### Peginterferon/Ribavirin-Experienced, Genotype 3 Patients With Compensated Cirrhosis

Recommended and alternative regimens listed by evidence level and alphabetically for:

<table>
<thead>
<tr>
<th>RECOMMENDED</th>
<th>DURATION</th>
<th>RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily fixed-dose combination of glecaprevir (300 mg)/pibrentasvir (120 mg)&lt;sup&gt;b&lt;/sup&gt;</td>
<td>16 weeks</td>
<td>IIa, B</td>
</tr>
<tr>
<td>Daily fixed-dose combination of sofosbuvir (400 mg)/velpatasvir (100 mg)/voxilaprevir (100 mg)</td>
<td>12 weeks</td>
<td>IIb, B</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ALTERNATIVE</th>
<th>DURATION</th>
<th>RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily fixed-dose elbasvir (50 mg)/grazoprevir (100 mg) plus sofosbuvir (400 mg)</td>
<td>12 weeks</td>
<td>I, B</td>
</tr>
<tr>
<td>Daily fixed-dose combination of sofosbuvir (400 mg)/velpatasvir (100 mg) plus weight-based ribavirin</td>
<td>12 weeks</td>
<td>II, B</td>
</tr>
</tbody>
</table>

<sup>a</sup> For **decompensated cirrhosis**, please refer to the appropriate section.  
<sup>b</sup> Dosing is 3 coformulated tablets (glecaprevir [100 mg]/pibrentasvir [40 mg]) taken once daily. Please refer to the prescribing information.

## Recommended Regimens

### Glecaprevir/Pibrentasvir

The SURVEYOR-II, part 3 trial evaluated the safety and efficacy of a 12-week or 16-week course of the daily fixed-dose combination of glecaprevir (300 mg)/pibrentasvir (120 mg) administered as three 100 mg/40 mg fixed-dose combination pills in treatment-naive or -experienced (standard or peginterferon ± ribavirin, or sofosbuvir plus ribavirin ± peginterferon), genotype 3 patients without cirrhosis or with compensated cirrhosis. Among the 47 treatment-experienced participants with compensated cirrhosis who were treated for 16 weeks, the SVR12 was 96% (45/47). One of the virologic failures was a relapse and the other was a viral breakthrough. The patient with viral breakthrough had low serum DAA levels at week 4 of the study, suggesting poor adherence. The patient with relapse did not have baseline NS3 or NS5A RASs but did have dual NS5A RASs emerge at the time of failure (<cite>Wyles, 2018</cite>). Sixteen weeks of glecaprevir/pibrentasvir is a recommended regimen for peginterferon/ribavirin-experienced patients with cirrhosis and genotype 3 given the high SVR and lack of need for the addition of ribavirin to the regimen.

### Sofosbuvir/Velpatasvir/Voxilaprevir

The efficacy of the daily fixed-dose combination of sofosbuvir (400 mg)/velpatasvir (100 mg)/voxilaprevir (100 mg) in
genotype 3 patients is supported by the phase 3 POLARIS trials, which investigated 8 weeks of sofosbuvir/velpatasvir/voxilaprevir in DAA-naive patients and 12 weeks in DAA-experienced patients. The 8-week regimen achieved a 96% SVR, which was noninferior to a 12-week sofosbuvir/velpatasvir regimen in the POLARIS-3 study, which included 35 interferon-experienced, cirrhotic patients with genotype 3 (Jacobson, 2017). Thus, this regimen is recommended in cirrhotic patients with genotype 3.

**Alternative Regimens**

**Elbasvir/Grazoprevir + Sofosbuvir**

The C-ISLE study evaluated the daily fixed-dose combination of elbasvir (50 mg)/grazoprevir (100 mg) plus sofosbuvir, with or without ribavirin, for 8 weeks to 16 weeks among treatment-naive or -experienced, genotype 3 patients with compensated cirrhosis. One hundred patients were enrolled, including 53 with a history peginterferon/ribavirin failure. Treatment-experienced participants were randomized to 12 weeks of elbasvir/grazoprevir plus sofosbuvir, 12 weeks of elbasvir/grazoprevir plus sofosbuvir and weight-based ribavirin, or 16 weeks of elbasvir/grazoprevir plus sofosbuvir (Foster, 2016b). All 3 arms had 100% SVR on the per protocol analysis, with 17 patients in each arm. The efficacy was high regardless of the presence of baseline RASs, including 3 patients with the Y93H substitution.

**Sofosbuvir/Velpatasvir + Ribavirin**

The phase 3 ASTRAL-3 study evaluated the daily fixed-dose combination of sofosbuvir (400 mg)/velpatasvir (100 mg) for 12 weeks (without ribavirin) in 277 genotype 3 patients, including 71 with prior treatment experience and 80 with compensated cirrhosis (Foster, 2015a). Despite a high combined SVR12 of 95% (264/277), prior treatment (90% SVR12), Y93H substitution RAS (84% SVR12), and compensated cirrhosis (91% SVR12) had a moderate negative impact on treatment response. Among those with both compensated cirrhosis and prior treatment, the SVR12 was 89% (33/37). Similarly, in the POLARIS-3 study among peginterferon/ribavirin-experienced, cirrhotic genotype 3 patients treated for 12 weeks with sofosbuvir/velpatasvir, the SVR12 was 91% (29/32). (Jacobson, 2017).

The addition of ribavirin to the combination of sofosbuvir/velpatasvir was evaluated in genotype 3, cirrhotic patients (Esteban, 2018). In this study, 91% (92/101) of patients achieved SVR12 when treated with sofosbuvir/velpatasvir alone compared to 96% (99/103) of patients achieving SVR12 when ribavirin was added to the regimen. The largest benefit of the addition of ribavirin was seen in patients with baseline NS5A RAS with 84% (16/19) achieving SVR12 in the sofosbuvir/velpatasvir group compared to an SVR12 of 95% (21/22) in the sofosbuvir/velpatasvir plus ribavirin group. There were relatively small numbers of treatment-experienced patients enrolled in this study (27% overall). However, among the peginterferon/ribavirin-experienced patients, 93% (13/14) treated with sofosbuvir/velpatasvir achieved SVR12 whereas all 18 patients treated with sofosbuvir/velpatasvir plus ribavirin achieved SVR12.

Cirrhotic patients with genotype 3 and a prior non-DAA treatment failure are among the most difficult to treat. For this reason, ribavirin is recommended for all patients receiving sofosbuvir/velpatasvir, making this an alternative regimen.

**Last update:** November 6, 2019

**Related References**

doi:10.1053/j.gastro.2018.06.042.


