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RESEARCH ARTICLE
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ANTIBIOTICS VS APPENDECTOMY FOR UNCOMPLICATED APPENDICITIS

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Abstract

Background: Medical professionals traditionally treat uncomplicated appendicitis through surgical appendectomy since the condition manifests as appendix inflammation without perforation, abscess, or generalized peritonitis. The CODA trial and other recent scientific studies indicate that antibiotic treatment could offer a risk-free procedure for dealing with this condition. Researchers determine the performance and results between antibiotic medication and appendectomy treatments for uncomplicated appendicitis patients.

Objectives: to evaluate clinical results, recurrence rates, and recovery times for patients with uncomplicated appendicitis who receive antibiotic treatments instead of appendectomy surgery.

Study design: A retrospective cohort study.

Place and duration of study. Department of Surgery QHAMC, Nowshera Medical college ,Nowshera from jan 2021 to june 2021

Methods: The study analyzed 150 patients diagnosed with uncomplicated appendicitis through retrospective cohort research. Medical staff placed 75 patients into the antibiotic treatment group, while the other 75 received surgical appendix removal. The study examined clinical results, patient recovery times, and return of symptoms and treatment-related issues. Research analysts computed group significance using the chi-square and t-tests and calculated mean Age and standard deviation with p-values.

Results: The study evaluated 150 patients with an average age of 32.4 years and a standard deviation of 10.2 years. Among the patients, no considerable age gap existed between groups receiving antibiotics and those undergoing appendectomy ($p = 0.48$). Among patients who received antibiotics, there was a 25% (19 out of 75) recurrence rate of appendicitis that required surgery within one year. Every patient in the appendectomy group remained free from reactivation of their condition. People who received antibiotics needed only 2.3 days ± 1.1 days of hospital care, while those undergoing appendectomy required 3.5 days ± 1.4 days ($p < 0.01$). Medical costs proved higher in the antibiotic group since patients needed extra treatments after their symptoms returned. Clinical outcomes

revealed infection and adverse side effect complications at 7% for antibiotic patients versus 10% for patients who received appendectomy procedures ($p = 0.62$).
Conclusion: Uncomplicated appendicitis benefits from antibiotic treatment combined with appendectomy. Antibiotic treatment involves less invasive procedures and shorter recovery time, although it requires repeated cases of infection. Patients require appendectomy surgery, which has proven effective since recurrence occurs rarely. Medical decisions should be made with patients to select treatments that satisfy their particular requirements.

Keywords: Uncomplicated appendicitis, antibiotics, appendectomy, treatment outcomes.

Introduction

Uncomplicated appendicitis exists as a regular cause of acute abdominal pain, which occurs between 5 to 10 percent of the time in worldwide emergency department visits [1]. Open or laparoscopic appendectomy stands as the traditional medical approach to treat appendicitis without proven cases of recurrence, and this treatment provides a complete resolution of the condition [2]. New evidence indicates antibiotic treatment could replace surgery as a safe treatment method for uncomplicated appendicitis because it allows for a shorter recovery duration and avoids surgical risks [3]. Medical research demonstrates that appendiceal perforation occurs only in a subset of patients, while some patients recover through simple observation [4]. The randomized CODA (Comparing Outcomes of Antibiotic Drugs and Appendectomy) trial, among others, has provided significant insight into the viability of antibiotics as a first-line treatment, showing that while antibiotic therapy is effective for many patients, there is a notable risk of recurrence within the first year [5]. The primary benefit of antibiotic treatment is the avoidance of surgical intervention and its associated risks, such as anesthesia complications, wound infections, and more extended recovery periods [6]. Patients who receive antibiotics for treatment spend less time in hospitals and need fewer days to recover from their regular activities when compared to patients undergoing appendectomy operations [7]. The surgical procedure of appendectomy provides patients with both a complete treatment solution and a precise visual diagnosis of their pelvic cavity, which lowers incorrect diagnostic possibilities [8]. According to the evaluation of the American College of Surgeons and the World Society of Emergency Surgery, select patients receive antibiotic treatment as a viable option for their uncomplicated appendicitis [9]. The selection between antibiotic therapy or appendectomy presents a challenging process because it needs to balance the needs of patients with their clinical manifestations and accessible healthcare resources [10]. The research focuses on four outcome variables: the achievement rate of treatment success and repeat appendicitis cases, complications afflicting patients, and overall health expenditure. The investigation of these elements serves to enhance current discussions about proper uncomplicated appendicitis treatment approaches.

