



EPIDEMIOLOGICAL CHARACTERISTICS OF METABOLIC RISK FACTORS FOR GASTRODUODENAL ULCERS IN THE POPULATION OF LONG-LIVERS

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Introduction. Even in developed countries, peptic ulcer disease (PUD) occurs in about 1.8% of the population. The incidence equally affects both men and women. According to clinical studies, 20–50% of patients with gastric and duodenal ulcers (GDU) demonstrate a family predisposition (Rothenbacher D., Lw M., Hardt P.D. et al., 2005). Research data indicate that peptic ulcer disease combined with other acid-related disorders is diagnosed in 40–50% of cases, often leading to severe complications and disability (Podoluzhny V.I., 2019), or requires revision of cancer prevention strategies. This is due to the fact that in the presence of GDU and pre-ulcer conditions, the cascade of carcinogenesis accelerates within the population. In the scientific literature, an epidemiological axiom has emerged stating that in cases of pre-ulcer conditions associated with *H. pylori*, gastric cancer may develop. Recommendations for monitoring precancerous changes of the stomach suggest increasing the frequency of endoscopic examinations in accordance with the carcinogenesis risk (endoscopic cancer-prevention scheme), i.e., the practice of preventive protection is applied.

Studying the features of the course of comorbid ulcer disease in the population, as well as determining its "epidemiological pathway" in specific regions or areas, has not only diagnostic, preventive, prognostic, therapeutic, and surgical significance. However, the essence and regional characteristics of comorbid forms of ulcer disease have been insufficiently studied in epidemiological research, and in the conditions of Uzbekistan, particularly among groups of long-livers, such studies have not been conducted. Considering these unresolved and pressing scientific issues related to ulcer disease, the present study was designed and implemented.

Objective of the study. To investigate the epidemiological characteristics of metabolic risk factors for gastro-duodenal ulcers in the population of long-livers.

Materials and methods. Epidemiological studies have shown that the presence of gastro-duodenal ulcers in the population of long-livers is significantly aggravated under the influence of chronic non-communicable diseases. In our study, two modifiable common risk factors—hypercholesterolemia and diabetes mellitus—were examined and evaluated. For analysis, univariable and multivariable statistical methods were applied.

Table 1. Prevalence of hypercholesterolemia in long-livers and its association with gastric and duodenal ulcers (GDU).

Age group	In the population of long-livers with hypercholesterolemia GDU (n, %)	p-value	In the population of long-livers without hypercholesterolemia GDU (n, %)	In the total population of long-livers GDU (N, %)
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Age group	In the population of long-livers with hypercholesterolemia	p-value	In the population of long-livers without hypercholesterolemia	In the total population of long-livers
≥90 years	n = 336, 15 cases (4.5%)	p<0.05	n = 383, 111 cases (28.9%)	N = 719, 126 cases (17.5%)
Univariable analysis: OR = 8.73; CI 95% = (5.13–15.93); $p < 0.001$				
Multivariable analysis: OR = 924; CI 95% = (0–∞); $p = 0.999$				

The results were analyzed according to the principles of multivariable analysis proposed by Isaac Newton and later adapted by Joseph Berkson. Statistical evaluation demonstrated that hypercholesterolemia significantly increases the risk of developing gastro-duodenal ulcers among long-livers [OR = 924]. However, the confidence interval and Fisher's p -value indicate the absence of statistical significance for this result [95% CI: 0 – ∞; $p = 0.999$].

In the studied groups, under the influence of hypercholesterolemia, the risk of peptic ulcer disease increased substantially: the detection rate was 4.5% in the population of long-livers with hypercholesterolemia and 28.9% in the population of long-livers without hypercholesterolemia ($p < 0.05$).

Table 2. Prevalence of type 2 diabetes mellitus among long-livers and its association with gastro-duodenal ulcers (GDU).

Age group	Population of long-livers with T2DM	p-value	Population of long-livers without T2DM	Total population of long-livers
	n	GDU (n, %)		n
≥90 years	69	4 (5.8%)	$p < 0.05$	650

Univariable analysis: OR = 0.27; 95% CI = (0.008–0.66); $p = 0.012$
Multivariable analysis: OR = 1.99; 95% CI = (0.21–14.83); $p = 0.51$

The results were analyzed based on Berkson's multivariable model. It was established that among the population of long-livers with type 2 diabetes mellitus, the probability of developing gastro-duodenal ulcers reached 5.8% [OR = 1.99]. However, the confidence interval and Fisher's p -value indicate the absence of statistical significance (95% CI: 0.21–14.83; $p = 0.51$).

Multivariable analysis showed that the statistical significance of diabetes observed in univariable analysis can be explained by the influence of associated cofactors in the database. This confirms the necessity of considering the complex interaction of multiple risk factors.

Table 2 presents the quantitative data characterizing type 2 diabetes mellitus as a risk factor for ulcer disease in long-livers. In the population with T2DM, the prevalence of GDU was 5.8%, whereas among individuals without T2DM it was 18.8%. The difference amounted to –13.0%, meaning that the risk of developing GDU under the influence of T2DM reached nearly 6% ($p < 0.05$). This epidemiological conclusion must be taken into account when developing algorithms, programs, and preventive models.

Conclusions

1. The effect of hypercholesterolemia in the population of long-livers was studied, and the results of univariable analysis showed that this factor increases the predisposition to GDU by 8.7 times [OR = 8.73], which is clinically justified. The confidence interval and Fisher's p -value confirmed the statistical significance of this result [95% CI: 5.13–15.93; $p < 0.001$].
2. Analysis of the influence of type 2 diabetes mellitus in the population of long-livers showed that individuals with T2DM had a 13% lower susceptibility to ulcer disease compared to those without diabetes [OR = 0.27]. The result was statistically significant according to the confidence interval and Fisher's p -value [95% CI: 0.008–0.66; $p = 0.012$].

References

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