Don’t Let the Bed Bugs Bite...Really

Bed bugs used to be a problem only in developing countries. However, they have been spreading rapidly in parts of the US, Canada, UK, and other developed countries. Bed bug infestations can occur in houses, dormitories, apartments, homeless shelters, hotels, cruise ships, buses, and trains.

Bed bugs are a public health pest, but do not spread disease. The presence of bed bugs does not mean a room is not clean; bed bugs have been found in five-star hotels and resorts.

Adult bed bugs are long and brown about the size of an apple seed with a flat, oval-shaped body. Young bed bugs are smaller and translucent or whitish yellow color. Bed bug eggs are about the size of a pinhead and pearl-white in color.

When bed bugs bite...

Bed bug bites can look like mosquito bites, rashes, or hives. Itching, welts, or swelling usually occur one to several days after the initial bite. Some people do not react to the bites and do not develop any signs of bites.

To detect bed bugs:

Bed bugs generally avoid light. They hide during the day and feed at night. Bed bugs deposit their eggs in crevices of walls, floors, bedding, and furniture.

A sweet, musty odor in sleeping areas may indicate a heavy bed bug infestation. Look closely at blankets, sheets, and mattress pads for blood specks or shell-like bed bug remains.

Don’t let the bed bugs bite...

- Do not pack or unpack luggage on the bed or floor. Use racks to prevent bed bugs from attaching to your belongings.
- Reduce clutter at home to keep bed bugs from finding a hiding place.
- Vacuuming frequently helps to reduce the bed bug infestations.
- Seal cracks and crevices around baseboards to reduce bed bug hiding places.
- Dry bedding and clothing at high temperatures for 30 minutes to kill bed bugs.
- Contact a pest management professional if the bed bug infestation persists.

To treat bed bug bites:

- Wash bites with soap and water to prevent infection and decrease itching.
- Reduce itching with over-the-counter medications—oral antihistamines or topical antihistamine or corticosteroid creams.
- Bacterial infections can occur due to excessive scratching and broken skin. Talk to your medical provider if you notice blisters, swollen red skin, or oozing sores.

By David Hernández Ángeles, PharmD Candidate

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Varubi™ (rolapitant): Prophylaxis for Delayed CINV

Varubi™ (rolapitant) is a promising new NK-1 receptor antagonist for reducing the incidence of chemotherapy-induced nausea and vomiting (CINV) in the delayed phase of the at-risk period (24-120 hours after chemotherapy).\(^1\) Its long half-life and duration of action allow for a single oral dose (along with concomitant antiemetic administration) to prevent CINV during the entire at-risk period. Unlike other NK-1 antagonists, rolapitant does not appear to exhibit strong inductive or inhibitory effects on CYP3A4, which significantly reduces its potential for interactions with many other medications. Rolapitant is a safe, effective alternative for patients undergoing moderately or highly emetogenic chemotherapy.\(^1\)\(^4\)

Rolaipantan disrupts the signaling pathway responsible for causing delayed phase CINV. Co-administration of rolapitant with other antiemetics provides complete prophylaxis for the entire 120-hour CINV at-risk period.\(^1\)\(^4\)

One oral dose of rolapitant 180 mg (2 tablets) should be administered 1 to 2 hours prior to the start of moderately or highly emetogenic chemotherapy. Dexamethasone and a 5-HT\(_3\) antagonist should be administered concomitantly with rolapitant.\(^1\)\(^4\)

**MEC/AC Trial:** Rolapitant was more likely to result in a complete response than placebo in cancer patients on moderately emetogenic chemotherapy (MEC) regimens (including anthracycline and cyclophosphamide, AC, which are now classified as highly emetogenic).\(^2\) The rolapitant group received a single dose of rolapitant, while the control group received an identical placebo. Both groups also received granisetron and dexamethasone in accordance with recommendations for CINV prophylaxis. A complete response (defined as no vomiting or use of rescue medication) occurred in significantly more rolapitant patients than placebo patients (71.3\% vs. 61.6\%; \(p=0.0002\)).\(^2\)

The MEC/AC study may not be generalizable to other populations because the study population was mostly female. Use of patient-reported events may have affected study results due to potential reporting bias.\(^2\)

**HEC-1/HEC-2 Trials:** Rolapitant was also more effective than placebo in achieving delayed phase CINV response in cancer patients receiving cisplatin-based highly emetogenic chemotherapy (HEC).\(^3\) In two similar studies, patients received either rolapitant or placebo in addition to appropriate doses of granisetron and dexamethasone for CINV prophylaxis. Significantly more patients achieved a complete response during the delayed phase in the rolapitant group than in the control group in both HEC trials. Pooled analysis of both HEC trials demonstrated a better response in rolapitant patients compared to placebo patients (71\% vs. 60\%; \(p = 0.0001\)).\(^3\)

The study populations in both HEC trials were primarily male, which may limit the generalizability of their results. Additionally, the primary endpoint was tracked by patients using a using a daily journal, which may have biased the results.\(^3\)

The rolapitant trials did not compare rolapitant to other available NK-1 antagonists, so no conclusions can be drawn regarding the comparative efficacy of individual NK-1 antagonists for the treatment of CINV.\(^2\)\(^3\) Studies with active comparator drugs and more diverse patient populations are needed to fully determine the efficacy of rolapitant.

