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Research Article

**ROLE OF ANTIBIOTICS FOR ADULTS WITH ACUTE
CHOLECYSTITIS**Dr Muhammad Ali Hussnain¹, Dr Talha Jahangir, Dr Muhammad Shoaib¹Rashid Latif Medical College

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Abstract:

Introduction: Acute cholecystitis is the most common complication of cholelithiasis. In fact, $\geq 95\%$ of patients with acute cholecystitis have cholelithiasis. **Objectives:** The main objective of the study is to analyse the Role of Antibiotics for adults with acute cholecystitis. **Material and methods:** This cross-sectional study was conducted in Rashid Latif medical college, during June 2019 to January 2020. All adult patients who presented to our hospital with symptoms of right upper quadrant pain and diagnosed to have acute calculus cholecystitis on the basis of clinical and radiological signs and underwent cholecystectomy were included. Acute calculus cholecystitis was finally confirmed on the basis of histopathology. **Results:** The overall mean age was 48.9 ± 14.1 years. Empiric antibiotics were used in 349(97%) patients, including combination therapy in 182(52.1%) patients and monotherapy in 167(47.9%) patients. Most of the patients with severe acute cholecystitis received combination therapy, while monotherapy was more frequently used in patients with mild and moderate acute cholecystitis. Besides, 201(56.5%) patients also received antibiotics on discharge, including 55(38.7%) in grade I, 122(65.9%) in grade II and 24(82.8%) in grade III. **Conclusion:** It is concluded that early laparoscopic cholecystectomy is the best therapeutic approach for AC and that post-operative antibiotics are not necessary in cases of uncomplicated cholecystitis.

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INTRODUCTION:

Acute cholecystitis is the most common complication of cholelithiasis. In fact, $\geq 95\%$ of patients with acute cholecystitis have cholelithiasis. When a stone becomes impacted in the cystic duct and persistently obstructs it, acute inflammation results. Bile stasis triggers release of inflammatory enzymes (eg, phospholipase A, which converts lecithin to lysolecithin, which then may mediate inflammation) [1].

The damaged mucosa secretes more fluid into the gallbladder lumen than it absorbs. The resulting distention further releases inflammatory mediators (eg, prostaglandins), worsening mucosal damage and causing ischemia, all of which perpetuate inflammation. Bacterial infection can supervene. The vicious circle of fluid secretion and inflammation, when unchecked, leads to necrosis and perforation [2].

Most patients have had prior attacks of biliary colic or acute cholecystitis. The pain of cholecystitis is similar in quality and location to biliary colic but lasts longer (ie, > 6 hours) and is more severe [3]. Vomiting is common, as is right subcostal tenderness. Within a few hours, the Murphy sign (deep inspiration exacerbates the pain during palpation of the right upper quadrant and halts inspiration) develops along with involuntary guarding of upper abdominal muscles on the right side. Fever, usually low grade, is common [4].

Acute cholecystitis consists of various morbid conditions, ranging from mild cases that are relieved by the oral administration of antimicrobial drugs or that resolve even without antimicrobials to severe cases complicated by biliary peritonitis, each of which requires a different treatment strategy. Decisions on antimicrobial therapy must be based upon knowledge of the likely infecting microorganisms, the pharmacokinetics/pharmacodynamics and adverse reactions/effects of available agents, and the results of local antimicrobial susceptibility testing (local antibiogram) [5]. The severity of illness and history of exposure to antimicrobials are also key factors in determining appropriate therapy. Once presumptive antimicrobial agents are selected and administered, they should be changed for more appropriate agents, based on the organisms identified and their susceptibility testing results. Continuous use of unnecessarily broader-spectrum agents should be avoided to prevent the emergence of antimicrobial

resistance. Furthermore, the duration of therapy should be strictly evaluated periodically to avoid unnecessarily prolonged use of antimicrobial agents [6].

Objectives

The main objective of the study is to analyse the Role of Antibiotics for adults with acute cholecystitis.

MATERIAL AND METHODS:

This cross-sectional study was conducted in Rashid Latif medical college, during June 2019 to January 2020. All adult patients who presented to our hospital with symptoms of right upper quadrant pain and diagnosed to have acute calculus cholecystitis on the basis of clinical and radiological signs and underwent cholecystectomy were included. Acute calculus cholecystitis was finally confirmed on the basis of histopathology. Patients with incomplete data and a calculus cholecystitis were excluded. A detailed proforma was developed to record information on patient's demographics, clinical features, haematological and radiological investigations, empiric antibiotics used (monotherapy — single antibiotic, combination therapy — more than one antibiotic) and sensitivity of organisms found in bile or gallbladder tissue cultures. Patients were classified into grade I, II and III according to Tokyo Guidelines on the basis of severity of disease. Post-operative 30-day infective morbidity (surgical site infection, intra-abdominal abscess, and urinary tract and chest infections) was also recorded. Data regarding type of surgical intervention (laparoscopic or open cholecystectomy) and time of surgical intervention (early or delayed cholecystectomy) was also collected.

The data was collected and analysed using SPSS version 19.0. All the values were expressed in mean and standard deviation.

RESULTS:

The overall mean age was 48.9 ± 14.1 years. Empiric antibiotics were used in 349(97%) patients, including combination therapy in 182(52.1%) patients and monotherapy in 167(47.9%) patients. Most of the patients with severe acute cholecystitis received combination therapy, while monotherapy was more frequently used in patients with mild and moderate acute cholecystitis. Besides, 201(56.5%) patients also received antibiotics on discharge, including 55(38.7%) in grade I, 122(65.9%) in grade II and 24(82.8%) in grade III.

Table 01: Descriptive data of patients				
Variable N=142	Grade I n (%)	Grade II n (%)	Grade III n (%)	p value
Age, mean (SD), y	46.7 ± 14.8	49.7 ± 13.8	55.1 ± 14.2	0.193
Gender				
Male	63 (44)	93 (50.3)	15 (51.7)	0.524
Female	79 (56)	92 (49.7)	14 (48.3)	
Co-morbid	56 (39.4)	97 (52.4)	19 (65.5)	0.010
DMII	21 (14.8)	54 (29.2)	14 (48.3)	
Hypertension	43 (30.3)	67 (36.2)	15 (51.7)	
Ischaemic Heart Disease	7 (4.9)	14 (7.6)	1 (3.4)	
ASA Level				
II or less	130 (91.5)	144 (77.8)	17 (58.6)	0.000
> II	12 (8.5)	41 (22.2)	12 (41.4)	0.000
Hospital Stay				
48 hours or less	108 (76.1)	102 (55.1)	7 (24.1)	
> 48 hours	34 (23.9)	83 (44.9)	22 (75.9)	
Table 02: Use of antibiotics.				
Variable N=142	Grade I n (%)	Grade II N=185 n (%)	Grade III N=29 n (%)	p value
Empiric Antibiotic Used				
Yes	136 (95.8)	184 (99.5)	29 (100)	0.043
No	6 (4.2)	1 (0.5)	0 (0)	
Combination Therapy	52 (36.6)	105 (56.8)	25 (86.2)	0.000
Monotherapy	84 (59.2)	79 (42.7)	4 (13.8)	0.000
Combination Therapy				
Ceftriaxone+Meronidazole	23 (16.2)	63 (34.1)	13 (44.8)	
Ceftriaxone+Meronidazole+Ampicillin	20 (14.1)	24 (12.9)	4 (13.8)	
Others	9 (6.3)	18 (9.8)	8 (27.6)	
Monotherapy or No antibiotic	90 (63.4)	80 (43.2)	4 (13.8)	
Monotherapy				
Ceftriaxone	35 (24.6)	51 (27.6)	4 (13.8)	
Cefazolin	49 (34.5)	25 (13.5)	0 (0)	
Ciprofloxacin	0 (0)	2 (1.1)	0 (0)	
Combination therapy or No antibiotic	58 (40.9)	107 (57.8)	25 (86.2)	
Use of Metronidazole	49 (34.5)	95 (51.4)	18 (62.1)	0.002
Antibiotic on discharge	55 (38.7)	122 (65.9)	24 (82.8)	0.000
For categorical variables chi-square test was used.				

DISCUSSION:

Ceftriaxone (53.9%) was the most common antibiotic used as monotherapy, followed by cefazolin (44.3%). According to updated Tokyo Guidelines, ceftriaxone and cefazolin can be used as monotherapy for grade I and II acute cholecystitis [8]. In grade III acute cholecystitis, more than 80% patients received combination therapy in both years, with no significant difference [9]. However, the difference was in the choice of antibiotics used. In

2009, most common combination therapy included three drugs (ceftriaxone, ampicillin and metronidazole) with rationale of covering gram-negative, gram-positive and anaerobic organisms. However, after following Tokyo Guidelines, ceftriaxone + metronidazole (56.5%) was the most common combination, followed by piperacillin/tazobactam + metronidazole (17.4%) and imipenem + metronidazole (4.3%) [10].

CONCLUSION:

It is concluded that early laparoscopic cholecystectomy is the best therapeutic approach for AC and that post-operative antibiotics are not necessary in cases of uncomplicated cholecystitis.

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