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Relapse-Free Survival and Prognostic Factors in Gastric Cancer Patients in Albania: A Prospective Longitudinal Observational Cohort Study

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Abstract

Background: In Eastern Europe, where late cancer diagnoses are frequent and survival rates are low, gastric cancer continues to be a leading cause of cancer-related death. The data on relapse-free survival (RFS) and the factors that influence it in Albania are scarce.

Methods and Results: A total of 221 adult patients with histologically confirmed gastric cancer at the Oncology Service at the University Hospital Center "Mother Teresa" participated in this 60-month follow-up prospective longitudinal observational study. The Kaplan-Meier method was used to estimate relapse-free survival, and multivariate Cox proportional hazards regression was used to evaluate prognostic factors.

Relapses occurred in 37.1% of patients during follow-up. The median relapse-free survival was 28.0 months (95% CI: 25.04–30.96). When compared to diffuse gastric cancer, the intestinal type was independently linked to a lower risk of relapse (HR = 0.32; 95% CI: 0.19–0.53). Relapse risk was strongly correlated with increasing lymph node involvement (N1: HR = 5.31; N2: HR = 6.53; N3: HR = 9.59). Age, radiotherapy, adjuvant therapy, and tumor depth did not independently correlate with RFS. A higher risk of relapse was linked to a positive family history of gastric cancer (HR = 10.87).

Conclusion: The histopathological subtype and lymph node status at diagnosis were the main factors influencing relapse-free survival in this group of gastric cancer patients in Albania. These findings highlight the importance of early detection, accurate staging, and follow-up strategies adapted to the risk level in gastric cancer care.(**International Journal of Biomedicine. 2026;16(2):169-177.**)

Keywords: Albania • cohort study • gastric cancer • prognostic factors • relapse-free survival

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Introduction

Gastric cancer is one of the most frequent causes of cancer morbidity and mortality. In several high-income countries, the incidence of this health condition is gradually declining. However, in most parts of Eastern Europe, Asia, and Latin America, the burden of gastric cancer remains high.[1] Currently, gastric cancer is responsible for over a million new cancer cases and is one of the most frequent causes of cancer-related mortality.[1] It is also important to note that most patients are diagnosed at a late stage, and the survival outcomes are dismal. In this context, there is no doubt that gastric cancer is a global health concern, deserving increased attention.

The variability of gastric cancer prognosis is one of the most complicated problems in this field. Each specific case of gastric cancer prognosis is the result of a tumor-specific, patient-

specific, and treatment-specific set of parameters. The extent of tumor infiltration and the presence of lymphatic spread at the time of diagnosis are the most important survival determinants and those that most consistently impact prognostic outcomes.[2,3]

Additionally, there are also different histopathological subtypes of gastric cancer. A commonly used histopathological classification of gastric cancer is the Lauren classification. Based on this classification, there are 2 groups: the intestinal and diffuse types. The diffuse type is the one that usually results in a more negative gastric cancer prognosis, as it is characterized by poorer outcomes and more advanced tumor aggressiveness.[4,5] Still, how each of these factors affects cancer progression likely varies across populations, health care environments, and treatment strategies.

The relapse of the disease after intentional clinical treatment continues to be a critical inflection point in the disease's trajectory and is closely correlated to long-term survival. For this reason, the oncology community has recognized relapse-free survival (RFS) as a critically important indicator for assessing outcomes in both clinical trials and observational studies; this clinical endpoint reflects both the malignancy's characteristics and the efficacy (or lack thereof) of the surgical and adjuvant interventions performed.[6] Most studies published in the international literature in this field suggest that the greatest risk of relapse seems to be within the first two to three years after diagnosis or surgical intervention, highlighting the need for careful monitoring of these patients and the prompt diagnosis of patients within the highest risk categories.[7] There is a relative scarcity of evidence from real-world cohorts in Southeastern and Eastern Europe, as most relevant literature stems from large international studies on relapse-free survival and its prognostic factors conducted in developed countries. Data from Albania is particularly troubling, as gastric cancer is still being diagnosed at very advanced stages. Despite this, it seems that there is still a considerable lack of scientific systematic analyses of survival outcomes and prognostic determinants of gastric cancer in Albania. Local scientific data is necessary, as it is likely that diagnostic and treatment pathways, including access to neoadjuvant and adjuvant therapies, diagnostic and follow-up strategies, as well as differing patient control parameters, may significantly impact the clinical outcomes and limit the applicability potential of various findings and/or interventions from other settings.[8,9]

