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CURRENT EVIDENCE ON THE USE OF ANTIBIOTICS AND CONSERVATIVE APPROACHES IN THE TREATMENT OF UNCOMPLICATED DIVERTICULITIS

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Abstract: Objective: To evaluate the efficacy and safety of treating acute uncomplicated diverticulitis (AND) without the use of antibiotics, compared with traditional approaches that include antibiotic therapy, and to identify factors that influence clinical outcomes. **Methodology**: A literature review was carried out following the PVO (Population, Variables and Outcome) strategy. The searches took place in the PubMed database, using specific terms combined with Boolean operators AND, OR and NOT. We included 12 articles published between 2020 and 2024, in Portuguese, English and Spanish, covering reviews, meta-analyses, observational and experimental studies. Duplicate studies, abstracts and those out of scope were excluded. **Discussion:** Treatment of uncomplicated diverticulitis without antibiotics has been shown to be safe and effective, with complication and recurrence rates similar to those of antibiotic use. The conservative approach reduced hospitalization time, hospital costs and the risk of bacterial resistance. Studies suggest that stable patients, without signs of sepsis and peritonitis, can be safely treated on an outpatient basis. **Final considerations:** Despite the promising results, there are important methodological limitations, such as the predominance of observational studies, small samples and the absence of standardized criteria for diagnosis and follow-up. The gradual implementation of conservative strategies is recommended, with more robust, multicenter clinical trials aimed at consolidating clear and effective protocols. The approach should be individualized, considering risk factors, clinical characteristics and practical adherence to the guidelines.
Keywords: Uncomplicated acute diverticulitis, conservative treatment, antibiotics, efficacy and safety, outpatient management.

INTRODUCTION

Uncomplicated acute diverticulitis (UAD) is a prevalent condition, particularly in Western countries, which has a significant impact on morbidity and health system costs. Approximately 80% of cases of acute diverticulitis are classified as uncomplicated, characterized by the absence of serious complications such as abscesses, perforations or fistulas. Clinically, the disease often presents with pain in the lower left quadrant of the abdomen and changes in bowel habits, such as constipation or diarrhea. The accuracy of the clinical diagnosis can be increased by combining these symptoms with laboratory markers, such as high levels of C-reactive protein (CRP). Computed tomography (CT) is widely recognized as the gold standard test to confirm the diagnosis, although ultrasound and magnetic resonance imaging are viable alternatives in specific situations (Chabok *et al.*, 2021).

In recent years, understanding of the pathophysiology and management of HLD has evolved significantly. According to Langenfeld (2021), non-operative treatment is often preferred, with surgery being reserved for complicated cases. This evolution has challenged traditional approaches, including the routine use of antibiotics, which has been questioned on the basis of new evidence. Recent studies suggest that omitting antibiotics does not affect clinical outcomes in many cases, leading to a change in management practices. CT remains essential for the diagnosis and assessment of complications, while patients with DAN can often be treated on an outpatient basis, with light diets, rehydration and, when necessary, oral antibiotics.

Although the inpatient approach with intravenous antibiotics is still practiced, outpatient treatment has been shown to be effective and safe in many cases, resulting in lower costs and reduced hospitalization rates. In addition, lifestyle changes, such as a high-fiber diet and smoking cessation, have been associated with a reduced risk of disease recurrence. Research into complementary therapies, such as probiotics and anti-inflammatory drugs, including aminosalicylates, is progressing, but the definitive role of these interventions has yet to be established. The future of diverticulitis management points to a decrease in the use of antibiotics, with a greater focus on alternative therapies and personalized approaches, as more evidence on the pathophysiology of the disease becomes available (Langenfeld, 2021).

According to Chabok *et al*. (2021), omitting antibiotics in patients with mild conditions did not increase the rates of complications or recurrences and did not prolong recovery time. These findings have prompted management policies that prioritize outpatient treatment, which is considered safe, effective and economically viable. In addition, studies indicate that proper follow-up of these patients reinforces the safety of conservative management, with low failure rates and the need for hospitalization.

In summary, the management of acute uncomplicated diverticulitis has evolved towards more conservative approaches, with an emphasis on omitting antibiotics in mild cases and carefully assessing the need for surgical interventions. Current guidelines suggest that most patients with DAN can be treated on an outpatient basis, with regular follow-up. Decisions about surgery should be individualized, considering the clinical characteristics of each patient and balancing the potential benefits and risks (Chabok *et al.*, 2021).

