



Real World Effectiveness of Glecaprevir/Pibrentasvir in Chronic Hepatitis C: A Single-Center Experience

Kronik Hepatit C'de Glecaprevir/Pibrentasvir'in Gerçek Yaşamda Etkinliği: Tek Merkez Deneyimi

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ABSTRACT

Objectives: Glecaprevir/pibrentasvir (G/P) is a pangenotypic direct-acting antiviral regimen widely used in the treatment of chronic hepatitis C. This study aimed to evaluate the real-world effectiveness and safety of G/P therapy.

Materials and Methods: This retrospective, observational study included adult patients with chronic hepatitis C who received G/P therapy between March 2019 and December 2024 at a single-center. Demographic, clinical, and laboratory data were collected from medical records. Sustained virological response at 12 weeks post-treatment (SVR12) was defined as the primary endpoint. Laboratory parameters at baseline and week 8 of treatment were compared.

Results: Fifty patients were included in the study. Most patients were male, and genotype 3 was the most common. Intravenous drug use was present in 24% of patients. None of the patients had cirrhosis. SVR12 was achieved in all evaluable patients (100%, modified intention-to-treat). Significant reductions in alanine aminotransferase and aspartate aminotransferase levels, and in aspartate aminotransferase to platelet ratio index score, were observed at week 8 compared to baseline ($p < 0.05$). No significant difference in SVR12 rates was observed between genotype 3 and other genotypes. G/P therapy was well tolerated, and no serious adverse events leading to treatment discontinuation were observed.

Conclusion: G/P is a highly effective and well-tolerated treatment option in real-world clinical practice, even in populations with a high prevalence of genotype 3. Further studies, including more heterogeneous patient populations and long-term follow-up, are needed.

Keywords: Chronic hepatitis C, glecaprevir/pibrentasvir, genotype 3, direct-acting antiviral agent

ÖZ

Amaç: Glecaprevir/pibrentasvir (G/P), kronik hepatit C tedavisinde yaygın olarak kullanılan pangenotipik direkt etkili antiviral bir rejimdir. Bu çalışmada, G/P tedavisinin gerçek yaşam verileri ile etkinlik ve güvenliliğinin değerlendirilmesi amaçlanmıştır.

Gereç ve Yöntemler: Bu retrospektif, gözlemsel çalışmaya Mart 2019-Aralık 2024 tarihleri arasında tek merkezde G/P tedavisi alan erişkin kronik hepatit C hastaları dahil edilmiştir. Demografik, klinik ve laboratuvar verileri hasta dosyalarından elde edilmiştir. Tedavi bitiminden 12 hafta sonra elde edilen kalıcı virolojik yanıt (SVR12) birincil sonlanım noktası olarak belirlenmiştir. Başlangıç ve tedavinin 8. haftasındaki laboratuvar parametreleri karşılaştırılmıştır.

Bulgular: Çalışmaya dahil edilen toplam 50 hastanın çoğunluğu erkek olup, en sık saptanan genotip, genotip 3 idi. Hastaların %24'ünde intravenöz ilaç kullanımı mevcuttu. Hastaların hiçbirinde siroz saptanmadı. Değerlendirilebilen tüm hastalarda SVR12'ye ulaşıldı (%100, modifiye edilmiş tedavi niyeti). Tedavinin 8. haftasında başlangıça kıyasla alanin aminotransferaz, aspartat aminotransferaz düzeyleri ve aspartat aminotransferaz/trombosit oranı indeksi skorunda anlamlı azalma gözlemlendi ($p < 0.05$). Genotip 3 ile diğer genotipler arasında SVR12 açısından anlamlı fark saptanmadı. G/P tedavisinin kesilmesini gerektirecek ciddi bir yan etki saptanmadı.

