

Antibiotic Therapy vs Appendectomy for Treatment of Uncomplicated Acute Appendicitis: The APPAC Randomized Clinical Trial.

Salminen P, Paajanen H, Rautio T, Nordström P, Aarnio M, Rantanen T, Tuominen R, Hurme S, Virtanen J, Mecklin JP, Sand J, Jartti A, Rinta-Kiikka I, Grönroos JM.

Abstract

IMPORTANCE:

An increasing amount of evidence supports the use of antibiotics instead of surgery for treating patients with uncomplicated acute appendicitis.

OBJECTIVE:

To compare antibiotic therapy with appendectomy in the treatment of uncomplicated acute appendicitis confirmed by computed tomography (CT).

DESIGN, SETTING, AND PARTICIPANTS:

The Appendicitis Acuta (APPAC) multicenter, open-label, noninferiority randomized clinical trial was conducted from November 2009 until June 2012 in Finland. The trial enrolled 530 patients aged 18 to 60 years with uncomplicated acute appendicitis confirmed by a CT scan. Patients were randomly assigned to early appendectomy or antibiotic treatment with a 1-year follow-up period.

INTERVENTIONS:

Patients randomized to antibiotic therapy received intravenous ertapenem (1 g/d) for 3 days followed by 7 days of oral levofloxacin (500 mg once daily) and metronidazole (500 mg 3 times per day). Patients randomized to the surgical treatment group were assigned to undergo standard open appendectomy.

MAIN OUTCOMES AND MEASURES:

The primary end point for the surgical intervention was the successful completion of an appendectomy. The primary end point for antibiotic-treated patients was discharge from the hospital without the need for surgery and no recurrent appendicitis during a 1-year follow-up period.

RESULTS:

There were 273 patients in the surgical group and 257 in the antibiotic group. Of 273 patients in the surgical group, all but 1 underwent successful appendectomy, resulting in a success rate of 99.6% (95% CI, 98.0% to 100.0%). In the antibiotic group, 70 patients (27.3%; 95% CI, 22.0% to 33.2%) underwent appendectomy within 1 year of initial presentation for appendicitis. Of the 256 patients available for follow-up in the antibiotic group, 186 (72.7%; 95% CI, 66.8% to 78.0%) did not require surgery. The intention-to-treat analysis yielded a difference in treatment efficacy between groups of -27.0% (95% CI, -31.6% to ∞) ($P = .89$). Given the prespecified noninferiority margin of 24%, we were unable to demonstrate noninferiority of antibiotic treatment relative to surgery. Of the 70 patients randomized to antibiotic treatment who subsequently underwent appendectomy, 58 (82.9%; 95% CI, 72.0% to 90.8%) had uncomplicated appendicitis, 7 (10.0%; 95% CI, 4.1% to 19.5%) had complicated acute appendicitis, and 5 (7.1%; 95% CI, 2.4% to 15.9%) did not have appendicitis but received appendectomy for suspected recurrence. There were no intra-abdominal abscesses or other major complications associated with delayed appendectomy in patients randomized to antibiotic treatment.

CONCLUSIONS AND RELEVANCE:

Among patients with CT-proven, uncomplicated appendicitis, antibiotic treatment did not meet the prespecified criterion for noninferiority compared with appendectomy. Most patients randomized to antibiotic treatment for uncomplicated appendicitis did not require appendectomy during the 1-year follow-up period, and those who required appendectomy did not experience significant complications.

TRIAL REGISTRATION:

clinicaltrials.gov Identifier: NCT01022567.

PMID: 26080338