Given its high prevalence and clinical impact, diverticular disease of the colon demands increased attention both in the field of research and in clinical practice. This article reviews the latest evidence related to its classification, management and prevention, highlighting existing controversies and gaps in current knowledge. By integrating scientific

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advances with clinical approaches, the aim is to provide a more comprehensive understanding of the complexity of this condition, as well as supporting more effective and personalized therapeutic decisions.

METHODOLOGY

This literature review was carried out using the PVO strategy, which considers the elements Population or research problem, Variables and Outcome. This approach guided the development of the study's guiding question: "Antibiotics for uncomplicated diverticulitis".

The searches were conducted in the PubMed/MEDLINE (Medical Literature Analysis and Retrieval System Online) database, using search terms combined with the Boolean operators "AND", "OR" and "NOT". The search strategy employed included the following terms: "anti bacterial agents"[Pharmacological Action] OR "anti bacterial agents"[MeSH Terms] OR ("anti bacterial"[All Fields] AND "agents"[All Fields]) OR "anti bacterial agents"[All Fields] OR "antibiotic"[All Fields] OR "antibiotics"[All Fields] OR "antibiotic s"[All Fields] OR "antibiotical"[All Fields]) AND "uncomplicated"[All Fields] AND ("diverticulitis"[MeSH Terms] OR "diverticulitis"[All Fields].

The initial search identified 112 articles, which were subjected to strict inclusion and exclusion criteria to ensure the quality and relevance of the selected studies. The inclusion criteria considered publications in Portuguese, English and Spanish, carried out between 2020 and 2024, which directly addressed the themes proposed for the research. Studies such as reviews, meta-analyses, observational and experimental studies were included.

The exclusion criteria, in turn, eliminated duplicate articles, publications available only in summary format and studies that did not directly address the study proposal or that did not meet the established inclusion criteria.

After applying these criteria, 12 articles were selected to make up the body of evidence for this review. These studies were analyzed with the aim of evaluating the efficacy, choice and current recommendations for the use of antibiotics in the treatment of uncomplicated diverticulitis. The focus of the analysis included the comparison of therapeutic regimens, treatment durability and clinical outcomes, with the aim of establishing best practices for the management of the condition in patients with mild to moderate conditions.

DISCUSSION

HOSPITAL VERSUS OUTPATIENT APPROACH AND THE USE OF ANTIBIOTICS

According to the retrospective study carried out by Teke *et al.* 2022, the aim was to identify the clinical parameters that influence the choice between inpatient and outpatient treatment in cases of acute uncomplicated diverticulitis, classified as Hinchey 1a. Variables such as readmission rate, disease progression, use of intravenous antibiotics for inpatients and use of oral antibiotics for outpatients were analyzed, as well as findings of clinical instability, laboratory markers and location of diverticulitis on CT. Based on 172 patients diagnosed between 2018 and 2020, the study found that only one inpatient was readmitted within 30 days, while no patients in the outpatient group required readmission. These results indicate that clinically stable patients without signs of complication can be safely treated on an outpatient basis, generating lower costs and reducing the use of hospital resources. However, the study has limitations, such as the lack of comparison between patients treated with and without antibiotics, as well as the small sample size.

In the study conducted by Poola and Ritchie (2020), the effectiveness of antibiotics in preventing treatment failures, recurrences, complications, readmissions and mortality was evaluated. Among the 1,151 patients included, which covered periodic abscesses of different sizes, only two randomized trials were considered, while the rest were observational studies with a high risk of bias. The results showed that the use of antibiotics did not provide significant benefits over non-use in terms of recurrence, complications, readmission or mortality. Despite this, the use of antibiotics was recommended in cases of clinical worsening or high risk of complications, reinforcing the importance of an individualized approach.