*By Curtis Johnson, PharmD Candidate*

**REFERENCES:**


Prevention of Acne:

<table>
<thead>
<tr>
<th>Stress</th>
<th>Can make acne worse, so find a relaxing activity like exercise, yoga or meditation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sun</td>
<td>Can cause damage to the skin, so prevent sunburns Apply generous amount 15 minutes before going outside and at least every 2 hours</td>
</tr>
<tr>
<td>Clothing</td>
<td>Tight fitting clothing can cause irritation and prevents air flow</td>
</tr>
<tr>
<td>Cosmetics</td>
<td>Avoid products with oils</td>
</tr>
</tbody>
</table>

Choosing an Acne Product:

<table>
<thead>
<tr>
<th>Gel</th>
<th>Dries skin Remains on skin for longest time Non-greasy: good for oily skin Apply only to affected skin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solution</td>
<td>Dries Skin Non greasy: Good for oily Skin</td>
</tr>
<tr>
<td>Cream and Lotion</td>
<td>Less effective than gels Less drying than gels or solutions Best for sensitive skin or dry winter months</td>
</tr>
</tbody>
</table>

See Your Healthcare Provider If:

- You use medications that are thought to cause acne
- You have acne that is mostly red and swollen
- You have many blackheads and whiteheads with some red or swollen pimples
- Your acne does not improve after 6 weeks of over-the-counter treatment

There are many types of acne treatments. Each treatment has different benefits and different side effects. Read below to find out what is best for you.

### Most effective over-the-counter agent; kills bacteria and cleans pores
**Benzoyl Peroxide**

- Works well for acne that is red or swollen
- Comes in many strengths
  - Higher strengths are more likely to irritate skin, so use the lowest strength to prevent problems
- Directions:
  - Test the product on a small areas of affected skin for 3 days
  - Then wash 1 time per day with 2 weeks
  - Then increase in to 2 times per day
  - If irritation occurs, decrease the strength or how often you use the medication
  - Can make skin more sensitive to the sun, so use sunscreen
  - Can bleach hair and fabrics (clothing, pillow covers, and towels)

### Removes skin cells and cleans pores
**Salicylic Acid**

- Works well for blackheads and whiteheads
- Available in many strengths
  - Higher strengths may help clear pores better, but may cause more side effects
- Directions: use 1 to 2 times per day
  - If irritating, use only once daily
  - Less irritating than benzoyl peroxide

### Prevents bacterial growth and cleans pores
**Sulfur products**

- Directions: use 1 to 3 times per day
- Unpleasant smell
- Does not work as well as benzoyl peroxide

By Chris Selph, PharmD Candidate

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PATIENT INFORMATION:
Smoking Cessation—It’s Never Too Late To Quit!

Tricks and Tips

♦ Delay: most cravings last 5-10 minutes—make yourself wait 10 more minutes.
♦ Avoid triggers: stay away from places and situations where you used to smoke.
♦ Support: ask family and friends for help; join a support group (online or in person).
♦ Distraction: chew something such as gum or carrots, take up a hobby, or try relaxation techniques such as yoga or meditation.

Starting Dose for Nicotine Gum:

<table>
<thead>
<tr>
<th>≥25 cigarettes per day</th>
<th>&lt;25 cigarettes per day</th>
</tr>
</thead>
<tbody>
<tr>
<td>4mg</td>
<td>2mg</td>
</tr>
</tbody>
</table>

To use: Slowly chew. At first sign of flavor, “park” piece between cheek and gum. When flavor disappears, chew gum until tingling or flavor returns then “park” in a different place in the mouth. Do not use >24 pieces per day. Do not eat or drink within 15 minutes of using gum.

Starting Dose for Nicotine Lozenges:

<table>
<thead>
<tr>
<th>1st cigarette after waking?</th>
<th>≤30 min</th>
<th>&gt;30 min</th>
</tr>
</thead>
<tbody>
<tr>
<td>4mg</td>
<td>2mg</td>
<td></td>
</tr>
</tbody>
</table>

To use: Allow lozenge to dissolve in mouth. Do not chew or swallow. Occasionally move the lozenge around in mouth. Do not use >5 lozenges in 6 hours or 20 lozenges per day. Do not eat or drink within 15 minutes of using lozenge.

