POTENTIAL DOSE-RELATED RISK OF OPIOID DEATHS IN VETERANS

A recent VHA case-cohort study evaluated the association of maximum prescribed daily opioid dose with risk of opioid overdose death among veterans in various diagnostic subgroups. Data were obtained from 154,684 patients who used VHA medical services in 2004 or 2005 and received opioid therapy for pain during the 5-year study period (2004–2008) and 750 unintentional prescription opioid overdose decedents. The results showed that maximum prescribed doses of opioids of 100 mg/d or more morphine equivalents were associated with greater than a 4- to 11-fold increased risk of opioid overdose-related deaths depending on the diagnostic subgroup (substance use disorder, chronic pain, acute pain, and cancer) (Table 1).

Overall, fatal overdose was rare, being identified in about 0.04% of individuals treated with opioids during the 5-year study period. The approximate absolute risk increases in opioid deaths were also small among the diagnostic subgroups, ranging from 0.14% to 0.45%.

The study also evaluated the association between opioid dose and dosing schedule. The combination of regularly scheduled and as-needed opioid doses was not shown to be associated with increased overdose risk after adjustment for demographic and clinical factors.

This study is significant because it was the first to evaluate potential factors associated with opioid-related deaths in VHA’s patient population. Further studies are needed to verify the results.

TABLE 1. Risk of Opioid Overdose-Related Deaths

<table>
<thead>
<tr>
<th>DIAGNOSTIC SUBGROUP</th>
<th>HAZARD RATIO †</th>
<th>95% CI</th>
<th>ARDA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substance Use Disorders</td>
<td>4.54</td>
<td>2.46-8.37</td>
<td>0.14%</td>
</tr>
<tr>
<td>Chronic Pain</td>
<td>7.18</td>
<td>4.85-10.65</td>
<td>0.25%</td>
</tr>
<tr>
<td>Acute Pain</td>
<td>6.64</td>
<td>3.31-13.31</td>
<td>0.23%</td>
</tr>
<tr>
<td>Cancer</td>
<td>11.99</td>
<td>4.42-32.56</td>
<td>0.45%</td>
</tr>
</tbody>
</table>

ARDA, Absolute risk difference approximation
† Adjusted hazard ratio associated with maximum prescribed daily opioid dose in morphine equivalents of 100mg/d or more relative to the dose category of 1 mg/d to less than 20mg/d

RECOMMENDATIONS TO CONSIDER:
- As recommended by the VHA/DoD Clinical Practice Guideline on the Management of Opioid Therapy in Chronic Pain, assess the safety and utility of opioid therapy for pain during the 5-year study period.
- Document a comprehensive assessment of benefits, side effects, and risk for misuse/abuse associated with opioid therapy, followed by

(continued on page 2)
Celexa (citalopram hydrobromide)- Abnormal heart rhythms associated with high doses of Celexa (citalopram hydrobromide)  
8/24/2011  
Citalopram causes dose-dependent QT interval prolongation and FDA no longer recommends using doses above 40 mg per day.  
- Post-marketing reports submitted to FDA document cases of QT interval prolongation and Torsade de Pointes associated with branded and generic citalopram.  
- FDA evaluated a randomized, multi-center, double-blind, placebo-controlled, crossover study, assessing the effects of 20-mg and 60-mg doses of Citalopram versus placebo on the QT interval in adults. Results showed maximum mean QT interval prolongations of 8.5, 12.6, and 18.5 milliseconds (ms) for 20 mg, 40 mg, and 60 mg citalopram, respectively.  
- Other studies revealed no improvement in symptoms of depression at doses greater than 40 mg citalopram per day, although previous product labeling permitted use of 60 mg per day in certain patients. Typically, higher doses of selective serotonin reuptake inhibitors (SSRIs) are most commonly used for anxiety disorders where there is dose-response.

Avastin (bevacizumab) - Update from 12/16/2009  
12/23/2009  
Avastin® (bevacizumab) is indicated for the treatment of unresectable or metastatic colorectal cancer in combination with fluorouracil and leucovorin. FDA has received reports that patients receiving Avastin® may develop cerebral microhemorrhage. Cerebral microhemorrhages are small, non-critical blood spots in the brain caused by blood vessels that have leaked. Symptoms of cerebral microhemorrhage may include headache, confusion, dizziness, or visual problems. The risk of cerebral microhemorrhage appears to be lower in patients 65 years and younger. 
(continued from page 1)

Helping to achieve safe medication use

POTENTIAL DOSE-RELATED RISK OF OPIOID DEATHS IN VETERANS

(continued from page 1)