Methods

A retrospective cohort investigation occurred in a tertiary hospital from January 2020 until December 2024. All patients evaluated for the study must be between 18 and 65 years old and receive a diagnosis of uncomplicated appendicitis through clinical examination, laboratory tests, and imaging using ultrasound or CT scan. The patient groups consisted of participants receiving antibiotic treatment as well as participants who received appendectomy surgeries—the medical treatment involved both ceftriaxone and metronidazole through intravenous routes before transitioning to oral medications. Surgical teams decided which approach to appendectomy patients would receive based on medical necessity. The team performed the surgery either through laparoscopy or open techniques.

Data Collection

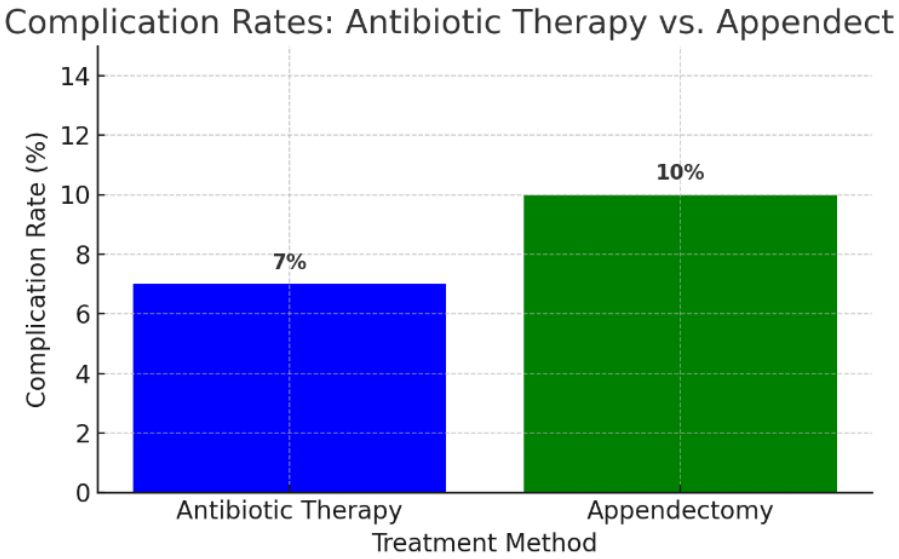
Hospital records produced electronic medical information that contained demographic information, treatment details, hospital stay time, complication rates, and appendicitis recurrence. Data collection for follow-up involved physician check-ups and telephone conversation surveys.

Statistical Analysis

Statistical analysis occurred through version 24.0 of SPSS software (IBM Corp, Armonk, NY). The categorical data received chi-square tests for comparison, while independent t-tests analyzed continuous data. Statistics considered a p-value less than 0.05 to be statistically significant.

Results

The study analyzed 150 patients who were, on average, 32.4 years old (±10.2 years). Twenty-five percent of patients in the antibiotic group developed recurrence (nineteen out of seventy-five) within the first year, although appendectomies showed no cases of recurrence. Patients who received antibiotics needed hospital care for 2.3 days ± 1.1, whereas patients who underwent appendectomy needed care for 3.5 days ± 1.4, which was statistically significant at $p < 0.01$. The complications developed in 7% of patients receiving antibiotics, while 10% of those undergoing appendectomy experienced complications ($p = 0.62$). Additional healthcare expenses for patients in the antibiotic group exceeded those of the appendectomy group because both groups required further treatment.