Relapse patterns and predictors of relapse-free survival in Albanian patients with gastric cancer bear clinical and public health significance. Such knowledge can improve risk stratification and assist in the development of tailored follow-up plans and cancer care enhancements at the national level. In this context, the objective of the present study was to assess relapse-free survival rates in a cohort of patients with gastric cancer in Albania and to identify independent prognostic factors for disease recurrence within 60 months (5 years) of diagnosis

Methods

Study Design

This is a prospective, longitudinal, observational cohort study conducted among patients diagnosed with gastric cancer and managed at the Oncology Service at the University Hospital Center "Mother Teresa" (UHCT) in Tirana, Albania. Participating gastric cancer patients were followed from the time of diagnosis and/or initiation of treatment and were observed longitudinally for the occurrence of disease relapse for a maximum follow-up period of 60 months.

Study Setting

UHCT "Mother Teresa" is Albania's largest tertiary referral hospital and the only public reference center for cancer diagnosis and treatment. The Oncology Service at UHCT delivers care to cancer patients from all regions of the country, providing multidisciplinary cancer care that includes medical oncology, surgical oncology, and radiotherapy, as well as imaging and pathology services. Hence, the study participants represent the standard clinical routine nationwide.

Study Population

The study population for this study was adult patients with a confirmed diagnosis of gastric cancer who were treated and/or followed at the Oncology Service of UHCT during the study period.

The inclusion criteria were as follows: histologically confirmed gastric cancer, age ≥18 years, cancer diagnosis and/or treatment initiated at UHCT "Mother Teresa", availability of baseline clinicopathological data, and at least one follow-up evaluation after diagnosis.

Exclusion criteria were patients with incomplete diagnostic confirmation, patients who were lost to follow-up immediately after diagnosis, patients who declined to participate, or patients who did not provide informed consent.

The inclusion criteria were met by 221 gastric cancer patients, and they were therefore included in the study.

Data Collection, Data Sources, and Variables

A structured data-collection form developed specifically for this project was used to collect the necessary information from participants. Various information sources were used, including medical records, oncology and surgery reports, pathology and histopathology reports, imaging records, and follow-up visits and outpatient oncology notes.

The following categories of variables were collected and analyzed: demographic and clinical variables (age at diagnosis, sex); family history of gastric cancer; tumor-related variables such as histopathological type; status of presence of signet-ring cells; TNM tumor stage at diagnosis; treatment-related variables, including neoadjuvant therapy, adjuvant therapy, radiotherapy, surgery, etc., and outcome-related variables such as relapse status. Relapses were defined based on clinical, radiological, and/or histological evidence of disease recurrence. When a relapse was first detected, we noted down the date of this event. This allowed us to calculate the time to relapse (defined as the interval of time between diagnosis and the first documented recurrence of the disease). Obviously, patients without documented relapses were censored at the date of last follow-up.

Follow-Up Period

Patients were followed under routine clinical practice at UHCT. During this time, periodic clinical evaluations, imaging studies, and laboratory assessments were performed as needed. Follow-up duration ranged from 7 to 60 months.

Statistical Analysis

All statistical analyses were carried out using IBM SPSS Statistics (version 21). Baseline characteristics were summarized as frequencies and percentages for categorical variables and mean ± standard deviation (SD) and additional statistical parameters for continuous variables. The Kaplan-Meier method was used to estimate relapse-free survival, and survival curves were constructed using the log-rank (Mantel-Cox) test. The median RFS was considered the most robust survival measure, as it is unaffected by censored observations. A univariate Cox proportional hazards regression test was used to identify independent predictors of RFS; those achieving clinical relevance were entered into a multivariate Cox proportional hazards regression model to adjust for potential confounding factors. Hazard ratios (HRs) and their respective 95% confidence intervals (CIs) were reported. The adequacy and goodness-of-fit of the multivariate model were assessed as well, through omnibus tests and likelihood-based statistics. A 2-sided *P*-value of less than 0.05 was considered statistically significant.

Results

Table 1 shows the information on various characteristics of the 221 patients included in the study. The dominant sex was male (71.5%), and the mean age of participants was 64.0 ± 9.9 years. More than 7 in 10 patients (78.7%) were aged 50–74 years, while patients younger than 50 years accounted for a relatively small proportion of cases.

