Rivaroxaban (Xarelto®): An Oral Option for DVT Prophylaxis

The FDA approved rivaroxaban (Xarelto®) in July 2011, the first oral anti-Xa agent for the prevention of venous thromboembolism (VTE) in adult patients undergoing knee or hip replacement surgery.

Tradjenta™: A new dipeptidyl peptidase IV inhibitor for Type 2 Diabetes Mellitus

In May, 2011, linagliptin (Tradjenta™) became the third FDA-approved dipeptidyl peptidase IV (DPP-IV) inhibitor for type 2 diabetes mellitus (T2DM).

Viibryd™: A New Antidepressant for Major Depressive Disorder

Vilazodone (Viibryd ™) is the newest selective serotonin reuptake inhibitor (SSRI), which was approved by the Food and Drug Administration (FDA) in January 2011 for the treatment of major depressive disorder (MDD).

New Drug Therapy Options for Hepatitis C Virus Infection

In May of this year, the FDA approved two new medications for the treatment of chronic hepatitis C genotype 1: telaprevir (Incivek™) and boceprevir (Victrelis™) by Vertex and Merck respectively.

Rivaroxaban (Xarelto®): An Oral Option for DVT Prophylaxis

Hillary Freeman, Pharm.D.

The FDA approved rivaroxaban (Xarelto®) in July 2011, the first oral anti-Xa agent for the prevention of venous thromboembolism (VTE) in adult patients undergoing knee or hip replacement surgery. This medication offers a novel route of administration for a factor Xa inhibitor, adding to standard subcutaneous prophylactic treatments such as enoxaparin (Lovenox®). Rivaroxaban selectively blocks the active site of factor Xa without requiring a cofactor (i.e. anti-thrombin III). For the prevention of VTE, the dose is a 10 mg tablet once daily beginning at least 6 – 10 hours after surgery once hemostasis is established. Treatment should be continued for ~5 weeks (35 days) following hip replacement surgery and ~2 weeks (12 days) after knee replacement. Rivaroxaban in general is 80-100% bioavailable and rapidly absorbed in the gastrointestinal tract, reaching peak concentrations within 2 – 4 hours. Food intake doesn’t alter the absorption of rivaroxaban and the medication may be taken with or without food; however, absorption depends on the site of drug release. Absorption is
significantly decreased in the small intestine; therefore, if the drug is to be crushed and administered through a feeding tube, gastric placement of the tube should be ensured to avoid deposition in the small intestine. Rivaroxaban is found predominantly unchanged in the plasma where it is highly protein bound, 92-95%. Elimination is through the urine and feces, with a $t_{1/2}$ of 5-9 hours in healthy patients aged 20-45 years. The major mechanisms of rivaroxaban metabolism are oxidative degradation by CYP3A4/5 and CYP2J2 and hydrolysis. As a substrate of the efflux transporter proteins P-glycoprotein (Pgp) and ABCG2, rivaroxaban concentrations are increased when Pgp is inhibited and decreased when Pgp is overly expressed, due to reduced absorption. Therefore, medications that are combined P-gp inhibitor and CYP3A4 strong inhibitors (i.e. ketoconazole, ritonavir, clarithromycin) or weak/moderate CYP3A4 inhibitors(i.e. erythromycin) should be avoided as concentrations may increase. Also, CYP3A4 inducers (i.e. carbamazepine, rifampin, rifampin, St. John’s wort) should be avoided as concentrations may be decreased. A dose increase to 20 mg with food (two 10 mg tablets per package insert) may be considered if P-gp and CYP3A4 inducers are concomitantly used due to decreased concentrations of rivaroxaban. Also, renally impaired patients taking Pgp inhibitors that are also weak CYP3A4 inhibitors (i.e. amiodarone, diltiazem, macrolides) may have an increased risk of bleeding. Caution is recommended with concurrent use of other anticoagulants such as NSAIDs, and clopidogrel should be avoided unless the benefit is greater than risk. This drug is a Pregnancy Category C and should be avoided in nursing mothers due to potential of excretion into breast milk. In comparison, enoxaparin is Category B.

Precautions for Rivaroxaban in Special Populations:

- **Renal Impairment:** Avoid with CrCl<30mL/min; Caution with CrCl 30-50mL/min - increased effect observed (single 10 mg dose) vs. with normal renal function
- **Hepatic Impairment:** Avoid – increases in exposure and effects with Class B hepatic disease (single 10 mg dose)
- **Race:** Japanese, 50% higher exposures
- **Elderly:** Higher plasma concentrations due to reduced total body and renal clearance
- **Obesity:** No dosage adjustments recommended; body weight did not influence exposure

The most common adverse effect of rivaroxaban is bleeding and special caution should be used in those prone to hemorrhage. Rivaroxaban is contraindicated in patients with active major bleeding or in patients with hypersensitivity to the drug and contains a black box warning for spinal anesthesia which could result in epidural or spinal hematoma. Other less common side effects include: wound secretion, musculoskeletal pain/ spasm, syncope, pruritis, and blisters. There have been postmarketing reports of Steven-Johnson syndrome, agranulocytosis, jaundice, hemorrhage, and hypersensitivity reactions - rivaroxaban should be avoided in those with known hypersensitivity.
The RECORD trials studied > 12,000 patients undergoing total hip replacement (RECORD 1, 2) and total knee replacement (RECORD 3, 4) and are the largest orthopedic trials completed to date. All 4 were randomized, double-blind, parallel group, multicentre, double-dummy studies with results of comparable safety and similar low rates of major bleeding. In RECORD 1, 2 and 3, there were fewer VTE in patients receiving rivaroxaban 10 mg than those receiving enoxaparin 40 mg subcutaneous (SC) daily. The RECORD 4 trial used the FDA indicated dosage of enoxaparin 30 mg twice daily for knee replacement DVT prophylaxis compared with rivaroxaban 10 mg daily and showed a significantly decreased risk of total VTE incidence. In RECORD 1, 2 and 3, enoxaparin was initiated the evening before surgery, whereas rivaroxaban was initiated 6 – 8 hrs after surgery. In RECORD 4, both therapies were initiated post operatively (rivaroxaban 6 – 8 hrs, enoxaparin 12 – 24 hrs). Additional studies are investigating the clinical usefulness of rivaroxaban in both acute (VTE prophylaxis in medically ill pts) and chronic indications (VTE treatment and secondary prevention, stroke prevention in atrial fibrillation, secondary prevention in acute coronary syndrome).

Table 1 – Clinical Trials Overview: Rivaroxaban 10 mg daily vs. Enoxaparin

<table>
<thead>
<tr>
<th>Trials</th>
<th>Population</th>
<th>Rivaroxaban Duration</th>
<th>Enoxaparin Dosing/Duration</th>
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<tr>
<td>RECORD 1</td>
<td>Total hip</td>
<td>35+/-4 days</td>
<td>40 mg SC qday</td>
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<td>35+/-4 days</td>
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<tr>
<td>RECORD 2</td>
<td>Total hip</td>
<td>35+/-4 days</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>12+/-2 days</td>
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<tr>
<td>RECORD 3</td>
<td>Total knee</td>
<td>12+/-2 days</td>
<td>40 mg SC qday*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>12+/-2 days</td>
</tr>
<tr>
<td>RECORD 4</td>
<td>Total knee</td>
<td>12+/-2 days</td>
<td>30 mg SC BID</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>12+/-2 days</td>
</tr>
</tbody>
</table>

Outcomes: Rivaroxaban groups had lower risks of total VTE than enoxaparin, with similar bleeding profiles

*Enoxaparin is not FDA approved for knee replacement surgery at this dose
Patients taking rivaroxaban should be warned about the risk of bleeding and advised to seek evaluation of signs and symptoms of blood loss or bruising. As with other factor Xa inhibitors, there are no labs used to monitor anticoagulant effect and no agents to reverse bleeding. Also, rivaroxaban efficacy is not affected by dietary factors, unlike vitamin K’s effect on warfarin. Rivaroxaban is available for approximately $7 per day, an affordable option, compared with enoxaparin $25-50 per day (Meds and Threads estimated prices). In conclusion, the oral availability of rivaroxaban is appealing for many patients needing VTE prophylaxis and may be an appropriate and more convenient method of administration.

References:


Tradjenta™: A new dipeptidyl peptidase IV inhibitor for Type 2 Diabetes Mellitus
Lucy Cadwallader, Pharm.D.

In May, 2011, linagliptin (Tradjenta™) became the third FDA-approved dipeptidyl peptidase IV (DPP-IV) inhibitor for type 2 diabetes mellitus (T2DM). DPP-IV is an enzyme that deactivates peptides. Two of these peptides, gastric inhibitory polypeptide (GIP) and glucagon-like peptide-1 (GLP-1), play an important role in glucose homeostasis. DPP-IV inhibitors indirectly affect glucose control through several mechanisms. They primarily act to decrease post-prandial glucose, with additional effects on fasting plasma glucose. Some advantages of this class of medications are
oral administration, the relatively low incidence of hypoglycemia, the lack of associated weight gain, and the ability to take without regard to meals. Some disadvantages of the DPP-IV inhibitors include the lack of long-term safety and efficacy data and their relatively low reduction in A1C.¹

Similar to the other DPP-IV inhibitors, Tradjenta™ is approved as monotherapy and combination therapy as an adjunct to diet and exercise to improve glycemic control in adults with T2DM. It may also be used to supplement therapy with metformin, a sulfonylurea, or a thiazolidinedione.² Current American Diabetes Association (ADA) Guidelines recommend metformin as the initial pharmacologic treatment of most patients with T2DM. Sulfonylureas and insulin products are recommended first line for further glucose lowering. Due to the unknown long-term safety information of the DPP-IV inhibitors, the ADA has classified this class as a less well validated treatment option for individuals with T2DM.¹ In contrast, the American Academy of Clinical Endocrinologists includes DPP-IV inhibitors as an option in the initial treatment of patients with T2DM.³

The primary difference between linagliptin (Tradjenta™) and the other DPP-IV inhibitors, saxagliptin (Onglyza™) and sitagliptin (Januvia™), is that Tradjenta™ does not have to be dose adjusted in patients with renal impairment. In clinical trials, the most common adverse reaction reported with Tradjenta™, similar to the other agents in this class, was nasopharyngitis. Other potential class adverse effects include arthralgia, headache, and hypoglycemia (especially when used concomitantly with a sulfonylurea). More serious potential adverse effects that have been reported in postmarketing studies with the DPP-IV inhibitors are hypersensitivity reactions, including angioedema, anaphylaxis, acute pancreatitis, urticaria, and exfoliative skin reactions.²,⁴,⁵

Tradjenta™ is classified as pregnancy category B, with no well-controlled studies yet performed in pregnant women. Use in nursing mothers should be used with caution, as it is not known whether the drug is excreted in human milk.¹

**Conclusion:** The role of the DPP-IV inhibitors in the treatment of T2DM will become more established over time. There currently appears to be no significant difference in the efficacies of the agents in this class. Tradjenta™ may be beneficial in adults with renal impairment; however, studies are needed to evaluate the long-term safety and efficacy of this agent in the treatment of T2DM.

See table below for a comparison of the currently available agents.
Comparison of the three available DPP-IV inhibitors: ²⁴⁵

<table>
<thead>
<tr>
<th></th>
<th>Linagliptin (Tradjenta™)²</th>
<th>Saxagliptin (Onglyza™)⁴</th>
<th>Sitagliptin (Januvia™)⁵</th>
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<tr>
<td><strong>A1C reduction</strong></td>
<td>0.5-0.9%</td>
<td>0.4-0.9%</td>
<td>0.6-1%</td>
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<tr>
<td>(monotherapy)</td>
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<tr>
<td><strong>Availability</strong></td>
<td>5mg tablet</td>
<td>2.5mg, 5mg tablet</td>
<td>25mg, 50mg, 100mg tablet</td>
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<tr>
<td></td>
<td></td>
<td>In combination with</td>
<td>In combination with</td>
</tr>
<tr>
<td></td>
<td></td>
<td>metformin (Kombiglyze™):</td>
<td>metformin (Janumet™):</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.5/1000mg, 5/500mg,</td>
<td>50/500mg and</td>
</tr>
<tr>
<td></td>
<td></td>
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<td>50/1000mg tablet</td>
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<td><strong>Dosing</strong></td>
<td>5 mg PO once daily</td>
<td>2.5-5 mg PO once daily</td>
<td>100 mg PO once daily</td>
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<td></td>
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<td>CrCl ≤ 50mL/min or</td>
<td>CrCl 30 to 50 mL/min:</td>
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<tr>
<td></td>
<td></td>
<td>concomitant strong</td>
<td>50 mg PO once daily</td>
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<tr>
<td></td>
<td></td>
<td>CYP3A4 inhibitors: 2.5</td>
<td>CrCl &lt;30 mL/min: 25 mg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>mg PO once daily</td>
<td>PO once daily</td>
</tr>
</tbody>
</table>

References:

VIIBRYD™: A New Antidepressant for Major Depressive Disorder

Livia R. Macedo, Pharm.D.

INTRODUCTION

Vilazodone (Viibryd™) is the newest selective serotonin reuptake inhibitor (SSRI), which was approved by the Food and Drug Administration (FDA) in January 2011 for the treatment of major depressive disorder (MDD).1 In the United States, MDD is a major problem that affects about 1 in 10 adults. Additionally, Mississippi leads the nation with 14.8% of adults currently classified as having depression.2 SSRIs and serotonin-norepinephrine reuptake inhibitors (SNRIs) are often prescribed to treat depression. These second generation drugs are popular because they have fewer side effects and are relatively safer with less of a toxicity risk if overdosed than first generation depression treatments (i.e., tricyclics and monoamine oxidase inhibitors [MAOIs]). Vilazodone is a novel SSRI, different than previous SSRIs in that it is a partial agonist at serotonergic 5HT1A receptors.3,4

CLINICAL TRIALS

In a randomized, double-blind, placebo-controlled study involving 410 patients, vilazodone given over a period of 8 weeks proved to be effective for the treatment of MDD. The initial dose administered was 10 mg once daily titrated to 40 mg once daily within a 2-week period. Vilazodone showed a significantly higher response rate than placebo on the Montgomery-Arberg Depression Rating Scale (MADRS) (p=0.007), Hamington Rating Scale for Depression (HAM-D-17) (p=0.011), and Clinical Global Impressions of Improvement (CGI-I) (p=0.001).4

A second study further evaluated the efficacy and safety of vilazodone in 481 adults during an 8-week period. Vilazodone showed a significantly higher response rate versus placebo in MADRS (p=0.002). Additionally, greater improvements from baseline were seen in Hamilton Depression Rating Scale response and change (HDRS-17) (p=0.026), (HDRS-21) (p=0.029), Hamilton Anxiety Rating Scale (HARS) (p=0.037), Clinical Global Impressions-Severity Illness (CGI-S) (p=0.004), and CGI-I (p=0.004).5
There have been no head to head trials comparing vilazodone to other SSRIs or antidepressants. Because of vilazodone’s unique pharmacological mechanisms, it may be an option for patients with both MDD and anxiety who would rather take one medication versus two or more medications to treat both disorders. However, there is currently no clinical evidence to support this theoretical consideration and there are no ongoing studies.

PHARMACODYNAMICS AND PHARMACOKINETICS

Vilazodone binds with high affinity to the serotonin reuptake site and selectively inhibits reuptake of serotonin. It does not bind to the norepinephrine or dopamine reuptake sites. Additionally, it has a partial agonist activity at serotonergic 5HT\textsubscript{1A} receptors\textsuperscript{3}, a similar mechanism of action seen with medications used to treat anxiety, such as buspirone. However, its contribution and effects on the 5HT\textsubscript{1A} receptor site are unknown.

The oral bioavailability of vilazodone is 72% with food. Its half-life is approximately 25 hours and it takes about 3 days to reach steady state. Vilazodone is highly protein-bound (~96-99%) and is extensively metabolized through CYP and non-CYP pathways, with less than 2% of the dose excreted in feces and urine as unchanged vilazodone. Its metabolism is mainly hepatic via CYP3A4, with minor contributions from CYP2C19 and CYP2D6. Strong CYP3A4 inhibitors, such as ketoconazole, may increase the concentration of vilazodone by 50%, whereas, CYP3A4 inducers, such as rifampin, have the potential to decrease vilazodone’s effectiveness.\textsuperscript{3}

ADVERSE REACTIONS AND DRUG INTERACTIONS

The most common side effects associated with vilazodone are diarrhea and nausea. Other possible side effects include dry mouth, vomiting, dizziness, and insomnia. Similar to other antidepressants, vilazodone has a Black Box Warning of increased risk of suicidal behavior. Patients and caregivers should be instructed to report any unusual behavior to their health care professional. In an 8-week, placebo-controlled trial, the percentage of weight gain with vilazodone was comparable to placebo; however, a longer study period may be needed to fully confirm this finding.\textsuperscript{3} Additionally, no clinically significant effect on sexual function was seen; however, sexual side effects such as decreased libido and abnormal orgasm have been reported.\textsuperscript{3,4}

Concurrent use of vilazodone and MAOIs are absolutely contraindicated. When switching from vilazodone to a MAOI or vice-versa, there should be a minimum 14 day washout period.\textsuperscript{3} As with other SSRIs, vilazodone may increase the risk of bleeding due to possible effects on platelet aggregation and should be used with caution in patients taking aspirin, NSAIDS, warfarin or other blood thinning agents.\textsuperscript{1,3} The dosage of vilazodone should be reduced if strong CYP3A4 inhibitors are coadministered. CYP3A4 inducers used concomitantly with vilazodone can decrease its effectiveness. The risk of
using vilazodone concurrently with other CNS-active drugs has not been fully evaluated; therefore, caution is advised if combinations are needed.

**DOSAGE AND ADMINISTRATION**

Vilazodone is available as 10, 20, and 40 mg tablets. The oral dosage of vilazodone should be titrated, starting with 10 mg once daily for 7 days, and then increased to 20 mg once daily for 7 days, to a maximum of 40 mg once daily. Vilazodone should be taken with food for better absorption.¹³ Patients taking vilazodone concurrently with strong CYP 3A4 inhibitors should use lower doses of 20 mg daily. If treatment discontinuation is desired, the drug should be gradually reduced. No dose adjustments are needed in patients with mild and moderate hepatic impairment or mild, moderate, and severe renal impairment.

**SPECIAL POPULATIONS**

Clinical studies have not been conducted in children and limited data exists in patients older than 65 years of age.¹³ Neonates exposed to serotonergic antidepressants late in the third trimester have developed complications requiring prolonged hospitalization, respiratory support, and tube feeding. Since vilazodone is classified as pregnancy category C, careful consideration of whether potential benefits outweigh the potential risks of treatment should be given when treating pregnant women. Vilazodone has not been studied in patients with severe hepatic impairment.

**COST CONSIDERATIONS AND PATIENT ASSISTANCE INFORMATION**

As with most newly approved medications, vilazodone is expensive and not available as generic. The average wholesale price (AWP) is $112.93, a level price for all strengths. A patient assistance program is available and those who qualify may be eligible to receive the medication at no charge.

**CONCLUSION**

In conclusion, vilazodone is a new SSRI with other novel effects. In short-term clinical trials, vilazodone was not associated with weight gain or sexual dysfunction side effects. Vilazodone’s effectiveness and adverse effect profile are promising, however clinical trials of longer duration and in comparison with other antidepressants and psychotropics are needed to fully refine this new medication’s benefit.

**REFERENCES**

New Drug Therapy Options for Hepatitis C Virus Infection

Justinne Guyton, Pharm.D.

Hepatitis C virus (HCV) is the most common chronic bloodborne infection in the United States, affecting approximately 3.2 million people. Sequelae of HCV can range from chronic liver disease to hepatocellular carcinoma, and chronic infection is considered the leading cause for liver transplantation.¹

Common routes of HCV infection include blood transfusion prior to 1992 and injection drug abuse.¹ Preventing new infection has been difficult, as there is no vaccine available. Treatment options focus on achieving a sustained virologic response (SVR), which is defined as the absence of HCV RNA 24 weeks after treatment has stopped and is considered viral cure. Achieving a SVR remains the best predictor of long-term response to treatment. Treatment for chronic HCV is based on the combination of peginterferon alfa and ribavirin, with the dose and duration based on HCV genotype.²

There are at least 6 known genotypes of HCV; genotype 1 is the most common in the United States, accounting for 73% of infections.³ Despite prior recommendations for 48 weeks of treatment, the rate of achieving a SVR in patients with HCV genotype 1 has remained less than 50% with the dual therapy.²

In May of this year, the FDA approved two new medications for the treatment of chronic hepatitis C genotype 1: telaprevir (Incivek™) and boceprevir (Victrelis™) by Vertex and Merck respectively. Telaprevir and boceprevir are both protease inhibitors that target HCV-encoded proteins that are needed for viral replication, specifically the NS3/4A serine protease. Both of these medications were studied in combination with peginterferon alfa and ribavirin and showed a significant increase in the number of patients who achieved a SVR.⁴,⁵
Telaprevir (Incivek™) has been studied in greater than 500 previously untreated adult patients with chronic HCV genotype 1. Patients in the telaprevir added arms had a higher incidence of a SVR, 75% and 69% depending on duration, than those randomized to the peginterferon and ribavirin combination alone, 44%. A second investigation of telaprevir was conducted in greater than 500 patients with HCV genotype 1 who were previously treated with interferon alfa and ribavirin and did not achieve or maintain a SVR (partial response, null response or relapse). Treatment arms that added telaprevir had a high SVR, 64% and 66%, compared to treatment with interferon alfa and ribavirin alone, 17%.

The FDA approved dose of telaprevir is 750 mg orally three times daily with food, which should include 20 grams of fat to increase absorption. Telaprevir is given in combination with peginterferon and ribavirin for the first 12 weeks. Based on HCV RNA, treatment with peginterferon alfa and ribavirin is continued for an additional 12 to 36 weeks. Telaprevir has not been evaluated in patients with moderate or severe hepatic impairment, or those with a CrCl of 50 mL/min or less.

Boceprevir (Victrelis™) has been studied in greater than 700 previously untreated, adult patients with chronic HCV genotype 1. Patients in the boceprevir added arms had a higher incidence of a SVR, 66% and 63% depending on dose, than patients who were randomized to the peginterferon and ribavirin combination alone, 38%. Boceprevir was also studied in greater than 300 patients with HCV genotype 1 who were previously treated with interferon alfa and ribavirin and did not achieve or maintain SVR (null response or relapse). Treatment arms that added boceprevir had a high SVR, 66% and 59%, compared to treatment with interferon alfa and ribavirin alone, 21%.

The FDA approved dose of boceprevir is 800 mg orally three times daily with food. Treatment should begin with peginterferon alfa and ribavirin for 4 weeks, and then boceprevir should be added to the regimen for 24 weeks. Based on HCV RNA levels peginterferon and ribavirin may be continued for an additional 12 weeks. Boceprevir has been studied in patients with severe hepatic impairment and those with end stage renal disease (ESRD) requiring dialysis, no dose adjustments are recommended.

If HCV RNA levels remain high during treatment with either medication, it is not likely that the patient will achieve a SVR and treatment-emergent resistance may develop. Therefore, the therapy should be discontinued in all patients with HCV RNA levels detectable at treatment week 24, and patients with HCV RNA levels greater than 1000 IU/mL or 100 IU/mL at treatment week 12 for boceprevir and telaprevir respectively.

Telaprevir and boceprevir are both substrates of CYP3A4 and are potential inhibitors of P-gp, and therefore may cause significant drug interactions. In addition, telaprevir and boceprevir can decrease the reliability of systemic hormonal contraceptives. While
telaprevir and boceprevir are each pregnancy category B, ribavirin is category X. Pregnancy should be avoided in female patients and female partners of male patients. Two forms of non-hormonal contraceptives, including intrauterine devices and barrier methods, should be recommended during treatment and for 6 months after treatment for patients and their partners.\textsuperscript{4,5}

Adverse effects including rash, nausea, anemia and diarrhea are common with peginterferon alfa and ribavirin. These adverse effects occurred at least 10% more frequently with the addition of telaprevir. Serious skin reactions have occurred with telaprevir that can often be managed with oral antihistamines and topical corticosteroids. Telaprevir should be discontinued if the rash becomes severe, generalized, or has the presence of vesicles, bullae or ulcerations. Side effects that were greater than 10% higher with the addition of boceprevir include rash, dry skin, dysgeusia, anemia and neutropenia. Due to the risk for anemia, patients should have their hemoglobin monitored prior to treatment and at regular intervals during treatment with telaprevir or boceprevir.\textsuperscript{4,5}

The protease inhibitors telaprevir and boceprevir offer increased promise for disease control and viral cure for many patients with chronic HCV. The multitude of drug interactions and some side effects may limit their use in certain patients. These medications are costly, $25,500 – 29,300 for telaprevir and $47,600 for boceprevir, but this expense must be reviewed in the context of the potential change in prognosis and avoidance of long-term complications for many patients living with chronic HCV.

References


Return to top