Sonuç: G/P, genotip 3'ün yüksek oranda görüldüğü hasta popülasyonlarında dahi gerçek yaşam koşullarında oldukça etkili ve iyi tolere edilen bir tedavi seçeneğidir. Daha heterojen hasta gruplarını içeren ve uzun dönem takip verileri olan çalışmalara ihtiyaç vardır.

Anahtar Kelimeler: Kronik hepatit C, glecaprevir/pibrentasvir, genotip 3, direkt etkili antiviraller

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Introduction

Hepatitis C virus (HCV) infection is a major public health problem; globally, an estimated 47 million people have chronic HCV infection, with about 0.9 million new infections occurring per year. World Health Organization estimated that in 2024, approximately 240,000 people died from HCV, mostly from cirrhosis and hepatocellular carcinoma (HCC) (1,2,3,4,5). In recent years, with the introduction of direct-acting antivirals (DAAs) instead of interferon-based regimens, great success has been achieved in the treatment of HCV, with sustained virological response (SVR) rates exceeding 95% (3,4,5,6).

One of these DAA regimens, glecaprevir/pibrentasvir (G/P) is a pan-genotypic combination of an NS3/4A protease inhibitor (non-structural protein 3/4A protease inhibitor) and an NS5A inhibitor (4,5,7). G/P stands out due to its high barrier to resistance development, its effectiveness against all major HCV genotypes (GTs), and its short-term, 8-week treatment option, particularly in patients with or without compensated cirrhosis (2,4,5,8,9).

Clinical phase studies have demonstrated that G/P has an excellent efficacy and safety profile (3,6,8,9). While randomized controlled trials have high internal validity, they may not always fully reflect real clinical practice due to patient selection and exclusion criteria. Therefore, real-world data are important for demonstrating the efficacy and safety of treatments in daily clinical practice. Large cohort studies and meta-analyses based in Europe and Asia have shown that G/P treatment provides SVR12 rates of over 95% in real-world conditions (2,10,11). However, real-world data reported in our country are limited, and the reporting of center-based results, especially in populations where GT distribution may vary, contributes to the literature. This study aimed to evaluate the efficacy and safety of G/P treatment by assessing real-world data from patients with chronic HCV infection at our center.

Materials and Methods

This retrospective observational study evaluated patients diagnosed with chronic HCV who were followed-up and received G/P treatment at our clinic. Adult patients who started treatment between March 1, 2019 and December 31, 2024 and who had at least one follow-up data point were included in the study. Chronic HCV was diagnosed by serum HCV-RNA positivity for at least 6 months.

Exclusion criteria included patients under 18 years of age; pregnant women; those with hepatitis B virus, hepatitis D virus, or human immunodeficiency virus coinfection; those with HCC; those with a history of liver transplantation; those who did not complete their treatment; and those receiving concurrent DAA treatment. Demographic, clinical, and laboratory data of patients were obtained retrospectively from the hospital's electronic records system and patients' files. Demographic characteristics (age, gender), comorbidities, HCV GT, treatment duration (8, 12, or 16 weeks), previous treatment history (naive/experienced), presence of cirrhosis, HCV-RNA level, alanine aminotransferase (ALT), aspartate aminotransferase (AST), total bilirubin, albumin, international

normalized ratio (INR), activated partial thromboplastin time, platelet count, leukocyte count, hemoglobin, creatinine, alpha-fetoprotein (AFP), and liver biopsy results were recorded. The AST to platelet ratio index (APRI) was calculated using the formula: $(AST/ULN)/platelet\ count\ (10^9/L) \times 100$ (12). Fibrosis-4 index (FIB-4) was calculated using the formula: $(age \times AST)/[platelet\ count\ (10^9/L) \times \sqrt{ALT}]$ (13).

SVR12 was defined as undetectable HCV-RNA 12 weeks after completion of treatment. Treatment failure was defined as the absence of a virological response during treatment or the development of a relapse. Cirrhosis was defined according to clinical, radiological, or histological findings.

The primary endpoint was the SVR12 rate, and the secondary endpoints were the adverse event profile and the treatment discontinuation rate.