Family history of gastric cancer was reported in only 3.7% of participating patients. From a histopathological perspective, diffuse and intestinal types were almost equally represented, together accounting for more than 95% of patients, while indeterminate histology was rare. Signet-ring cell features were identified in fewer than 1 in 10 patients.

At diagnosis, more than 85% of patients presented with locally advanced tumors (T3–T4), and nearly four out of five showed regional lymph node involvement (N1–N3). Distant metastases were present in approximately 20% of cases. Regarding treatment, neoadjuvant therapy was rarely administered, despite the advanced stage at presentation, whereas adjuvant therapy was given to about two-thirds of patients. Radiotherapy was used in a minority of cases (14.5%).

Table 2 presents information on relapse and the timing of events during the follow-up period. In 37.1% of patients, a relapse occurred, while the remaining 62.9% remained relapse-free until the end of follow-up. Among those patients who experienced a relapse, the mean time to relapse was approximately 19 months, with a median relapse-free survival of 16 months. Relapse time distribution showed substantial variability, with events occurring as early as 7 months and as late as 45 months in this cohort of patients. The follow-up period was slightly longer than the observed time to relapse, with a mean duration of about 22 months and a median duration of 19 months. Follow-up ranged from 7 to 60 months.

Table 3 summarizes the overall estimates of relapse-free survival for the study cohort, calculated using the Kaplan-Meier method. The mean time to relapse-free survival was 32.78 months (95% CI: 29.15–36.42), reflecting the average duration patients remained free of recurrence during the follow-up. In clinical terms, the median relapse-free survival was 28.0 months (95% confidence interval: 25.04–30.96). Half of the patients experienced relapse within approximately 28 months, while the remaining half remained relapse-free for a longer period of time. Because it is resistant to censoring and has a clear clinical interpretation, the median relapse-free survival is the most reliable summary measure of the outcome in this cohort.

Table 1.

Baseline demographic, clinicopathological, and treatment characteristics of the study population.

Variable	Absolute number	Percentage
Total	221	100.0
Sex		
Male	158	71.5
Female	63	28.5
Age (mean ± SD)	64.04 ± 9.92	
Age group		
<50 years	18	8.1
50-64 years	92	41.6
65-74 years	82	37.1
≥75 years	29	13.1
Family history for gastric cancer*		
No	210	96.3
Yes	8	3.7
Histopathological type of cancer*		
Diffuse	107	49.1
Intestinal	104	47.7
Indeterminate	7	3.2
Status of signet cell presence		
No	200	91.3
Yes	19	8.7
T stage*		
T0	1	0.5
T1	5	2.7
T2	20	10.9
T3	110	59.8
T4	48	26.1
N stage*		
N0	39	21.3
N1	41	22.4
N2	54	29.5
N3	49	26.8
M stage*		
M0	173	80.1
M1	43	19.9
Neoadjuvant therapy*		
No	213	96.8
Yes	7	3.2
Adjuvant therapy*		
No	67	30.5
Yes	153	69.5
Radiotherapy*		
No	189	85.5
Yes	32	14.5

* *Any discrepancy with the total number is due to missing information.*

Table 2.

Relapse status and relapse-free survival outcomes.

Variable	Absolute number	Percentage
Relapse		
No	139	62.9
Yes	82	37.1
Statistical parameter	Relapse-free survival (in months)	Follow-up period (months)
Mean	19.05	21.56
Median	16.00	19.00
Moda	9	14
Standard deviation	9.17	10.23
Range	38	53
Minimum	7	7
Maximum	45	60

Table 3.

Mean and median relapse-free survival in the study population.

RFS mean time			
Time (months)	Standard error	95% CI	
		Lower limit	Upper limit
32.78	1.85	29.15	36.42
RFS median time			
Time (months)	Standard error	95% CI	
		Lower limit	Upper limit
28.00	1.51	25.04	30.96

Figure 1 shows the Kaplan–Meier curve of relapse-free survival, showing a more pronounced decline in survival during the first years of follow-up, a slowdown in the decline after about 30 months, and a relatively horizontal final segment, indicating a subgroup of patients with longer relapse-free survival. This means that the risk of relapse is highest in the first 2-3 years of follow-up, while patients who survive these periods have a lower chance of later relapse. Censored cases (the + signs) are reasonably distributed, implying there is no massive early censoring, an indication of adequate follow-up, and the absence of serious bias in follow-up.

