

**MEDICO-ECONOMIC BURDEN OF ACUTE CHOLECYSTITIS
IN PATIENTS WITH TYPE 2 DIABETES MELLITUS:
AN ANALYSIS OF COSTS AND HEALTHCARE SYSTEM LOAD**

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***Abstract.** The article examines the medico-economic and social significance of acute cholecystitis developing against the background of type 2 diabetes mellitus. The relevance is determined by the steady growth in the number of diabetic patients and the increased frequency of destructive forms of gallbladder inflammation in this population. The aim of the work is to summarize the literature on the financial and organizational burden associated with treating this category of patients. Using content analysis of domestic and foreign sources, indicators of length of stay, readmission rates and complications were systematized. The results confirm a significant increase in treatment costs and justify the need for economically rational clinical and organizational decisions.*

***Keywords:** healthcare, diabetes mellitus, acute cholecystitis, treatment costs, length of hospital stay, medico-social significance, health economics.*

Introduction

Type 2 diabetes mellitus (T2DM) is one of the most significant medico-social problems of modern non-communicable pathology. According to the International Diabetes Federation, by 2021 the number of people with diabetes worldwide exceeded 537 million, and by 2045 this figure is projected to reach 783 million [1]. T2DM accounts for at least 90–92% of all registered cases of the disease. In the Republic of Uzbekistan, the number of registered patients is increasing by 5–7% annually [2], while the actual prevalence exceeds the registered figures.

The combination of T2DM with acute surgical diseases of the abdominal organs creates not only a clinical but also a pronounced economic problem. Acute cholecystitis (AC) ranks second in frequency among acute abdominal pathology and accounts for 10–15% of emergency surgical diseases [3]. In patients with T2DM, the incidence of AC is 2.0–3.5 times higher than in the general population, the course is prone to destructive forms, and the load on inpatient care increases substantially. The aim of the present work is to summarize and systematize data on the medico-economic burden of AC in patients with T2DM and to justify directions for its reduction.

Methods and research

The work was carried out using the method of analytical review and content analysis of domestic and foreign scientific publications over the past two decades. Sources were selected by the keywords “acute cholecystitis”, “diabetes mellitus”, “length of hospital stay”, “treatment cost”, and “readmission”. Economically and organizationally significant indicators were analyzed: the average length of inpatient treatment, the frequency of readmissions, the frequency of postoperative infectious complications and the associated increase in treatment costs. The data were systematized and compared with the indicators of patients without carbohydrate metabolism disorders.

Research results

The analysis showed that AC against the background of T2DM is accompanied by a significant increase in the length of inpatient treatment — on average 10–14 days versus 6–8 days in patients without diabetes [4]. The frequency of destructive forms of gallbladder inflammation in patients with T2DM reaches 45–60% versus 15–25% in the general population, and gangrenous forms occur 3–4 times more often [5]. Each such complication entails additional costs for intensive care, antibacterial drugs and repeated interventions.

A significant cost-increasing factor is the frequency of surgical wound suppuration, which in T2DM is 3–5 times higher than in patients without metabolic disorders [6]. The atypical clinical picture and late presentation (48–72 h versus 24–36 h) increase the proportion of emergency and technically difficult operations, raising the conversion rate from laparoscopic to open access to 8–18% versus 3–8% in controls [7]. Summary indicators are presented in Table 1.

Table 1. Comparative medico-economic indicators of acute cholecystitis treatment

Indicator	Without DM	Patients with T2DM
Length of hospital stay, days	6–8	10–14
Frequency of destructive forms, %	15–25	45–60
Surgical wound suppuration, %	3–5	15–25
Conversion rate, %	3–8	8–18
Mortality, %	0.5–1.5	5–8

Note: DM — diabetes mellitus; compiled by the authors based on literature data [4–8].

The combination of these indicators forms a steady increase in the cost of treatment: a longer hospital stay, an increased need for intensive care, broad-spectrum antibacterial agents, repeated operations and rehabilitation. An additional economic factor is the higher frequency of readmissions, including under the staged tactics with primary gallbladder drainage, when recurrence of inflammation during the waiting period for elective surgery develops in 15–30% of patients [8].

Conclusion

Acute cholecystitis in patients with type 2 diabetes mellitus represents not only a clinically but also an economically unfavorable form of emergency surgical pathology. The increase in length of stay, the high frequency of destructive forms, wound complications, conversions and readmissions form a pronounced load on the surgical service and the healthcare system as a whole. Reducing this burden is possible through early diagnosis, rational risk stratification and a differentiated choice of surgical tactics taking into account the patient's metabolic status. The development and implementation of such economically justified clinical and organizational solutions, adapted to the regional conditions of the Republic of Uzbekistan, is a promising direction for further research and will allow optimizing the use of healthcare resources.

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