

Trial compares antibiotics vs. appendectomy for treatment of appendicitis

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Among patients with uncomplicated appendicitis, antibiotic treatment did not meet a prespecified level of effectiveness compared with appendectomy, although most patients who received antibiotic therapy did not require an appendectomy, and for those who did, they did not experience significant complications, according to a study in the June 16 issue of *JAMA*.

Appendectomy has been the standard treatment for acute appendicitis for over a century. More than 300,000 of these procedures are performed annually in the United States. Although appendectomy is generally well tolerated, it is a major surgical intervention and can be associated with postoperative complications. An increasing amount of evidence supports the use of antibiotics instead of surgery for treating patients with uncomplicated acute appendicitis, according to background information in the article.

Paulina Salminen, M.D., Ph.D., of Turku University Hospital, Turku, Finland, and colleagues randomly assigned 530 patients with uncomplicated acute appendicitis (confirmed by a computed tomography [CT] scan) to receive [antibiotic therapy](#) for 10 days or a standard appendectomy. The researchers tested the hypothesis that [antibiotic treatment](#) was noninferior (not worse than) to appendectomy, and assumed that there would be sufficient benefits from avoiding surgery and that a 24 percent failure rate in the antibiotic group would be acceptable.

Of the 273 patients randomized to the surgical group, all but one underwent successful appendectomy, resulting in a success rate of 99.6 percent. Of the 256 patients available for 1-year follow-up in the antibiotic group, 186 (72.7 percent) did not require appendectomy. Seventy patients (27.3 percent) in the antibiotic group underwent surgical intervention within 1 year of initial presentation for appendicitis. The intention-to-treat analysis yielded a difference in treatment efficacy between groups of negative 27.0 percent. Given the prespecified noninferiority margin of 24 percent, the researchers were unable to demonstrate noninferiority of antibiotic treatment relative to surgery.

There were no intra-abdominal abscesses or other major complications associated with delayed appendectomy in patients assigned to antibiotic treatment.

"Antibiotic treatment of patients with uncomplicated acute appendicitis was not shown to be noninferior to appendectomy for uncomplicated appendicitis within the first year of observation following initial presentation of appendicitis. Nevertheless, the majority (73 percent) of patients with uncomplicated acute appendicitis were successfully treated with antibiotics," the authors write. "These results suggest that patients with CT-proven uncomplicated acute appendicitis should be able to make an informed decision between antibiotic treatment and appendectomy. Future studies should focus both on early identification of complicated acute appendicitis patients needing surgery and to prospectively evaluate the optimal use of antibiotic treatment in patients with uncomplicated [acute appendicitis](#)."

Edward Livingston, M.D., Deputy Editor, JAMA, Chicago, and Corrine Vons, M.D., Ph.D., of the Jean Verdier Hospital, Bondy, France, comment on the findings of this study in an accompanying editorial.

"These findings suggest that for CT-diagnosed uncomplicated appendicitis, an initial trial of antibiotics is reasonable followed by elective appendectomy for patients who do not improve with antibiotics or present with recurrent appendicitis."

"The time has come to consider abandoning routine appendectomy for patients with uncomplicated appendicitis. The operation served [patients](#) well for more than 100 years. With development of more precise diagnostic capabilities like CT and effective broad-spectrum antibiotics, [appendectomy](#) may be unnecessary for uncomplicated appendicitis, which now occurs in the majority of acute [appendicitis](#) cases."

More information: *JAMA*, [DOI: 10.1001/jama.2015.6266](https://doi.org/10.1001/jama.2015.6266)

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