Statistical Analysis

Statistical analyses were performed using SPSS software (SPSS, version 18.0; SPSS Inc., Chicago, IL, USA). The distribution of continuous variables was evaluated using the Kolmogorov-Smirnov test. Data that were not normally distributed were presented as medians and interquartile ranges (IQRs), while categorical variables were presented as numbers and percentages (%). The Wilcoxon signed-rank test was used to compare paired baseline and 8-week laboratory parameters. The chi-square test was used to compare categorical variables, while Fisher's exact test was preferred when cell frequencies were low. SVR12 rates were calculated using both intention-to-treat (ITT) and modified intention-to-treat (mITT) analyses. All patients were included in the ITT analysis, whereas only those patients with available HCV-RNA results during the relevant week were included in the mITT analysis. 95% confidence intervals for SVR12 rates were calculated using the Clopper-Pearson exact method. All statistical tests were performed as two-way analyses, and a p-value <0.05 was considered statistically significant. The study was approved by the Ethics Committee for Non-Pharmaceutical and Non-Medical Device Research of Necmettin Erbakan University (approval no: 2026/6443 and date of approval, March 27, 2026). The study was conducted in accordance with the principles of the Helsinki Declaration. Due to the retrospective design, the ethics committee waived the requirement to obtain informed consent from patients.

Results

The median age of the 50 patients included in the study was 34 years (IQR: 29-50); the median age at diagnosis was 29 years (IQR: 24-48), and 80% were male. The most common HCV GT was GT3 (44%), and 24% of the patients had a history of intravenous (IV) drug use. 75% of patients with a history of IV drug use were GT3. 92% of the patients (n=46) were treatment-naive. The demographic, clinical, and baseline characteristics of the patients are shown in Table 1.

When laboratory parameters at baseline were compared with those at week 8 of treatment, a statistically significant decrease was observed in AST and ALT levels, and in APRI score ($p < 0.001$ for each) (Table 2).

Table 1. Demographic, clinical, and baseline characteristics of the patients (n=50)

Variables	Value
Age (years), median (IQR)	34 (29-50)
Age at diagnosis (years), median (IQR)	29 (24-48)
Gender, n (%)	
Male	40 (80.0)
Female	10 (20.0)
GT distribution, n (%)	
1a	4 (8.0)
1b	7 (14.0)
2	3 (6.0)
3	22 (44.0)
4	7 (14.0)
Unknown	7 (14.0)
Intravenous drug use, n (%)	
GT3	9 (75)
GT1	1 (8.3)
GT2	1 (8.3)
Unknown	1 (8.3)
Previous treatment experience, n (%)	
Treatment-naïve, n (%)	46 (92.0)
Biopsy performed, n (%)	
HAI score*, n	4/18 (n=1), 6/18 (n=1), 8/18 (n=1), 10/18 (n=1)
Fibrosis stage*, n	Stage 1 (n=2), Stage 2 (n=1), Stage 3 (n=1)
Cirrhosis, n (%)	
	0 (0)
*: Biopsy results are for only 4 patients, HAI: Histological activity index, GT: Genotype, IQR: Interquartile range	

In the ITT analysis, the HCV-RNA negativity rates were 64.0% at week 4 (on-treatment), 66.0% at end of treatment (week 8), 66.0% at post-treatment week 4, and 66.0% at post-treatment week 12. In the mITT analysis, negativity rates were 94.1% at week 4 and 97.1% at the end of treatment; HCV-RNA negativity was subsequently confirmed in 100% of patients with available results at both post-treatment week 4 and post-treatment week 12 (SVR12) (Table 3).

After excluding patients with unknown GTs, we compared ITT-based SVR12 rates between GT3 and other GTs [63.6% (14/22) vs. 71.4% (15/21); Fisher's exact test, $p=0.58$] and found no statistically significant difference. In the mITT analysis, the SVR12 rate was 100% in all subgroups: GT3, other GTs, treatment-naïve, and treatment-experienced. Because virological response was achieved in all evaluable patients, no further statistical comparison was performed (Table 4).

During G/P treatment, no adverse effects requiring treatment discontinuation were observed. No cirrhosis, decompensated cirrhosis, or HCC was documented during the available follow-up period (Table 5).

Discussion

High cure rates have been achieved with the introduction of DAAs in the treatment of chronic HCV. G/P is a preferred treatment option in clinical practice due to its pangenotypic activity and good tolerability. It is important to support the successful results obtained in clinical studies with real-world data that include more heterogeneous patient groups. In our study, SVR12 was achieved in all evaluable patients who received G/P treatment.

Examination of the demographic characteristics of the patient population in real-life studies with G/P shows that male males predominate and age distribution is variable. For example, a recent real-life study reported from Türkiye showed that 85.5% of patients were male and the median age was 30, which was thought to be due to the high rate of iv drug use (4). Similarly, studies and meta-analyses with large-scale real-life data show a male predominance in patient groups receiving G/P treatment, but the age distribution is over a wider range (10). On the other hand, German HCV registry data reported a median age of 46 years and a male rate of approximately 69% (9). In our study, 80% of patients are male, and the median age is 34. When evaluated together, these findings indicate that the age and gender distribution among patients receiving G/P treatment varies considerably depending on epidemiological factors, especially risky behaviors.

Studies evaluating real-life data report that the distribution of GTs among patients receiving G/P treatment varies with geographical and epidemiological characteristics. A large-scale meta-analysis of data from multiple cohorts showed that GT1 was dominant in many regions, but GT3 was also prevalent, particularly in certain patient groups (3,10). Real-life data from Europe also showed that GT1 was the most common, while GT3 was found at higher rates, especially in younger patients and groups with a history of risky behavior (9). While GT2 was reported as the most common GT in cohorts from Taiwan and South Korea (2,7), a recent real-life study from Türkiye has reported that GT3 is the most common GT at 57.1%, and it has been emphasized that this may be related to high rates of iv drug use (4). In the study by Gürbüz et al. (14), GT3 was also shown to be more prevalent among iv drug users. Similarly, GT3 was the most common GT in our study. This situation is thought to be related to the 24% rate of IV drug use in our patient group. Indeed, it has been reported in the literature that iv drug use is strongly associated with GT3 and is an important factor determining GT distribution in this patient group. When these findings are considered together, GT distribution is closely related to both regional differences and risk factors of the patient population.

In the literature, the effect of G/P treatment on laboratory parameters is characterized by the resolution of liver inflammation and improvement in liver function. In large-scale real-world data reported from Taiwan, a rapid and significant decrease in ALT and AST levels was observed from the start of treatment, while a slower but statistically significant improvement in parameters reflecting the liver's synthetic function, such as albumin and INR, was detected in the later stages of treatment. No significant change was observed

Table 2. Comparison of laboratory parameters between baseline and week 8 of treatment

Parameters	Baseline		Week 8		p
	n	Median (IQR)	n	Median (IQR)	
Leukocyte count, $\times 10^9/L$	46	7.76 (6.70-9.13)	33	7.90 (6.65-10.45)	0.422
Hemoglobin, g/dL	46	15.9 (13.9-16.8)	33	15.5 (14.0-16.7)	0.648
Platelet count, $\times 10^9/L$	46	275 (227-307)	33	279 (228-334)	0.504
Creatinine, mg/dL	46	0.80 (0.70-0.80)	34	0.80 (0.60-0.90)	0.933
Total bilirubin, mg/dL	27	0.40 (0.30-0.60)	20	0.55 (0.30-0.90)	0.305
Albumin, g/L	37	45.2 (43.5-48.2)	25	46.3 (44.3-48.7)	0.575
AST, U/L	47	36 (23.5-66)	34	14.5 (12.5-18.7)	<0.001
ALT, U/L	48	59.1 (26.9-112.2)	34	13.1 (10.0-16.5)	<0.001
aPTT, sec	20	30.8 (26.0-34.2)	12	29.3 (25.1-36.1)	0.327
INR	43	1.06 (0.90-1.10)	27	1.03 (0.90-1.10)	0.925
AFP, U/L	38	1845 (1310-2489)	31	1700 (1374-2400)	0.211
APRI	46	0.42 (0.26-0.72)	33	0.12 (0.08-0.20)	<0.001
FIB-4	46	0.53 (0.38-0.87)	32	0.53 (0.29-0.99)	0.053
HCV-RNA ($\log_{10}$ IU/mL)	49	5.32 (4.29-5.97)			

Data are presented as median [interquartile range, (IQR)]. Baseline and week 8 comparisons were performed using the Wilcoxon signed-rank test in matched patients. $p < 0.05$ was considered statistically significant. HCV-RNA value is presented only for baseline. ALT: Alanine aminotransferase, AST: Aspartate aminotransferase, aPTT: Activated partial thromboplastin time, INR: International normalized ratio, APRI: Aspartate aminotransferase to platelet ratio index, FIB-4: Fibrosis-4 index, HCV: Hepatitis C virus, AFP: Alpha-fetoprotein

Table 3. HCV-RNA negativity rates (mITT analyses)

Time point	mITT n/N (%)	95% CI
Week 4 (on-treatment)	32/34 (94.1)	80.3-99.3
Week 8/end of treatment (EOT)	33/34 (97.1)	84.7-99.9
Week 12 (EOT+4)	33/33 (100)	89.4-100
SVR12	33/33 (100)	89.4-100

SVR: Sustained virological response, CI: Confidence interval, HCV: Hepatitis C virus, mITT: Modified intention-to-treat, patients with available HCV-RNA results at the relevant time point were evaluated. All patients received an 8-week glecaprevir/pibrentasvir regimen; time points are presented relative to treatment initiation and EOT. Confidence intervals were calculated using the exact method

Table 4. SVR12 by genotype and treatment experience (mITT analyses)

Subgroup	SVR12 mITT n/N (%)	95% CI
Genotype 3	14/14 (100)	76.8-100
Other genotypes*	15/15 (100)	78.2-100
Treatment-naïve	29/29 (100)	88.1-100
Treatment-experienced	4/4 (100)	39.8-100

SVR12 was defined as undetectable HCV-RNA 12 weeks after completion of treatment. Only patients with available HCV-RNA results at this time point were evaluated. Since the SVR12 rate was 100% in all mITT subgroups, no statistical comparison was performed. An ITT-based comparison between GT3 and other genotypes showed no significant difference [63.6% (14/22) vs. 71.4% (15/21); Fisher's exact test, $p=0.58$]; due to the small number of treatment-experienced patients, no ITT-based comparison was performed for treatment history. *: Other genotypes: 1a, 1b, 2, 4, SVR: Sustained virological response, CI: Confidence interval, HCV: Hepatitis C virus, mITT: Modified intention-to-treat

Table 5. Clinical and laboratory findings during follow-up after G/P treatment

Variables	Values
Cirrhosis/decompensated cirrhosis development/n (%)	0
HCC development/n (%)	0
Surviving at follow-up/n (%)	37 (74.0)
Discontinued from follow-up/n (%)	13 (26.0)
1-year laboratory control available/n (%)	11 (22.0)
AST/median (IQR)*, U/L	16.3 (11.9-17.9)
ALT/median (IQR)*, U/L	13.6 (11.2-20.0)
Platelets/median (IQR)*, $\times 10^9/L$	250 (213-299)
FIB-4/median (IQR)*	1.01 (0.30-1.39)
APRI/median (IQR)*	0.17 (0.11-0.26)

*: One year of laboratory data belongs to 11 patients, G/P: Glecaprevir/pibrentasvir, IQR: Interquartile range, ALT: Alanine aminotransferase, AST: Aspartate aminotransferase, APRI: Aspartate aminotransferase to platelet ratio index, FIB-4: Fibrosis-4 index, HCC: Hepatocellular carcinoma

in creatinine levels in the same study (2). Similarly, in South Korean cohorts, it was emphasized that normalization in transaminases occurred simultaneously with the virological response (7). In a study conducted in our country, a statistically significant and substantial decrease in ALT and AST levels was recorded compared to baseline values at the 8th week of treatment. In this group, a significant regression was detected in APRI scores, a non-invasive indicator of liver fibrosis, while no significant change was detected in FIB-4 score and AFP (4). In another real-life study from our country, a similar trend was observed, with the median AST decreasing from 37 U/L to 20 U/L and the median ALT decreasing from 39.5 U/L to 15 U/L.

In addition, significant decreases in alkaline phosphatase and GGT levels were determined in this cohort, and a statistically significant improvement in FIB-4 scores was detected, unlike some data in the literature (5). In both local datasets, no significant changes were observed in parameters such as total bilirubin and creatinine (4,5). In our study, a statistically significant decrease in AST and ALT levels and in APRI score was observed at the 8th week of treatment compared with baseline, whereas no significant change was observed in FIB-4 score or other laboratory parameters. These findings support the idea that G/P treatment not only provides a virological response but also leads to rapid biochemical improvement and reduces liver inflammation even in the early stages.

Virological response rates obtained with G/P treatment are consistently high across the global literature. Large-scale real-world data show that SVR12 rates generally range from 95% to 99.4% (2,9,15). For example, national registry data from Taiwan reported an SVR12 rate of 98.2%, while South Korean data showed a success rate of 97.7% in mITT analysis (2,7). When the virological kinetics in the early stages of treatment are examined, the literature shows that the rates of HCV-RNA becoming undetectable at week 4 range from 81.5% to 98% (7). In a study conducted in Türkiye, all patients who were followed-up achieved SVR12. In this cohort, the virological response rate at week 4 was found as 91.4%; it was noted that 3 patients who did not yet respond at week 4 (all GT3 and treatment-naïve) became negative at week 8 and finally achieved SVR12 success (4). In a multicenter study from Türkiye including 385 patients, SVR12 was achieved in all patients in the per-protocol analysis (14). In our study, the HCV-RNA negativity rate in the mITT analysis was 94.1% at week 4 and 97.1% at the end of treatment (week 8). HCV-RNA negativity was subsequently maintained in all patients with available HCV-RNA results at SVR12. Consequently, both the literature and our data confirm that G/P, especially with a short 8-week regimen, achieves excellent virological cure rates regardless of GT or baseline characteristics.

In the treatment of HCV, GT3 has historically been considered a “difficult-to-treat” group, particularly in the presence of cirrhosis and due to the relatively low response rates obtained with older generation DAA therapies (6,8). However, real-life data from powerful pangenotypic regimens like G/P show that this challenge has been largely overcome. In a comprehensive meta-analysis, the mITT SVR12 rate for GT3 was reported as 95.9%; this success was found clinically quite similar to other GTs such as GT1 (97.8%) and GT2 (98.0%) (10). Similarly, United States of America data reported a 95.6% success rate in GT3, while the Italian CREST study reported 100%, confirming the excellent efficacy of short-term 8-week treatment in this group (6,8). In the study by Tayşi and Gezer (4) from our country, although GT3 was the most common GT, SVR12 success was achieved in all patients who participated in the follow-up. Similarly, in another study from our country, while all patients infected with GT3 achieved cure, it is noteworthy that all three patients who experienced treatment failure were infected with the GT1b strain (5). In the literature, the fact that GT3 response rates are around 96% even in populations with high

iv drug use, as in the Portuguese study, proves the GT-independent success of the treatment (3). In our study, the ITT analysis did not reveal a statistically significant difference in the SVR12 rate between the GT3 group and other GTs. In the mITT analysis, SVR12 was achieved in 100% of evaluable patients across all GTs.

Real-life studies have reported that the rates of serious side effects and treatment discontinuation during G/P treatment are extremely low. A meta-analysis involving large patient populations showed that the rate of treatment discontinuation due to adverse effects during G/P therapy was quite low, approximately 0.6% (10). Similarly, another meta-analysis reported a negligible treatment discontinuation rate of 0.1%, with serious adverse effects being rare (16). More recent real-world data also support these findings, with both a cohort study from Portugal and the study by Gürbüz et al. (14) reporting no treatment discontinuation due to adverse effects in any patient (3). In our study, no adverse effects requiring discontinuation of treatment were detected; these findings support the high tolerability of G/P therapy in real-world conditions.

It is known from the long-term clinical and laboratory follow-up results after G/P treatment that achieving SVR12 reduces liver-related morbidity and mortality, including the risk of HCC (2,5,17). Furthermore, follow-up studies after SVR12 have shown sustained improvement in liver enzymes and regression in non-invasive fibrosis markers (2,18). The significant regression in non-invasive fibrosis markers such as APRI and FIB-4, in particular, supports the idea that the treatment contributes to long-term histological improvement by resolving liver inflammation (4,19). Although rare cases of hepatic decompensation (such as ascites, jaundice, or variceal bleeding) have been reported during treatment in real-world data, it has been noted that these conditions are generally not directly related to the drug and may be triggered by concomitant factors such as alcohol consumption (10,15). In our study, no cirrhosis, hepatic decompensation, or HCC were documented among patients who continued follow-up during the observation period. Although these findings are reassuring, the retrospective design and limited follow-up preclude definitive conclusions regarding long-term clinical outcomes, and studies with longer follow-up are warranted.

Study Limitations

The main limitations of this study are its retrospective, single-center design and the limited number of patients. The absence of cirrhotic patients in the study and the homogeneity of the patient group may limit the generalizability of the results. Furthermore, the lack of long-term follow-up data after completion of treatment and the reliance on non-invasive methods for assessing fibrosis rather than histopathological confirmation are other significant limitations. In addition, incomplete data for some patients at certain follow-up time points may have limited the precision of some analyses, as reflected in the difference between ITT and mITT results.

The strengths of this study are the evaluation of G/P treatment using real-life data in a GT3-dominant population and the contribution to data from our country.

Conclusion

In this real-world, single-center study, G/P demonstrated excellent effectiveness—with SVR12 achieved in all evaluable patients—and a favorable safety profile; no treatment discontinuations due to adverse events were observed. However, the absence of cirrhotic patients and the relatively small, homogeneous study population may limit the generalizability of these findings. Larger prospective studies with more diverse patient populations and longer follow-up are needed to confirm these results and to better characterize long-term clinical outcomes.

Ethics

Ethics Committee Approval: The study was approved by the Ethics Committee for Non-Pharmaceutical and Non-Medical Device Research of Necmettin Erbakan University (approval no: 2026/6443 and date of approval, March 27, 2026).

Informed Consent: Due to the retrospective design, the ethics committee waived the requirement to obtain informed consent from patients.

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For transparency, the authors note that an artificial intelligence-assisted language model (ChatGPT, OpenAI) was utilized to support language correction. This assistance was limited to linguistic refinement; all scientific content, critical analysis, and final editorial decisions were made exclusively by the authors.

Footnotes

Authorship Contributions

Surgical and Medical Practices: R.B., B.K., P.B.K., E.K.K., İ.E., Concept: R.B., İ.E., Design: R.B., İ.E., Data Collection or Processing: R.B., M.Y., F.A., Analysis or Interpretation: R.B., M.Y., Literature Search: R.B., B.K., P.B.K., E.K.K., İ.E., Writing: R.B., B.K., P.B.K., M.Y., F.A., E.K.K., İ.E.

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