COMPARATIVE STUDIES ON THE USE OF ANTIBIOTICS

The study conducted by Hawkins *et al.* (2021) reinforces the evidence related to the use of antibiotics in uncomplicated diverticulitis, corroborating previous findings. In the DINAMO study (2021), the effectiveness of antibiotics versus symptomatic treatment was compared, concluding that uncomplicated diverticulitis can be treated without antibiotics. The AVOD study described by Van Dijk *et al.* (2020) investigated the combination of antibiotics and intravenous fluids, noting that the use of antibiotics did not result in superior long-term clinical outcomes. In addition, the Dutch study analyzed patients in their first episode of uncomplicated diverticulitis, divided into groups that used and did not use antibiotics. After 24 months of follow-up, there were no significant differences in recovery time, readmission or need for surgery between the groups.

The meta-analysis conducted by Kang *et al.* (2022) used 27 articles extracted from the PubMed and MEDLINE databases, following the PRISMA protocol. Despite the limitations of the search platforms, the study analyzed variables such as lesion location, medical treatment and follow-up periods, estimating a recurrence rate of 0.129 for uncomplicated diverticulitis. The analysis showed that recurrence was significantly higher in elderly patients or those with a high body temperature, while factors such as antibiotic use, gender and smoking were not statistically significant. However, the heterogeneity in follow-up times and the different types of studies (randomized, prospective and retrospective clinical trials) limited the consistency of the findings. The predominance of studies carried out in Europe and Asia also restricts the external validity of the results, making it difficult to generalize them to other populations.

ALTERNATIVE APPROACHES AND INDIVIDUALIZATION OF TREATMENT

The meta-analysis conducted by Van Dijk *et al.* (2020) was based on two randomized clinical trials (AVOD and DIABOLO) involving patients with CT-confirmed acute uncomplicated diverticulitis. The patients, hospitalized in Sweden and the Netherlands, were divided into two groups: one treated with antibiotics and the other subjected to observation only. Unlike Kang *et al.* (2022), this study used uniform follow-up periods, around 13 months after randomization. The main finding was that the use of antibiotics was associated with a slight reduction in the initial hospital stay. However, recurrence and the risk of complications were similar between the groups, and the differences were not clinically relevant, reinforcing that antibiotic therapy may be dispensable in most cases of uncomplicated diverticulitis.

The retrospective cohort study by Azhar *et al.* (2022) included 583 patients with uncomplicated diverticulitis admitted to two hospitals in Sweden over two years. With well-defined criteria, the results showed that patients who received antibiotics had higher

CRP levels and higher leukocyte counts, indicating greater initial severity. However, there were no statistically significant differences in recurrence rates, complications or length of hospital stay between the groups treated with and without antibiotics.

The systematic review and meta-analysis by Mohamedahmed *et al.* (2024) reinforced the previous findings by comparing outpatient and inpatient approaches for uncomplicated diverticulitis. The study concluded that observation-only treatment is safe, effective and more economical for clinically stable patients. Similarly, the review by Sokhal *et al.* (2024) analyzed cases of acute uncomplicated left-sided diverticulitis, concluding that the routine use of antibiotics is unnecessary in the absence of signs of sepsis or peritonitis. Both studies agreed that the antibiotic-free strategy does not increase the risk of serious complications and even reduces hospital readmission rates.

The non-inferiority meta-analysis carried out by Garfinkle *et al.* (2022) reinforced that observational therapy is an effective alternative to antibiotic therapy, without increasing the risk of complications. On the other hand, the study by Ayoub *et al.* (2024) highlighted that, in carefully selected patients, antibiotics can be a safe and effective option in outpatient management, reducing costs without compromising clinical safety. Based on these findings, it can be concluded that the management of diverticulitis should be individualized, taking into account risk factors and the patient's clinical characteristics.

FINAL CONSIDERATIONS

Studies suggest that treating acute uncomplicated diverticulitis without antibiotics is safe and effective, with complication and recurrence rates similar to those of conventional antibiotic use. The conservative approach offers advantages such as shorter hospital stays, lower costs and a reduced risk of bacterial resistance, while guidelines are beginning to recommend more individualized treatments. However, there are important limitations, including the predominance of observational studies, small sample sizes and a lack of standardized criteria for diagnosis and follow-up. Practical implementation still faces barriers, such as cultural and professional expectations for antibiotic use. It is recommended that conservative strategies be gradually implemented, based on robust evidence and that larger, methodologically rigorous clinical studies be carried out. These studies should focus on risk factors, long-term outcomes and practice adherence, in order to consolidate the conservative approach as a viable and effective therapeutic option.

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