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Cochrane Database of Systematic Reviews 2022, Issue 6. Art. No.: CD009092.
DOI: 10.1002/14651858.CD009092.pub3.

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[Intervention Review]

Antibiotics for uncomplicated diverticulitis

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Editorial group: Cochrane Colorectal Group.
Publication status and date: New search for studies and content updated (no change to conclusions), published in Issue 6, 2022.

Citation: Dichman M-L, Rosenstock SJ, Shabanzadeh DM. Antibiotics for uncomplicated diverticulitis. *Cochrane Database of Systematic Reviews* 2022, Issue 6. Art. No.: CD009092. DOI: 10.1002/14651858.CD009092.pub3.

ABSTRACT

Background

Diverticulitis is a complication of the common condition, diverticulosis. Uncomplicated diverticulitis has traditionally been treated with antibiotics, as diverticulitis has been regarded as an infectious disease. Risk factors for diverticulitis, however, may suggest that the condition is inflammatory rather than infectious which makes the use of antibiotics questionable.

Objectives

The objectives of this systematic review were to determine if antibiotic treatment of uncomplicated acute diverticulitis affects the risk of complications (immediate or late) or the need for emergency surgery.

Search methods

For this update, a comprehensive systematic literature search was conducted in Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE, Embase, ClinicalTrials.gov and WHO International Clinical Trial Registry Platform on February 2021.

Selection criteria

Randomised controlled trials (RCTs), including all types of patients with a radiologically confirmed diagnosis of left-sided uncomplicated acute diverticulitis. Comparator and interventions included antibiotics compared to no antibiotics, placebo, or to any other antibiotic treatment (different regimens, routes of administration, dosage or duration of treatment). Primary outcome measures were complications and emergency surgery. Secondary outcomes were recurrence, late complications, elective colonic resections, length of hospital stay, length to recovery of symptoms, adverse events and mortality.

Data collection and analysis

Two authors performed the searches, identification and assessment of RCTs and data extraction. Disagreements were resolved by discussion or involvement of the third author. Authors of trials were contacted to obtain additional data if needed or for preliminary results of ongoing trials. The Cochrane Collaboration's tool for assessing risk of bias was used to assess the methodological quality of the identified trials. The overall quality of evidence for outcomes was evaluated using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach. Effect estimates were extracted as risk ratios (RRs) with 95% confidence intervals. Random-effects meta-analyses were performed with the Mantel-Haenzel method.

Main results

The authors included five studies. Three studies compared no antibiotics to antibiotics; all three were original RCTs of which two also published long-term follow-up information. For the outcome of short-term complications there may be little or no difference between antibiotics and no antibiotics (RR 0.89; 95% CI 0.30 to 2.62; 3 studies, 1329 participants; low-certainty evidence). The rate of emergency

surgery within 30 days may be lower with no antibiotics compared to antibiotics (RR 0.47; 95% CI 0.13, 1.71; 1329 participants; 3 studies; low-certainty evidence). However, there is considerable imprecision due to wide confidence intervals for this effect estimate causing uncertainty which means that there may also be a benefit with antibiotics.

One of the two remaining trials compared single to double compound antibiotic therapy and, due to wide confidence intervals, the estimate was imprecise and indicated an uncertain clinical effect between these two antibiotic regimens (RR 0.70; 95% CI 0.11 to 4.58; 51 participants; 1 study; low-certainty evidence). The last trial compared short to long intravenous administration of antibiotics and did not report any events for our primary outcomes. Both trials included few participants and one had overall high risk of bias.

Since the first publication of this systematic review, an increasing amount of evidence supporting the treatment of uncomplicated acute diverticulitis without antibiotics has been published, but the total body of evidence is still limited.

Authors' conclusions

The evidence on antibiotic treatment for uncomplicated acute diverticulitis suggests that the effect of antibiotics is uncertain for complications, emergency surgery, recurrence, elective colonic resections, and long-term complications. The quality of the evidence is low. Only three RCTs on the need for antibiotics are currently available. More trials are needed to obtain more precise effect estimates.

PLAIN LANGUAGE SUMMARY

Antibiotics for uncomplicated diverticulitis

Diverticulitis is a condition with inflammation of the so-called diverticulae. A diverticulae is a weakness in the bowel wall. Diverticulae are common in the population, especially in the elderly above the age of 60 years, and are often asymptomatic. Diverticulitis may present as abdominal pain and tenderness accompanied by signs of infection, such as fever. In most cases, diverticulitis resolves without complications, however, some patients develop complications and may need emergency surgery.

Uncomplicated acute diverticulitis is the focus of this review. It has traditionally been regarded as an infection with bacterial overgrowth in the large intestine and has been treated with antibiotics. Recently, it has been argued that diverticulitis is more likely to be an inflammatory rather than an infectious condition, making the use of antibiotics questionable. Consequently, a shift towards the use of therapeutic regimens without antibiotics has been seen. This present review investigates whether there is any existing clinical evidence supporting the use of antibiotics for uncomplicated diverticulitis.

Five clinical trials in hospitalised patients were assessed. One trial investigated two different antibiotic treatments and a second study investigated the duration of intravenous antibiotic treatment. Three trials investigated the actual need for antibiotics when compared to no antibiotics of which two trials had published long-term follow-up results as separate records. None of the studies found a statistical difference in the tested antibiotic regimens. Comparing no antibiotic versus antibiotic treatment did not demonstrate any differences in the occurrence of complications like abscesses and perforations of the large intestine, or in the need for emergency surgery.

Antibiotics can cause serious adverse effects, including life-threatening allergic reactions or super-infections of the intestine. Growing antibiotic resistance is an increasing problem rendering some infections impossible to treat with possible fatal outcomes. Therefore, strong arguments in favour of limiting the current use of antibiotics exist. Only three randomised controlled trials on the need of antibiotics are currently available and more are needed in order to obtain strong and reliable evidence. However, the newest evidence shows that the use of antibiotics for the treatment of uncomplicated acute diverticulitis is not superior to treatments that do not include antibiotics.