Dosing Guide for Nicotine Patches:

<table>
<thead>
<tr>
<th>&gt;10 cigarettes/day</th>
<th>≤10 cigarettes/day</th>
</tr>
</thead>
<tbody>
<tr>
<td>21 mg/day for 6 weeks</td>
<td>14 mg/day for 6 weeks</td>
</tr>
<tr>
<td>14 mg/day for 2 weeks</td>
<td>7 mg/day for 2 weeks</td>
</tr>
<tr>
<td>7 mg/day for 2 weeks</td>
<td></td>
</tr>
</tbody>
</table>

To use: Apply to clean, dry, hairless area on upper body or arm. Rotate application area each day. Firmly apply the patch, holding down for 10 seconds. Do not leave on skin for more than 24 hours. Do not cut patch in half. You may shower, swim, and exercise while wearing the patch.

Exercise: 30 minutes of moderate physical activity can stop a craving.

Nicotine Replacement Therapy (NRT) Options: lozenges, gum, patches.

♦ Do not smoke or use other forms of tobacco while using NRT.

Consult with a doctor if you have heart issues, high blood pressure, or stomach ulcers or are pregnant, breastfeeding, or <18 years of age.

Resources to help you quit

♦ Talk to your health care provider about counseling resources in your area.

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By Mary Van Allen, PharmD Candidate

Dosing Schedule for Gum and Lozenges:

<table>
<thead>
<tr>
<th>Weeks 1-6</th>
<th>Weeks 7-9</th>
<th>Weeks 10-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 piece or lozenge every 1-2 hours</td>
<td>1 piece or lozenge every 2-4 hours</td>
<td>1 piece or lozenge every 4-8 hours</td>
</tr>
</tbody>
</table>
**Corlanor® (Ivabradine): A Funny Tool for Heart Failure**

Corlanor® (ivabradine) is a new option in the cardiologist’s toolkit. Ivabradine demonstrated morbidity and mortality reductions in patients with heart failure, but not in patients with a heart rate < 70 beats per minute (BPM) or an ejection fraction > 40%.²

Ivabradine was used in combination with beta-blockers in 83-90% of subjects in all major studies. Most studied patients were on guideline-directed therapy in conjunction with ivabradine.³⁻⁵

Ivabradine is a negative chronotrope and inhibits hyperpolarization-activated cyclic nucleotide-gated channels (HCN), ultimately regulating HR via the I_f current or ‘funny’ current.² The most prominent effects of ivabradine are observed within the SA node, as well as prolongation of the AH and PR intervals. QT prolongation via rate correction has not occurred in clinical trials, despite an increase in the uncorrected QT interval. Ivabradine does not affect repolarization. Several factors influence therapeutic response to ivabradine, including ivabradine dose and the patient’s baseline resting HR. In two clinical trials (BEAUTIFUL and SHIFT), patients with a higher baseline HR had a more profound therapeutic response than patients with a lower HR.²⁻⁴

**SHIFT:**

Ivabradine effectively treated patients with heart failure in the SHIFT study, a 32-month, multi-center, randomized, double-blind, placebo-controlled trial.³ Included patients had an ejection fraction < 35%, a resting heart rate (HR) > 70 BPM in normal sinus rhythm, and at least one hospital admission for heart failure within the previous year. All patients were also on background therapy for heart failure. Ivabradine was started at 5 mg twice daily, with dose titration based on HR response (dose reduction for HR < 50 BPM and dose increase for HR > 60 BPM).³

Patients on ivabradine had lower cardiovascular mortality and fewer hospital admissions due to heart failure (24%) compared to patients on placebo (29%). Heart failure deaths were less common in the ivabradine group (3% vs. 5%). All-cause hospital admissions were also lower in the ivabradine group (38% vs. 42%). Excluding bradycardia, few patients in the ivabradine group experienced serious adverse events and few withdrew from the study due to adverse reactions.³

The results of this study are applicable only to patients in normal sinus rhythm with a HR of 70 BPM. Because patients with atrial fibrillation and flutter were excluded from the study and few geriatric patients were included, the data are not applicable to those populations. Because ivabradine was used in conjunction with beta-blockers, the effect of ivabradine monotherapy is unknown. In addition, optimal doses of guideline-directed therapy were often not achieved, so the efficacy of ivabradine under those conditions cannot be extrapolated from the results of the SHIFT study.³