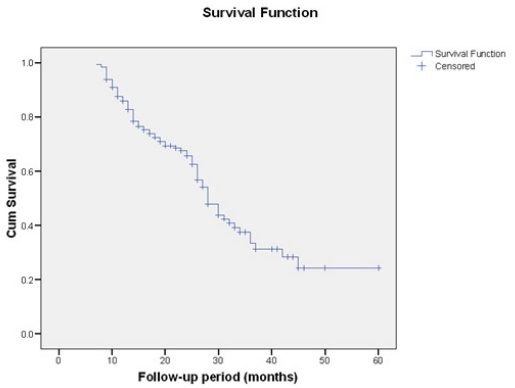

Figure 1. *Relapse-free survival.*

Relapse-Free Survival Analysis by Histopathological Type of Gastric Cancer

Relapse-free survival was analyzed using the Kaplan–Meier method to assess whether the histopathological type of gastric cancer affects RFS (Table 4). The analysis data show that the RFS median differs significantly between groups. In patients with intestinal type – 31 months (95% CI: 26.149 – 35.851); in those with diffuse type –18 months, and in those with indeterminate type – 11 months (95% CI: 8.434 – 13.566). The intestinal type was associated with the longest RFS, while the indeterminate type was associated with the shortest survival. On the other hand, the mean survival follows the same trend, but this indicator has a secondary role due to censoring (Table 4). The respective p-value from the Log Rank (Mantel-Cox) test = 0.001 (chi-square = 13.914, df = 2) indicates a statistically significant difference in relapse-free survival between histopathological types of gastric cancer.

Table 4.

RFS according to histopathological type of gastric cancer.

Variable	RFS mean time				RFS median time			
Type of cancer	Time*	SE	95% CI		Time*	SE	95% CI	
			Lower limit	Upper limit			Lower limit	Upper limit
Diffuse	30.081	2.111	25.944	34.218	18.000	-	-	+
Intestinal	36.183	2.166	31.937	40.429	31.000	2.475	26.149	35.851
Indeterminate	23.143	5.850	11.677	34.609	11.000	1.309	8.434	13.566

*SE- Standard Error; * - Time in months.*

This is confirmed by the RFS curves shown in Figure 2. The intestinal type curve remains higher during the first 2-3 years of follow-up, suggesting a better prognosis. The diffuse type presents a more rapid decline in survival in the early stages. The indeterminate type shows the fastest decline and the poorest relapse-free survival.

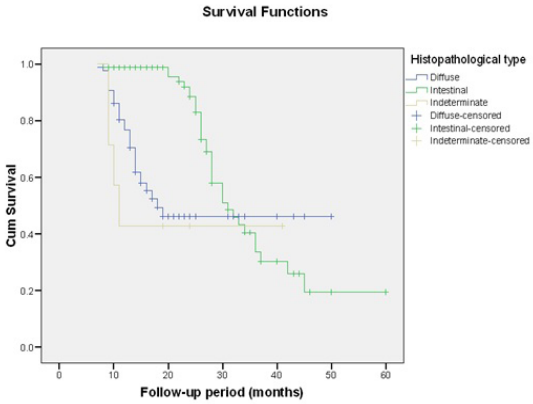

Figure 2. *Relapse-free survival by histopathological type of gastric cancer*

Relapse-Free Survival Analysis by the Nodal (N) Stage of Gastric Cancer

According to Table 5, the RFS median shows a clear downward trend with increasing level of N stage. In patients with N1 stage – 28 months (95% CI: 26.350–29.650); in patients with N2 stage – 26 months (95% CI: 17.543–34.457); in patients with N3 stage – 25 months (95% CI: 18.404–31.596). These differences were highly statistically significant (chi-square = 16.672, df = 3; Log Rank (Mantel-Cox) test $P = 0.001$). For patients with stage N0, the median was not reported, suggesting a low relapse rate or high censoring, reflecting a more favorable prognosis. On the other hand, the mean survival is highest in N0 and decreases progressively in N1–N3, supporting the prognostic importance of lymph node involvement (Table 5). On the other hand, the mean survival is highest in N0 and decreases progressively in N1–N3, supporting the prognostic importance of lymph node involvement (Table 5).

Table 5.

