

Medical Management of Appendicitis

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THE STUDY: *BMJ* 2012; 344:e2156.

Varadhan KK, Neal KR, Lobo DN. Safety and efficacy of antibiotics compared with appendectomy for treatment of uncomplicated acute appendicitis: meta-analysis of randomized controlled trials.

BACKGROUND

Appendectomy has been the cornerstone for the management of appendicitis ever since Mac Burney published his classic paper in 1889. Since then, it has remained, unquestionably, the mainstay of treatment. Medical management with antibiotics is considered only when surgery is not possible or when diagnosis is uncertain.

A low threshold for performing appendectomy in suspected cases of appendicitis has resulted in high rates of removing a pathologically normal appendix and an unnecessary increase in surgical morbidity during the past few decades. With the increasing availability of cheaper and better CT scanners, the diagnosis and monitoring of uncomplicated appendicitis has become easier. The cost of appendectomy, both in terms of surgical morbidity and monetary value, makes it imperative to compare appendectomy with antibiotics for uncomplicated appendicitis. While isolated studies have superiority of antibiotics over surgery in the management of uncomplicated appendicitis, systemic reviews and meta-analyses has been either inconclusive or weakly supportive of antibiotic treatment. Viridian et al point out what previous meta-analyses may have failed to show unequivocal benefit of antibiotic treatment due to methodological issues and they aimed to pool only the best available evidence for meta-analysis.

HOW WAS THE STUDY DONE?

Authors of this meta-analysis identified 4 randomized controlled trials by searching electronic databases that were published between January 1966 and December 2011 and compared antibiotic treatment with surgical management in patients with uncomplicated appendicitis.

WHAT DID THIS STUDY FIND?

The meta-analysis found that antibiotics were

both effective and safe as primary treatment for patients with uncomplicated acute appendicitis. In fact, meta-analysis found a relative risk reduction of 31% in complications with antibiotic treatment as compared to surgery. In the secondary analysis, where patients that crossed-over between the two interventions after randomization were excluded, authors found a 39% relative risk reduction with antibiotics. Other factors, such as length of stay or risk of developing complicated appendicitis, were not statistically significant.

LIMITATIONS

As with all meta-analyses, the reliability of this meta-analysis depends on the included studies. This meta-analysis included only 4 studies (total number of patients = 900), with the largest studies enrolling 250 patients. Moreover, the quality of the included studies according to GRADE approach was low to moderate only. Authors used the test of heterogeneity to guide them in choosing between fixed effect or random effect model for pooling study results. The tests of heterogeneity have low power when the number of included studies is small and a random effect model is more appropriate when the number of studies is limited.

WHAT IS THE BOTTOM LINE?

The study is unlikely to change the current practice of appendectomy in developing countries due to lack of CT scanners at the majority of healthcare centres. Even in developed countries, where negligence lawsuits are common, surgeons might continue opting for appendectomy over intravenous antibiotics for the fear of litigation. However, before the results of this meta-analysis are used to change current practice, a large, well-controlled randomized clinical trial is needed. Moreover, the criteria for the identification of uncomplicated or low-risk appendicitis need to be standardized. Even when it is established beyond doubt that the two treatments are similar, it will be required to highlight which one of the two strategies is cost-effective.

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