**BEAUTIFUL:**

Ivabradine treatment did not improve morbidity/mortality in the BEAUTIFUL trial, a 24-month, multicenter, randomized, double-blind, placebo-controlled study.⁴ However, re-analysis of patients with a HR > 70 BPM revealed a reduction in morbidity endpoints with ivabradine treatment. Of nearly 11,000 enrolled patients, 74-94% currently used beta-blockers and other guideline-directed therapies. Ivabradine starting dose was 5 mg twice daily, which was then titrated based on HR response.⁴

Rates of cardiovascular death and hospitalization due to myocardial infarction or heart failure were similar between the ivabradine and placebo groups. Patients with a resting HR > 70 BPM had a significant reduction in coronary revascularization when treated with ivabradine (2.8% vs. 4.0%). Hospitalizations due to myocardial infarction or unstable angina were also reduced with ivabradine treatment when compared to placebo.⁴

Limitations of the study included concomitant use of beta-blockers, which prevents the determination of the mortality and morbidity effects of ivabradine alone. Exclusion of patients not in normal sinus rhythm, patients with heart failure or anginal-related hospitalizations in the previous three months, and patients younger than 55 years of age means that the study results may not be generalizable to patients in these populations.⁴

Ivabradine did not improve cardiovascular morbidity or mortality in the SIG-NIFY 42-month trial.³ Initial ivabradine doses were higher in this study; patients were started on 7.5 mg twice daily (5 mg twice daily for patients ≥ 75 years). Dose titration was based on heart rate as in the SHIFT and BEAUTIFUL trials. Limitations were similar to the other studies and included the use of concomitant beta-blockers in 83.1% of patients, exclusion of patients with sinus arrhythmias, and inclusion of patients ≥ 55 years of age.³⁻⁵

During clinical trials, the treatment groups experienced few adverse effects, although bradycardia occurred in 10% of patients.² With 80-90% of patients taking concurrent beta-blockers in conjunction to ivabradine, bradycardia was expected.³⁻⁵ Due to potential inhibition of the retinal I_f current, some patients may develop phosphene select areas of the visual field.² Visual changes, hypersensitivity reactions, hypotension, and angioedema have been reported in post-marketing surveillance.²

Ivabradine metabolism is mostly through CYP3A4, so drug interactions

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may occur. Concurrent use of CYP3A4 inhibitors can result in bradycardia and inappropriate conduction. Ivabradine dose does not need to be adjusted for creatinine clearance of 15-60 mL/min or mild to moderate hepatic impairment. However, severe hepatic impairment (Childs-Pugh C) is a contraindication to use of ivabradine.2

Additional studies are warranted to determine the morbidity and mortality data of ivabradine without concomitant beta-blocker therapy and in patients with dysrhythmias.

By Matt Slagle, PharmD Candidate

REFERENCES:


10. Smoking cessation References


Addyi™ (flibanserin), deemed “the female Viagra®”, is a new female libido drug.1 However, filbanserin’s nickname is a misnomer. Unlike Viagra®, which treats a physical sexual dysfunction with as needed administration, filbanserin treats a psychological cause of low libido and requires chronic administration.2

Flibanserin is indicated for the treatment of hypoactive sexual desire disorder (HSDD) in premenopausal women.2 HSDD is characterized by a lack of sexual desire that cannot be accounted for by a medication, relationship status, or physical or psychological dysfunction. Filbanserin’s mechanism of action for increasing libido is unknown. It is mainly a 5-HT1A receptor agonist and 5-HT2A receptor antagonist. It is also a moderate antagonist for 5-HT2B, 5-HT2C, and dopamine D4 receptors.2

Flibanserin improved sexual desire compared to placebo in one study. Premenopausal women with HSDD who were in heterosexual monogamous relationships were treated with either filbanserin or placebo for 24 weeks. Patients on filbanserin had an average of one more satisfying sexual encounters per month compared to patients on placebo (p<0.0001). Distress due to low libido was also lowered with use of filbanserin. The patient-reported subjective data may have biased the results of this study. In addition, the clinical significance of the improvements seen in patients on filbanserin has been questioned.3

Flibanserin use was associated with systolic hypotension when administered concomitantly with alcohol. Systolic blood pressure decreased by up to 54 mmHg in male and female patients taking two glasses of wine with filbanserin.4 Therefore, patients are advised to abstain from alcohol consumption to reduce the risk of severe hypotension and syncope.2,4

Somnolence, nausea, and dizziness were the most common side effects reported during the 3 filbanserin clinical trials which included 3009 subjects. These side effects are all consistent with filbanserin’s mechanism of action.2,3 Filbanserin is only available through a REMS program.2,4

By Micah Nevin, PharmD Candidate

REFERENCES: