibiotic group, 186(73%) initially treated with antibiotics did not require surgery at the 1-year end point. However, concerns were raised that these patients would eventually require surgery, and various experts recommended that the APPAC results for clinical decision making should not be used until the long-term outcomes were known for the patients who received antibiotic treatment.¹¹

Another report assessing 30-days health status on a standardized quality of life questionnaire makes an important contribution to the existing literature.¹² They report short-term results of a non-blinded, non-inferiority, randomized trial comparing antibiotic therapy (which was not rigidly standardized) within 1552 adults who were treated at academic health centers across the United States; the conclusion was that antibiotics were not inferior in outcomes to surgical treatment.

A multicentered study conducted in UK and Ireland¹³ took 3420 patient in their analysis over a time period of 4 months. They treated acute appendicitis with first line of treatment of antibiotics in 1402(41%) patients and surgery in 2018(59%) patients. The study followed up the patient after 90 days which showed that 1116 (80%) had avoided the operative intervention and that use of antibiotics as an alternative first line treatment can lead to great cost reductions as well.

At least two key questions should be asked when evaluating these results.¹⁴ First, what other factors relevant to medical care and treatment should be considered in comparing these treatment options? Second, would patients and their providers accept an alternative to appendectomy, depending on the circumstances?²

However, as the authors suggest, circumstances do matter, and advantages of antibiotic treatment relative to surgery may be greater during the Covid-19 pandemic or other public health emergencies in which operating room capacity and other resources are severely constrained.²

The American College of Surgeons has recently released guidance on triage for nonemergency surgical procedures during the Covid-19 pandemic, suggesting that hospitals and surgical centers should consider, among other factors, the needs and informed preferences of patients, medical risks that might be incurred by delaying operation, resource availability, capacity, and safety.¹⁵

In recent years, evidence from high quality clinical trials has shown that uncomplicated appendicitis can be treated with antibiotics, or in some cases, by observation alone. In this new

era of appendicitis treatment in which the diagnosis can be made nearly error free with CT imaging, most cases of uncomplicated appendicitis can be successfully treated with antibiotics.

Patients presenting with acute, non-complicated, CT proven appendicitis should be given an opportunity for shared decision making, understanding that there is a high probability that they can be successfully treated with antibiotics or undergo appendectomy if they do not want to worry about the chance for recurrence.¹¹

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