Relapse-free survival according to the N stage of gastric cancer.

Variable	RFS mean time				RFS median time			
N stage	Time*	SE	95% CI		Time*	SE	95% CI	
			Lower limit	Upper limit			Lower limit	Upper limit
N0	43.561	2.924	37.831	49.292	.	.	.	.
N1	27.763	1.955	23.932	31.594	28.000	.842	26.350	29.650
N2	26.875	2.988	21.020	32.731	26.000	4.315	17.543	34.457
N3	26.819	2.236	22.437	31.201	25.000	3.365	18.404	31.596

*SE - Standard Error; *- Time in months.*

This is confirmed by the RFS curves for N stages of gastric cancer (Figure 3). The N0 stage shows the highest RFS throughout the entire follow-up period. With increasing stage N (from N1 to N3), a more rapid decline in survival and an increasingly lower probability of remaining relapse-free are observed.

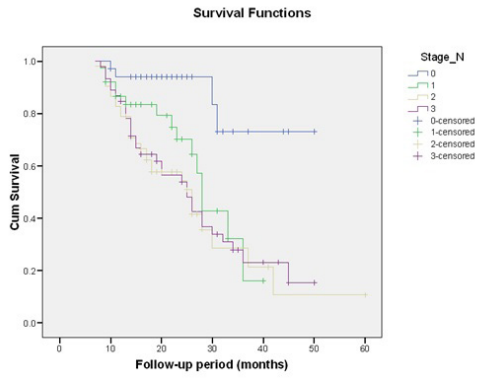

Figure 3. *Relapse-free survival by N stages of gastric cancer.*

Multivariate Analyses of Relapse-Free Survival (Cox Proportional Model)

The overall performance and adequacy of the multivariate Cox proportional hazards model used to analyze RFS were assessed. The model demonstrated a good fit to the data, as indicated by a statistically significant omnibus test ($P < 0.001$). The substantial improvement in model likelihood (coefficient –2 Log Likelihood = 641.319; chi square = 42.140, df = 12, $P < 0.001$) compared with the baseline model (change in chi square = 51.702, $P < 0.001$) without covariates confirmed that the set of variables included meaningfully explains variation in the risk of relapse. These results supported the appropriateness of the model for identifying independent prognostic factors associated with relapse-free survival.

Table 6 presents the results of the multivariate Cox regression analysis, identifying independent predictors of relapse-free survival after adjustment for potential confounders. Histopathological type emerged as a strong prognostic factor. Compared with diffuse-type tumors, intestinal-type gastric cancer was associated with a significantly lower risk of relapse (HR = 0.32), indicating a more favorable prognosis, while indeterminate histology did not show an independent effect.

Table 6.

Multivariate Cox Proportional Hazards analysis of factors associated with relapse-free survival.

Variable	B	SE	Wald	df	*P*-value	HR	95.0% CI for HR	
							Lower limit	Upper limit
Histopathological type (overall)			19.627	2	0.000			
Intestinal type	-1.156	0.264	19.201	1	0.000	0.315	0.188	0.528
Indeterminate type	-0.213	0.557	0.146	1	0.702	0.808	0.271	2.409
N stage (overall)			15.387	3	0.002			
N1 stage	1.670	0.589	8.046	1	0.005	5.310	1.675	16.833
N2 stage	1.876	0.557	11.362	1	0.001	6.528	2.193	19.431
N3 stage	2.260	0.583	15.024	1	0.000	9.587	3.057	30.067
T stage (overall)			4.494	3	0.213			
T1 stage	0.135	1.049	0.017	1	0.898	1.144	0.146	8.947
T2 stage	-1.643	0.780	4.442	1	0.035	0.193	0.042	0.891
T3 stage	-0.137	0.272	0.256	1	0.613	0.872	0.512	1.485
AT, Yes	-0.145	0.405	0.129	1	0.719	0.865	0.391	1.911
Radiotherapy, Yes	-0.534	0.361	2.180	1	0.140	0.586	0.289	1.191
Age (numeric)	0.010	0.011	0.764	1	0.382	1.010	0.988	1.032
Family history, Yes	2.386	1.041	5.254	1	0.022	10.872	1.413	83.644

AT - Adjuvant Therapy; SE - Standard Error.

