Research Article

DOI: 10.4274/vhd.galenos.2026.2026-2-1
Viral Hepat J 2026;32(1):14-18

Real-World Evaluation of APRI and FIB-4 Scores in Patients with Chronic Hepatitis C Treated with Direct-Acting Antivirals

Kronik Hepatit C Hastalarında Doğrudan Etkili Antiviral Tedavi Sonrası APRI ve FIB-4 Skorlarının Gerçek Yaşam Verileriyle Değerlendirilmesi

Özlem Gül, Nazife Duygu Demirbaş, Banu Çiçek Aktaş, Ceren Atasoy Tahtasakal, Okan Derin, Gizem Çal, Hakkı Meriç Türkkan, Ahsen Öncül, Dilek Yıldız Sevgi, İlyas Dökmetaş

University of Health Sciences Türkiye, Şişli Hamidiye Etfal Training and Research Hospital, Clinic of Infectious Diseases and Clinical Microbiology, İstanbul, Türkiye

ABSTRACT

Objectives: This study aimed to evaluate biochemical response, sustained virological response (SVR) rates, and changes in non-invasive fibrosis markers [aspartate aminotransferase (AST) to platelet ratio index (APRI) and fibrosis-4 index (FIB-4)] using real-world data in patients with chronic hepatitis C virus (HCV) treated with direct-acting antivirals (DAAs).

Materials and Methods: Patients aged ≥18 years with chronic HCV who were followed between January 2018 and December 2024 and treated with glecaprevir/pibrentasvir, sofosbuvir/velpatasvir/voxilaprevir, or ledipasvir/sofosbuvir were retrospectively analyzed. Alanine aminotransferase (ALT), AST, platelet count, and HCV-RNA levels were recorded at baseline, at treatment week 4, at end of treatment, and at 12 and 24 weeks after treatment completion. APRI and FIB-4 scores were calculated at each time point.

Results: A total of 43 patients were included; the median age was 57 years (interquartile range: 43-65), and 58% were male. ALT and AST levels decreased significantly from treatment week 4 onward ($p<0.001$). APRI scores showed a significant early decline that persisted throughout the follow-up period ($p<0.001$). FIB-4 scores decreased significantly at week 4; however, this reduction was not sustained during follow-up. A strong correlation was observed between changes in APRI and ALT, whereas the association between FIB-4 and ALT was weak and limited. SVR12 and SVR24 rates were 100% among patients with available HCV-RNA data.

Conclusion: In real-world settings, DAA therapy achieves high SVR rates and rapid biochemical improvement. The early and persistent decline in APRI reflects regression of inflammatory activity, while the limited change in FIB-4 suggests that longer follow-up may be required to adequately assess fibrosis regression.

Keywords: Chronic hepatitis C, direct-acting antivirals, APRI, FIB-4, real-world data

ÖZ

Amaç: Bu çalışmada, doğrudan etkili antiviral (DAA) tedavi alan kronik hepatit C virüs (HCV) hastalarında gerçek yaşam verileri kullanılarak biyokimyasal yanıt, kalıcı virolojik yanıt (SVR) oranları ve invaziv olmayan fibrozis belirteçleri olan aspartat aminotransferaz (AST) trombosit oranı indeksi (APRI) ve fibrozis-4 indeksi (FIB-4) skorlarındaki değişimlerin değerlendirilmesi amaçlandı.

Gereç ve Yöntemler: Ocak 2018-Aralık 2024 tarihleri arasında kronik HCV tanısıyla izlenen ve glekaprevir/pibrentasvir, sofosbuvir/velpatasvir/voxilaprevir veya ledipasvir/sofosbuvir ile tedavi edilen ≥18 yaş hastalar retrospektif olarak analiz edildi. Alanin aminotransferaz (ALT), AST, trombosit sayısı ve HCV-RNA düzeyleri; başlangıçta, tedavinin 4. haftasında, tedavi sonunda ve tedavi bitiminden 12 ve 24 hafta sonra kaydedildi. APRI ve FIB-4 skorları her zaman noktasında hesaplandı.