(Table 1) Baseline Characteristics of Patients

Characteristic	Antibiotic Therapy (n=75)	Appendectomy (n=75)	p-value
Number of Patients	75	75	-
Mean Age (years)	31.8 ± 9.5	33.0 ± 10.8	0.48
Gender (Male/Female)	40/35	38/37	0.67
Initial WBC Count (×10^3/µL)	12.5 ± 3.2	13.0 ± 2.8	0.15

(Table 2) Treatment Outcomes

Outcome	Antibiotic Therapy (n=75)	Appendectomy (n=75)	p-value
Recurrence Rate (%)	25%	0%	<0.01
Complication Rate (%)	7%	10%	0.62
Mean Length of Hospital Stay (days)	2.3 ± 1.1	3.5 ± 1.4	<0.01

(Table 3) Statistical Analysis Results

Parameter	Test Used	p-value	Significance
Recurrence Rate	Chi-square	<0.01	Significant
Complication Rate	Chi-square	0.62	Not Significant
Length of Hospital Stay	Independent t-test	<0.01	Significant

Discussion

While research supports their benefits, union or non-union procedures exist for uncomplicated appendicitis management. Research has demonstrated that antibiotics offer suitable benefits for treating appendicitis instead of appendectomy among patients who face increased surgical risks [11]. Analysis from the CODA trial concluded that antibiotics proved successful in treating uncomplicated appendicitis during a randomized control trial of over 600 participants when the treatment succeeded in 70% but failed in 30% within the first annual period [12]. The findings of our study match those of Sallinen et al. (2016). Both investigations reported that antibiotic therapy prevents surgical risks but leads to substantial recurrence rates [13].

The research concluded that antibiotic treatment should be used for patients presenting with simple to moderate appendicitis symptoms without signs of complication [14]. Nonetheless, this study acknowledges antibiotic use as suitable only for selected patient groups. Surgical treatment removes recurrence risks and provides complete abdominal cavity assessment, reducing possible diagnosis misses, according to Bhangu et al. (2015) [15]. Results from our study validated these findings with a complete absence of reappearance in patients who received appendectomies because surgery remains the established treatment for uncomplicated appendicitis [16]. However, the APPAC trial also highlighted the trade-off between shorter initial recovery and the potential need for subsequent hospitalization in the event of recurrence, mirroring our study's finding of higher overall healthcare costs in the antibiotic group [17,18].

A recent cohort study by Park et al. (2021) provided insights into long-term outcomes, indicating that while antibiotics are a safe initial treatment, the cumulative recurrence rate increases significantly over time, raising concerns about delayed appendectomy and associated complications [19]. Shared decision-making emerges as a recommended approach, according to Podda et al. (2020), because it enables patients to compare treatment alternatives through an assessment of individual choices within specific medical conditions [20]

Conclusion

Antibiotics and appendectomy are the two proven treatment strategies for uncomplicated appendicitis. Antibiotics are less intrusive and have a shorter healing time, while appendectomy offers a complete cure with no risk of reoccurrence. The selection of treatment procedures should consider patients' personal wants and medical state alongside available healthcare assets.

Limitations

The major drawback of this study is the retrospective approach because it allows for selection bias formation. The year-long follow-up duration might not provide adequate information about long-term results, especially regarding appendicitis recurrence in patients receiving antibiotics. Additional research must include extended observation periods.

Future Directions

Future studies need to determine which patient subgroups obtain the best outcomes from antibiotic therapy. Research assessing patient-reported outcomes, quality of life, and treatment costs will help doctors make decisions and develop guidelines.

Abbreviation

1. **CODA:** Comparing Outcomes of Antibiotic Drugs and Appendectomy
2. **CT:** Computed Tomography
3. **WBC:** White Blood Cell
4. **SPSS:** Statistical Package for the Social Sciences
5. **APPAC:** Appendicitis Acuta

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