Regional lymph node involvement was the most powerful predictor of relapse. Compared with node-negative disease (N0), progressively higher N stages were associated with a marked and stepwise increase in relapse risk, with hazard ratios rising from N1 to N3, reflecting a clear biological gradient.

Tumor depth (T stage) was not significant overall; however, patients with T2 tumors had a significantly lower risk of relapse compared with those with T4 disease, even after multivariable adjustment. Adjuvant therapy, radiotherapy, and patient age were not independently associated with relapse-free survival in this model. Notably, a positive family history of gastric cancer was associated with a substantially higher risk of relapse, although the wide confidence interval suggests limited precision and warrants cautious interpretation.

Discussion

This prospective cohort study is one of the first attempts to scientifically assess the relapse-free survival among a group of cancer patients in Albania and the factors associated with it. The findings suggest that the gastric cancer population in Albania is characterized by advanced disease at the time of diagnosis, heterogeneous relapse patterns, and a survival course that seems to be largely impacted by tumor histopathology rather than treatment modalities. These results provide a very interesting, clinically relevant insight into the course of gastric cancer patients at a national tertiary referral center.

A major finding was the relatively high proportion of patients experiencing relapse during the follow-up period (37.1%), with a median RFS of 28 months. The median time to relapse reported in this study is in accordance with the international research suggesting that the period with the highest risk of cancer relapse is within the first two to three years following the diagnosis or treatment.[6,7,10] The Kaplan–Meier curve in our gastric cancer cohort showed a steeper decline at the start of follow-up, followed by a plateau, suggesting that patients who do not relapse after this point may have a more favorable profile, including histopathological tumor type or treatment response. These findings are similar to those observed in various randomized controlled trials or large observational studies,[2,11] further highlighting the clinical importance of careful surveillance of these patients right after treatment.

The findings of this study reported the histopathological type of gastric cancer to be a strong and independent prognostic factor for the relapse-free survival of these patients. The intestinal type of gastric cancer was associated with significantly longer relapse-free survival compared to the diffuse type of cancer, in both univariate and multivariate analysis. This finding is in accordance with reports from international literature.[12] More specifically, the international literature has consolidated the fact that biological distinctions between Lauren subtypes of gastric cancers are key determinants of RFS among affected patients,[13] with the intestinal type being associated more frequently with glandular differentiation, predominantly localized growth models and better response to treatment modalities, in contrast with the diffuse type which often exhibit more spread or infiltrative growth patterns, early dissemination[4,5,14] and are more resistant to treatment schemes.[15,16] On the other hand, the worst median RFS observed among patients with an indeterminate type of gastric cancer needs to be carefully considered, given the small number of patients with this type of gastric cancer available for analysis; however, this could be an indication that this histopathological type could be associated with more aggressive tumor dynamics and/or diagnostic uncertainty at baseline.[17]

The spreading of the tumor and the involvement of regional lymph nodes emerged as one of the strongest predictors of RFS in the actual study, as shown by the strong and positive association of Hazard Ratios with the N stage of gastric cancer: the more advanced the cancer (the higher the N stage), the higher the HRs (Table 6). This modality and gradient of the association highlight the critical role of lymphatic involvement in the progression of gastric cancer.[18] The association between the N stage of gastric cancer and the RFS is in accordance with reports from international literature consistently reporting the level of lymph nodes infiltration as a major factor in the recurrence of disease and survival of patients.[19-21] The critical role of lymph node involvement in the prognosis of gastric cancer is also supported by the finding that patients with intact lymph nodes (stage N0) had a much more favorable RFS, with a considerable percentage remaining free of disease throughout the follow-up period. This once again highlights the importance of early detection of the lymph node involvement for the prognosis of gastric cancer.

On the other hand, the depth of the tumor, measured by the T stage of it, was, overall, not significantly associated with RFS in the multivariable adjusted model, even though patients with a T2 stage tumor showed a significantly lower risk of relapse compared to patients with a T4 stage gastric cancer. This pattern might suggest that lymph node status overrides the prognostic information provided by local tumor extension, meaning that the N stage, per se, is more informative than the T stage, potentially because of the strong correlation between tumor depth and nodal involvement, as reported in the international literature.[22-24]

