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# ORGANIZATION OF SURGICAL CARE FOR ACUTE CHOLECYSTITIS IN PATIENTS WITH TYPE 2 DIABETES MELLITUS: RISK STRATIFICATION AND DIFFERENTIATED CHOICE OF TACTICS

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***Abstract.*** *The article substantiates the relevance of improving the organization of surgical care for patients with acute cholecystitis against the background of type 2 diabetes mellitus. The aim of the work is to systematize prognostic factors of adverse outcomes and approaches to the differentiated choice of treatment tactics in this category of patients. Based on an analytical review of the literature, clinical, endocrinological, laboratory and instrumental predictors of complications were identified. The result is a generalized risk stratification model applicable to organizing the diagnostic and treatment process. It is concluded that it is advisable to introduce a unified algorithm adapted to regional conditions.*

***Keywords:*** *healthcare organization, diabetes mellitus, acute cholecystitis, risk stratification, prognostic factors, diagnostic and treatment algorithm, quality of care management.*

## Introduction

The growth in the prevalence of type 2 diabetes mellitus (T2DM) and the associated increase in the number of patients requiring emergency surgical care bring to the fore the tasks of rational organization of the diagnostic and treatment process. Acute cholecystitis (AC) in patients with T2DM has an atypical course, is prone to destructive forms and is accompanied by a high frequency of purulent-septic complications, while mortality reaches 5–8% versus 0.5–1.5% in the general population [1]. At the same time, international guidelines do not sufficiently specify the criteria for choosing surgical tactics for this population, which leads to heterogeneity of approaches and reduced manageability of the quality of care [2].

The aim of the work is to systematize the prognostic factors of adverse outcomes of AC in patients with T2DM and to summarize approaches to the differentiated choice of treatment tactics as a basis for organizing a standardized diagnostic and treatment process.

## Methods and research

The study was carried out in the form of an analytical review of domestic and foreign literature. Sources were selected on the topic of diagnosis, surgical treatment and perioperative management of AC in T2DM. Prognostic factors were grouped according to the principle of homogeneity (clinical, endocrinological, laboratory, instrumental) with an assessment of their organizational significance for patient routing and the choice of intervention method. The severity of AC was assessed in accordance with the international Tokyo Guidelines 2018 (TG18) criteria, which stratify the disease into three degrees of severity [3].

## Research results

It was established that in patients with T2DM moderate and severe degrees of AC according to TG18 occur in 55–70% of cases versus 25–35% in the control group [4]. The classic triad of symptoms is fully present in only 45–55% of patients with T2DM due to diabetic neurovegetative dysfunction, which

causes late diagnosis and requires earlier and broader use of laboratory and radiological methods [5]. A key organizational criterion for stratification is the level of glycated hemoglobin (HbA1c): values ≥ 8.0% are associated with a significantly higher frequency of destructive forms (odds ratio 2.7) and infectious complications (odds ratio 3.1) [6].

The systematization of prognostic factors significant for the organization of care is presented in Table 1. Taking them into account makes it possible to distribute patients by risk levels and reasonably choose between early cholecystectomy, percutaneous gallbladder drainage and staged tactics.

*Table 1. Prognostic factors and their organizational significance*

| **Group of factors** | **Indicators** | **Organizational significance** |
|---|---|---|
| Clinical | Age >65 years; symptom duration >72 h; male sex | Predictors of conversion and destruction |
| Endocrinological | HbA1c ≥ 8.0%; glycemia >11.1 mmol/L; T2DM duration >10 years | Predictors of infectious complications |
| Laboratory | Leukocytosis >18×10⁹/L; CRP >150 mg/L; procalcitonin >0.5 ng/mL | Markers of severity and sepsis risk |
| Instrumental | Gallbladder wall >8 mm; pericholecystic fluid; gangrenous AC | Indications for emergency surgery/drainage |

*Note: CRP — C-reactive protein; compiled by the authors based on literature data [4–9].*

The analysis of treatment methods showed that none of them is universal. Early laparoscopic cholecystectomy for mild and moderate AC provides better outcomes and a shorter hospital stay [7]; however, in severe cases and decompensation of diabetes, percutaneous transhepatic gallbladder drainage with a clinical success of 85–96% and subsequent interval surgery becomes the method of choice [8]. The conversion rate from laparoscopic access in patients with T2DM is 8–18%; its independent predictors are HbA1c ≥ 8.0%, symptom duration of more than 72 hours and a gallbladder wall thickness of more than 8 mm [9]. These data form an objective basis for patient routing and the standardization of organizational decisions.

## Conclusion

The organization of surgical care for patients with acute cholecystitis against the background of type 2 diabetes mellitus requires a multidisciplinary approach and standardized risk stratification. A comprehensive assessment of the severity of AC according to the TG18 criteria, the degree of diabetes compensation (HbA1c), laboratory markers of inflammation and instrumental signs of destruction makes it possible to reasonably distribute patients by risk levels and to choose the method and timing of intervention in a differentiated manner. The implementation of a unified diagnostic and treatment algorithm that takes into account the metabolic status and surgical risk increases the manageability of the quality of care and reduces the frequency of complications. The development and testing of such an algorithm in relation to the regional conditions of the Republic of Uzbekistan is an urgent scientific and practical task and determines the direction of further research.

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