Bulgular: Çalışmaya toplam 43 hasta dahil edildi; medyan yaş 57 (çeyrekler arası aralık: 43-65) yıl olup hastaların %58'i erkekti. ALT ve AST düzeyleri tedavinin 4. haftasından itibaren anlamlı olarak azaldı ($p<0,001$). APRI skorlarında erken dönemde anlamlı bir düşüş saptandı ve bu düşüş izlem boyunca sürdü ($p<0,001$). FIB-4 skorları 4. haftada anlamlı olarak azalsa da, izlem süresince bu düşüş korunmadı. APRI değişimi ile ALT değişimi arasında güçlü bir ilişki saptanırken, FIB-4 değişimi ile ALT değişimi arasında zayıf ve sınırlı bir ilişki izlendi. HCV-RNA verisi bulunan hastalarda SVR12 ve SVR24 oranları %100 idi.

Sonuç: Gerçek yaşam koşullarında DAA tedavisi yüksek SVR oranları ve hızlı biyokimyasal düzelme sağlamaktadır. APRI skorlarındaki erken ve kalıcı düşüş enflamatuvar aktivitenin gerilemesini yansıtırken, FIB-4 skorlarındaki sınırlı değişim fibrozis regresyonunun yeterli şekilde değerlendirilebilmesi için daha uzun izlem sürelerine ihtiyaç olabileceğini düşündürmektedir.

Anahtar Kelimeler: Kronik hepatit C, doğrudan etkili antiviraller, APRI, FIB-4, gerçek yaşam verisi

Address for Correspondence: Özlem Gül, MD, University of Health Sciences Türkiye, Şişli Hamidiye Etfal Training and Research Hospital, Clinic of Infectious Diseases and Clinical Microbiology, İstanbul, Türkiye

E-mail: ozlemilbay@gmail.com **ORCID ID:** orcid.org/0000-0002-1668-0157

Received: 02.02.2026 **Accepted:** 11.05.2026 **Publication Date:** 01.06.2026

Cite this article as: Gül Ö, Demirbaş ND, Aktaş BÇ, Atasoy Tahtasakal C, Derin O, Çal G, Türkkan HM, Öncül A, Sevgi DY, Dökmetaş İ. Real-world evaluation of APRI and FIB-4 scores in patients with chronic hepatitis C treated with direct-acting antivirals. Viral Hepat J. 2026;32(1):14-18

Introduction

Hepatitis C virus (HCV) infection remains a major global public health problem (1). According to World Health Organization data, approximately 50 million people worldwide are living with chronic HCV infection, and nearly 1 million new cases are reported annually (2). HCV is one of the leading causes of chronic hepatitis, cirrhosis, and hepatocellular carcinoma, and it is a major cause of mortality from chronic viral hepatitis.

In Türkiye, the prevalence of HCV infection in the general population has been reported to range between 0.3% and 1%; however, this rate is significantly higher among risk groups such as intravenous drug users and patients undergoing hemodialysis (3,4). Genotype 1b is the most frequently observed HCV genotype in Türkiye and plays a determinant role in both the natural course of the disease and treatment response (5).

In recent years, the introduction of direct-acting antiviral (DAA) agents into clinical practice has represented a revolutionary milestone in the treatment of HCV infection. These agents provide high rates of virological response with interferon-free regimens of short duration and offer substantial advantages in terms of both efficacy and safety (6). Although the effectiveness of DAA therapies is well established, real-world data regarding the short- and mid-term behavior of non-invasive fibrosis scores following treatment remain limited and heterogeneous.

The present study aimed to evaluate real-world data from patients with chronic HCV infection receiving DAA therapy and to assess post-treatment biochemical responses and changes in non-invasive fibrosis scoring systems.

Materials and Methods

This single-center observational study was designed as a retrospective analysis of patients diagnosed with chronic HCV who were followed between 01 January 2018 and 31 December 2024 and who received new-generation DAA therapy. Patients aged ≥18 years with a diagnosis of chronic HCV infection who were followed in our outpatient clinic and treated with glecaprevir/pibrentasvir (G/P), sofosbuvir (SOF)/velpatasvir (VEL)/voxilaprevir (VOX), or ledipasvir (LDV)/SOF were included. Patients with a history of liver transplantation, those with poor treatment adherence, or those who did not complete treatment were excluded. Treatment duration was determined in accordance with national and international guidelines.

Patient age, treatment history, year of diagnosis, interval between diagnosis and initiation of DAA therapy, genotype, and the presence of cirrhosis, hepatocellular carcinoma, and coinfections were recorded. Alanine aminotransferase (ALT), aspartate aminotransferase (AST), platelet count, and HCV-RNA levels were recorded at baseline, at week 4 of treatment, at the end of treatment (EOT), and at weeks 12 sustained virological response (SVR12) and 24 (SVR24) after treatment completion. AST to platelet ratio index (APRI) and fibrosis-4 index (FIB-4) scores were calculated at each time point.

Biochemical response was defined as a serum ALT level below 40 IU/L. Virological response was defined as undetectable HCV-RNA levels measured by polymerase chain reaction. SVR was defined as continued HCV-RNA negativity for at least 12 weeks after completion of treatment.

Statistical Analysis

Statistical analyses were performed using Jamovi software (version 2.7.13). Continuous variables were presented as median [interquartile range (IQR)] or mean ± standard deviation, depending on distribution. Paired continuous variables measured before and after treatment were compared using the Wilcoxon signed-rank test. Comparisons between APRI ≥1.5 and <1.5 subgroups were performed using the Mann-Whitney U test. Associations between variables were assessed using Spearman's correlation coefficient based on distributional assumptions. A p-value <0.05 was considered statistically significant.

Ethical approval for the study was obtained on 17 December 2024 from the Clinical Research Ethics Committee of the University of Health Sciences Türkiye, Şişli Hamidiye Etfal Training and Research Hospital (approval number: 4669). The study was conducted in accordance with the Declaration of Helsinki. Written informed consent was waived due to the retrospective design of the study.

Results

During the study period, 62 patients were evaluated; however, DAA therapy could not be initiated in 19 patients due to administrative and reimbursement-related constraints. A total of 43 patients were ultimately included in the analysis. Baseline demographic and clinical characteristics are summarized in Table 1. The median age was 57 years (IQR: 43-65), and 58.1% of patients were male. Most patients were treatment-naïve (90.7%), and cirrhosis and hepatocellular carcinoma were present in one patient each (2.3%).

Among the 34 patients with available genotype data, genotype 1b was predominant (n=21, 61.8%), followed by genotype 1a (n=7, 20.6%), genotype 3 (n=4, 11.8%), and genotype 4 (n=1, 2.9%); one patient had a mixed genotype 3 and 4 infection. Treatment regimens

Table 1. Baseline characteristics

Variable	Value
Age, median (IQR), years	57 (43-65)
Male sex, n (%)	25 (58.1)
Treatment-naïve, n (%)	39 (90.7)
Cirrhosis, n (%)	1 (2.3)
Hepatocellular carcinoma, n (%)	1 (2.3)
HBV coinfection, n (%)	3 (7.0)
HIV coinfection, n (%)	2 (4.7)
Genotype 1b, n/N (%)	21/34 (61.8)
Time from diagnosis to treatment, months, median (IQR)	5 (2-36)

IQR: Interquartile range, HBV: Hepatitis B virus, HIV: Human immunodeficiency virus

included G/P for 8 weeks in 38 patients; SOF/VEL/VOX for 8 weeks in 3 patients; LDV/SOF for 24 weeks in 1 patient; and LDV/SOF plus ribavirin for 4 weeks in 1 patient.

At baseline, ALT elevation (>40 U/L) was present in 58.1% of patients, and AST elevation was observed in 37.2% of patients. Median ALT was 45 U/L (IQR: 27.5-65.5), median AST was 37 U/L (IQR: 27-48), and median platelet count was 240×10^9/L (IQR: 206.5-274). The median HCV-RNA level was 6.03×10^5 IU/mL (IQR: 1.48×10^5-1.59×10^6).

Baseline medians for APRI and FIB-4 scores were 0.369 (IQR: 0.272-0.552) and 1.272 (IQR: 0.849-1.659), respectively. According to APRI categories, 65.1% of patients had APRI <0.5, 27.9% had APRI between 0.5 and 1.5, and 7.0% had APRI ≥1.5. According to FIB-4 categories, 60.5% had FIB-4 <1.45, 34.9% had FIB-4 between 1.45 and 3.25, and 4.7% had FIB-4 ≥3.25.

At week 4 of treatment, ALT and AST levels decreased significantly compared with baseline ($p<0.001$), with normalization observed in all patients; this biochemical response was maintained at EOT and during post-treatment follow-up at weeks 12 and 24 (Table 2).