It was interesting to note that, even after all the adjustments, variables such as adjuvant therapy and radiotherapy did not appear to be significantly associated with RFS. Even though this finding may seem counterintuitive, it could mean that patients who receive adjuvant treatment are more likely to have more serious illnesses. On the other hand, the low application of neoadjuvant therapy in this group of patients, despite the presence of advanced cancer in the overwhelming majority of patients, may have contributed to masking the treatment-related survival differences in this case. Finally, this observation highlights the very limited application of contemporary multimodal treatment strategies among gastric cancer patients in Albania and indicates a potential area for future improvement.[25,26]

With regard to family history, it is well established that it is a risk factor for developing gastric cancer, with odds ratios fluctuating between 2 and 10 among different studies and population groups.[27] However, we detected a significant association between family history of gastric cancer and the risk of relapse, an association that has not been much explored in the international arena. Amid the uncertainty of this association due to the small number of patients having this trait and wide confidence intervals in our case, the finding

however aligns well with some literature reports that have reported family history to be a risk factor associated with specific molecular characteristics that might influence cancer aggressiveness, poorer outcomes and less favorable response to treatment,[28,29] potentially negatively affecting their relapse-free survival. Obviously, there is a need for further research to better understand and explore the association between family history and risk of relapses among gastric cancer patients.

Looking from a broader angle, the results of our study point out the many difficulties and challenges that gastric cancer patients encounter in a health system where late diagnosis is often the norm. A relatively high proportion of patients we see in our oncology practice present with quite advanced cancer, both in the primary tumor size and how much it's spread to lymph nodes. This is a common finding in Eastern European countries.[30,31] This situation highlights the need to improve early detection strategies, better identify who is at higher risk, and ensure people reach the right doctors faster by reviewing and improving referral pathways and modalities.[32,33] The survival patterns observed in this study among a group of gastric cancer patients in Albania are comparable to those reported elsewhere, once again confirming the critical role of cancer biology in patient outcomes across settings.

This study has several limitations. For example, we observed patients recruited from a single medical center; such an approach may limit the study's ability to identify regional differences in healthcare delivery and narrow the scope for generalizing the results. However, the fact that cancer patients in UHCT come from all over the country might dilute these potential biases. On the other hand, we did not have access to information on tumor molecular characteristics or details of chemotherapy regimens, thus further limiting the potential of prognostic analysis.

Despite its weaknesses, this study has some strengths as well. These include a prospective observational design, a relatively long follow-up period, full standardization, and the inclusion of many background variables, such as sociodemographic and clinicopathological factors, which enhance the robustness of the survival analysis. In addition, we have used powerful statistical tests to assess relapse-free survival and the factors associated with it, and have adjusted for potential confounding effects of various variables. Lastly, this is among the few studies that explore relapse-free survival among gastric cancer patients in Albania and the factors associated with it.

Conclusion

This study demonstrated that the relapse-free survival among gastric cancer patients in Albania is mainly influenced by the histopathological type of the tumor and lymph node involvement at the time of diagnosis. These findings underscore the critical importance of early detection and staging of cancer, as well as the application of follow-up strategies tailored to the risk of relapse. In addition, the findings of this study could serve to inform field professionals, policymakers, and decision-makers to further improve the management of gastric cancer in Albania.

Ethical Considerations

The study was conducted in accordance with the principles of the WMA Declaration of Helsinki (1964, ed. 2013) and approved by the Ethics Committee of the University of Medicine, Tirana; Approval number: 2235/2 dated 08.30.2024. All potential candidates were fully informed about the study's aim and procedures. All participants granted their informed consent to participate in the study. We ensured patient data anonymization before analysis. Access to the database was restricted only to authorized members of the research team.

Disclaimer

The current study was conducted within the framework of an institutional research project aimed at establishing a structured hospital-based database for gastric cancer to evaluate real-world clinical outcomes and prognostic factors among Albanian patients.
Project Title: "Foundation of a University Clinic Database on Gastric Cancer—A Necessity for Ensuring Optimal Treatment in Light of New Therapeutic Protocols." Professor Arvin Dibra serves as the Project Coordinator (with a copy of the letter) and Principal Investigator.

Author Contributions

Bledi Kreka: Conceptualization, Methodology, Data analysis/interpretation, Writing – original draft.
Ervin Toçi: Conceptualization, Methodology, Data analysis/interpretation, Writing – review and editing.
Arvit Llazani: Investigation, Data curation.
Drini Shehi: Investigation, Data curation.
Albana Shahini: Investigation, Data curation
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Conflicts of Interest

The authors have declared no conflict of interest.

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