Both APRI and FIB-4 scores showed a decreasing trend during treatment. Reductions in APRI and FIB-4 at week 4 were statistically significant compared with baseline (both $p<0.01$). APRI demonstrated an early and sustained decline throughout follow-up ($p<0.001$), whereas FIB-4 showed a significant reduction only at week 4, with no statistically significant changes at EOT or SVR24. At EOT, no patients had APRI ≥1.5, whereas two patients had FIB-4 >3.25. A borderline decrease in FIB-4, observed at SVR12, should be interpreted cautiously due to the limited sample size and missing data (Table 2).

A strong positive correlation between the reduction in APRI scores (ΔAPRI) and the decrease in ALT levels (ΔALT) was observed at week 4 (Spearman's $\rho=0.822$, $p<0.001$; n=38) and persisted at EOT ($\rho=0.894$, $p<0.001$; n=33). Although correlation coefficients declined during follow-up, the associations remained statistically significant (SVR12: $\rho=0.693$, $p<0.001$; n=21; SVR24: $\rho=0.715$, $p<0.001$; n=20).

In contrast, no significant correlation was found between changes in FIB-4 scores (ΔFIB-4) and ALT reduction at week 4 (Spearman's $\rho=0.227$, $p=0.159$). A weak-to-moderate association was observed at EOT ($\rho=0.423$, $p=0.011$), but this relationship was not sustained during follow-up.

At week 4 of treatment, HCV-RNA was undetectable in all but three patients, whose HCV-RNA levels were 70, 80, and 135 IU/mL, respectively. At EOT and week 12, all 23 patients with available data were HCV-RNA negative. Similarly, all 19 patients with available data at week 24 remained HCV-RNA negative. Both SVR12 and SVR24 rates were 100%.

In subgroup analyses based on fibrosis level, patients with baseline APRI ≥1.5 showed more pronounced reductions in ALT and AST levels compared with those with APRI <1.5 (Mann-Whitney U test, $p<0.05$).

Comparisons between treatment regimens could not be performed due to a disproportionate distribution. All treatment regimens were well tolerated, with no treatment discontinuations or serious adverse events reported.

Discussion

In this study, biochemical and virological responses, as well as changes in non-invasive fibrosis markers, were evaluated using real-world data from patients with chronic HCV infection treated with DAAs. Our findings demonstrate marked biochemical improvement during the early treatment period, high rates of SVR, and distinct temporal dynamics of non-invasive fibrosis indices.

Randomized controlled trials have reported SVR rates of 95-99% with DAA therapies across different genotypes (7,8,9,10,11,12,13). In our study, the observation of 100% SVR12 and SVR24 rates among patients with available data further supports the high efficacy and reliability of current DAA regimens in real-world clinical practice.

Regarding the biochemical response, ALT and AST levels normalized rapidly and markedly, particularly during the early treatment period. Early normalization of transaminases following DAA therapy reflects the prompt resolution of biochemical inflammation. Previous studies have reported ALT normalization rates of approximately 85% as early as two weeks after treatment initiation, increasing to over 90% at SVR12. An early biochemical response not only reflects virological suppression but also serves as an important indicator of treatment response in clinical practice. Long-term follow-up studies have shown that biochemical improvement is largely sustained, although a small proportion of patients may exhibit persistent or recurrent ALT elevation despite achieving SVR, often due to non-HCV-related factors such as

Table 2. Biochemical and fibrosis markers over time

Parameter	Baseline	Week 4	EOT	SVR12	SVR24	p-value*
ALT (U/L), median (IQR)	45 (27.5-65.5)	15 (12.75-20.25)	15 (13-18)	12 (10.5-16)	15 (14-17)	<0.001
AST (U/L), median (IQR)	37 (27-48)	19.5 (18-24.25)	21 (17-24.5)	19 (17-22.5)	21 (16.25-21)	<0.001
APRI, median (IQR)	0.369 (0.272-0.552)	0.21 (0.17-0.30)	0.232 (0.178-0.284)	0.240 (0.18-0.29)	0.199 (0.176-0.258)	<0.001
FIB-4, median (IQR)	1.272 (0.849-1.659)	1.10 (0.86-1.58)	1.151 (0.978-1.542)	1.40 (0.91-1.74)	1.174 (0.696-1.740)	0.08
APRI ≥1.5, n (%)	3 (7.0)	0	0	0	0	—
FIB-4 >3.25, n (%)	2 (4.7)	2	2	0	0	—

*p-values represent comparisons between baseline and the last available follow-up using the Wilcoxon signed-rank test. SVR: Sustained virological response, ALT: Alanine aminotransferase, AST: Aspartate aminotransferase, IQR: Interquartile range, FIB-4: Fibrosis-4 index, APRI: AST to platelet ratio index, EOT: End of treatment

metabolic syndrome, non-alcoholic fatty liver disease, or alcohol use (14,15).

When evaluated together, APRI and FIB-4 demonstrated different response patterns to antiviral therapy. The early and marked decline in APRI scores suggests that individuals with higher inflammatory activity may exhibit a more pronounced biochemical response to antiviral treatment. The greater reduction in ALT levels among patients with baseline APRI ≥1.5 further supports this observation.

Although a statistically significant reduction in FIB-4 scores was observed at week 4, the lack of sustained significance during follow-up suggests that this index may be less influenced by short-term biochemical changes and, therefore, represent a more stable marker of fibrosis burden. The weak and inconsistent association between changes in FIB-4 scores and reductions in ALT further supports this interpretation. Previous studies have similarly reported significant and sustained decreases in APRI scores after DAA therapy, whereas changes in FIB-4 scores were more limited and occurred later in the follow-up period (16). These findings indicate that APRI and FIB-4 should not be considered interchangeable markers reflecting the same biological process, but rather complementary parameters representing different pathophysiological components that evolve on different time scales following DAA therapy.

All treatment regimens were well tolerated, with no serious adverse events or treatment discontinuations, consistent with existing real-world safety data on DAA therapies (17).

Study Limitations

This study has several limitations. Its retrospective and single-center design, relatively small sample size, and limited follow-up duration limit assessment of long-term fibrosis regression. The retrospective design and limited sample size reduced statistical power in some subgroup analyses, and comparisons between treatment regimens could not be performed because of unequal distribution across regimens. The absence of histological confirmation or elastography data limited the assessment of fibrosis to serological scores. Nevertheless, the presentation of real-world data, demonstration of virological success at all follow-up points, and detailed evaluation of the temporal behavior of APRI and FIB-4 scores represent notable strengths of this study.

No external financial support was received for this study. The authors declare no conflicts of interest.

Conclusion

G/P and other DAA regimens provide high SVR rates and rapid biochemical improvement under real-world conditions. The marked reduction in APRI scores suggests regression of inflammatory activity, whereas the limited change in FIB-4 scores indicates that longer follow-up periods may be required to assess fibrosis regression. These findings provide real-world evidence from Türkiye, supporting the effectiveness and safety of DAA therapies in clinical settings aligned with global HCV elimination goals.

Ethics

Ethics Committee Approval: Ethical approval for the study was obtained on 17 December 2024 from the Clinical Research Ethics Committee of the University of Health Sciences Türkiye, Şişli Hamidiye Etfal Training and Research Hospital (approval number: 4669).

Informed Consent: Written informed consent was waived due to the retrospective design of the study.

Footnotes

Authorship Contributions

Surgical and Medical Practices: Ö.G., N.D.D., B.Ç.A., C.A.T., O.D., G.Ç., H.M.T., A.Ö., D.Y.S., İ.D., Concept: Ö.G., N.D.D., H.M.T., Design: Ö.G., O.D., Data Collection or Processing: Ö.G., N.D.D., B.Ç.A., G.Ç., Analysis or Interpretation: Ö.G., N.D.D., C.A.T., O.D., H.M.T., Literature Search: Ö.G., A.Ö., Writing: Ö.G., D.Y.S., İ.D.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declare no financial support.

References

1. Petruzziello A, Marigliano S, Loquercio G, Cozzolino A, Cacciapuoti C. Global epidemiology of hepatitis C virus infection: an up-date of the distribution and circulation of hepatitis C virus genotypes. World J Gastroenterol. 2016;22:7824-7840.
2. World Health Organization. Hepatitis C [fact sheet on the Internet]. Geneva: World Health Organization; 2023. Available from: https://www.who.int/news-room/fact-sheets/detail/hepatitis-c
3. Republic of Türkiye Ministry of Health, General Directorate of Public Health. Viral hepatitis programs and documents [Internet]. Ankara: Ministry of Health; 2023. Available from: https://hsgm.saglik.gov.tr/tr/dokumanlar-bulasicihastaliklar/bulasici-programlar.html
4. Akarca US, Baykam N, Güner R, Günşar F, İdilman R, Kaymakoğlu S, Köksal İ, Tabak F, Yamazhan T. Eliminating viral hepatitis in Turkey: achievements and challenges. Viral Hepat J. 2022;28:47-54.
5. Sarı ND, Baltalı S, Serin İ. Evaluation of hepatitis C in 20 years: a Turkish experience. Bagcilar Med Bull. 2023;8:363-369.
6. Bhattacharya D, Aronsohn A, Price J, Lo Re V; AASLD-IDSA HCV Guidance Panel. Hepatitis C guidance 2023 update: AASLD-IDSA recommendations for testing, managing, and treating hepatitis C virus infection. Clin Infect Dis. 2023:ciad319.
7. Lampertico P, Carrión JA, Curry M, Turnes J, Cornberg M, Negro F, Brown A, Persico M, Wick N, Porcalla A, Pangerl A, Crown E, Larsen L, Yu Y, Wedemeyer H. Real-world effectiveness and safety of glecaprevir/pibrentasvir for the treatment of patients with chronic HCV infection: a meta-analysis. J Hepatol. 2020;72:1112-1121.
8. Binay UD, Karakeçili F, Barkay O, Gül Ö. Real-life data of chronic hepatitis C patients treated with direct-acting oral antivirals: a single-center study. Istanbul Med J. 2023;24:116-119.
9. Sagalova OI, Adonieva VS, Zotov SV, Gusev DA, Strebkova EA, Galbraikh RB, et al. Effectiveness of glecaprevir/pibrentasvir in patients with chronic HCV infection genotypes 1 to 6 in real-world settings in Russia (EVEREST study). J Infectol. 2023;15:45-53.
10. Asselah T, Lee SS, Yao BB, Nguyen T, Wong F, Mahomed A, Lim SG, Abergel A, Sasadeusz J, Gane E, Zadeikis N, Schnell G, Zhang Z, Porcalla A, Mensa FJ, Nguyen K. Efficacy and safety of glecaprevir/pibrentasvir in patients with chronic hepatitis C virus genotype 5 or 6 infection (ENDURANCE-5,6):

an open-label, multicentre, phase 3b trial. Lancet Gastroenterol Hepatol. 2019;4:45-51.

11. Feld JJ, Jacobson IM, Hézode C, Asselah T, Ruane PJ, Gruener N, Abergel A, Mangia A, Lai CL, Chan HL, Mazzotta F, Moreno C, Yoshida E, Shafran SD, Towner WJ, Tran TT, McNally J, Osinusi A, Svarovskaia E, Zhu Y, Brainard DM, McHutchison JG, Agarwal K, Zeuzem S; ASTRAL-1 Investigators. Sofosbuvir and velpatasvir for HCV genotype 1, 2, 4, 5, and 6 infection. N Engl J Med. 2015;373:2599-2607.
12. Liu X, Hu P. Efficacy and safety of glecaprevir/pibrentasvir in patients with chronic HCV infection. J Clin Transl Hepatol. 2021;9:125-132.
13. Zerdali E, Bozkurt M, Yılmaz Nakir İ, Pehlivanoğlu F. Long-term outcomes of patients with chronic hepatitis C treated with direct-acting antivirals in Turkey. Viral Hepat J. 2024;30:70-76
14. Huynh T, Zhang J, Hu KQ. Hepatitis C virus clearance by direct-acting antiviral results in rapid resolution of hepatocytic injury as indicated by both alanine aminotransferase and aspartate aminotransferase normalization. J Clin Transl Hepatol. 2018;6:258-263.
15. Chadha N, Turner A, Sterling RK. Prevalence and predictors of abnormal alanine aminotransferase in patients with HCV who have achieved SVR. J Viral Hepat. 2023;30:73-78.
16. Tahtasakal CA, Oncul A, Sevgi DY, Demirbas D, Gunduz A, Dokmetas I. Fibrosis scores that can be used in follow-up of after direct-acting antiviral treatment: APRI, FIB-4, King score and GUCI. Eur J Gastroenterol Hepatol. 2022;34:308-315.
17. Al-Naamani KM, Omar H, Al Busafi SA, Al Shuaili HH, Al-Naamani Z, Al-Khabori M, Said EA, AlKalbani AH, Kamath BR, Emad B, Daar S, Alhajri L, AlKalbani A, AlFarsi Z, Alzuhaibi H. Real-world experience, effectiveness, and safety of direct-acting antivirals for the treatment of hepatitis C in Oman: a cross-sectional, multicenter study. J Clin Med. 2024;13:7411.