development and enactment of a plan for patient education, continued close monitoring and implementation of a risk management plan when opioid-related risk is specifically identified. The use of written opioid treatment agreements, informed consents, patient education materials, and opioid monitoring templates may aid in such documentation.  
- Start opioids at the lowest dose and titrate the dose slowly based on adequacy of treatment response.  
- Consider the potential risks versus benefits of opioid therapy before increasing doses to 100 mg/d or more morphine equivalents.  
- As dosing is increased, particularly above 100 mg/day of oral morphine equivalents, monitor for any signs of overmedication (e.g., confusion, forgetfulness, excessive sleepiness or drowsiness, periods of unconsciousness, increased snoring, periods of apnea during sleep, word slurring, altered mental status).  
- Educate patients taking opioid doses 100 mg/d or more morphine equivalents and/or their caregivers about the potential for increased risk and what to do if the patient develops signs of possible overdose.  
- Instruct patients to avoid increasing opioid doses on their own.  
- Avoid interacting drugs, if possible, that may increase the risk for opioid overdose or opioid-related death when used concurrently with opioids. A few notable examples are concomitant use of benzodiazepine and other CNS depressants with any opioid, CYP3A4 inhibitors with fentanyl, and QTc-prolonging drugs with methadone.  
- Use caution if long- and short-acting opioids (for rescue or breakthrough pain) are used concomitantly to manage severe, chronic pain. Note that the VHA/DoD Clinical Practice Guideline on the Management of Opioid Therapy in Chronic Pain supports the use of long-acting opioids in a scheduled manner for chronic pain, rather than the use of supplemental or as-needed (p.r.n.) opioids for pain exacerbations.  
- Use extreme caution in patients with chronic obstructive pulmonary disease or cor pulmonale and in patients who have a substantially decreased respiratory reserve (e.g., severe kyphoscoliosis), hypoxia, hypercapnia, or pre-existing respiratory depression. Use caution when using opioids in elderly patients and in patients with renal or liver dysfunction (of note, morphine may cause neurotoxicity in patients with renal impairment). Consult specific product information for contraindications, warnings, and dosage adjustments.

REFERENCES  

Contributed by: Francine Goodman, Pharm.D., B.C.P.S.
Getting the most from our safety surveillance

**DRONEDARONE SAFETY CONCERNS**

Due to potential safety concerns identified during the VA national drug review of dronedarone, the VA Center for Medication Safety (VAMedSAFE) was asked to conduct an ongoing safety surveillance of patients prescribed dronedarone. Results of these database evaluations are reported on a quarterly basis to the VA Pharmacy Benefits Management Services (PBM) Medical Advisory Panel (MAP) and VISN Pharmacist Executives (VPEs).

Parameters of the evaluation of patients on dronedarone focus on:
- New onset heart failure (HF)
- HF exacerbations
- Potential contraindication to therapy due to decompensated HF
- Drug interaction with warfarin and potential for bleeding
- Thyroid-related adverse events
- Pulmonary toxicity
- Hepatotoxicity

Per data from 08/01/2009-06/30/2011 of patients with a new prescription for dronedarone:

**Patients without a previous diagnosis of HF (N=1109):**
- 1 (0.09%) hospitalized for HF within 30 days of dronedarone prescription
- 3* (0.27%) within 90 days
- 7* (0.63%) within 180 days

*cumulative within timeframe

**Patients with a previous diagnosis of HF (N=293):**
- 6 (2%) hospitalized for HF within 30 days of dronedarone prescription
- 15* (5%) within 90 days
- 24* (8%) within 180 days
  *cumulative within timeframe

These percentages were slightly less than the amiodarone comparator group.

**Patients with recent decompensated HF* (HF hospitalization within 30 days prior to prescription):**
- 14 of 1481 new users of dronedarone (0.95%)
- 1 of these patients was rehospitalized for HF within 30 days of dronedarone prescription.

*Dronedarone is contraindicated in patients with New York Heart Association (NYHA) Class IV HF or Class II-III HF with a recent decompensation requiring hospitalization or referral to a HF clinic (Boxed Warning).

Sites were asked to conduct data validation on 12 patients identified from 08/01/2009–03/31/2011 as having recent HF decompensation (2 additional patients through 6/30/2011 pending evaluation):

- Of the 12 patients, 6 were confirmed to have a HF hospitalization within 30 days prior to initial dronedarone prescription.

Reported rationale for prescribing dronedarone despite the warning for contraindication included:
- Previous intolerance or inefficacy with amiodarone (3)
- Concern for potential toxicity with amiodarone (2)
- Prescribed by non-VA provider with patient informed of risk vs. benefit (1)

Due to early reports of a probable drug interaction with concomitant dronedarone and warfarin in the VA Adverse Drug Event Reporting System (VA ADERS), bleeding in patients prescribed dronedarone and warfarin were included in the VAMedSAFE safety surveillance.* Per the VAMedSAFE report from 08/01/2009-06/30/2011:
- 37 of 685 (5.4%) patients prescribed dronedarone and warfarin had new onset major hemorrhage after starting concomitant therapy.
- Incidence compares to patients prescribed concomitant amiodarone and warfarin, a known drug interaction.

* Revision to dronedarone product information on 03/2011 describes a potential drug interaction with warfarin.

In addition, VAMedSAFE has been tracking adverse events with dronedarone reported to VA ADERS. Data submitted to VA ADERS from Q1FY10 through Q3FY11 for dronedarone include 57 events (29 mild, 15 moderate, 13 severe) reported in 31 patients:

- HF related symptoms (27 events, occurring in 14 patients)
- Bleeding/increased INR (4 events)
- Gastrointestinal symptoms (8 events)
- Rash (2 events)
- Hypotension (2 events)
- Dizziness/vertigo/syncope (5 events)
- Fatigue (1 event)
- Increased liver function tests (2 events)
- Angioedema (1 event)
- Palpitations (1 event)
- Myalgia (1 event)
- Unexpected therapeutic effect (1 event)
- Drug interaction (1 event)
- Contraindication (1 event)

VAMedSAFE and VA ADERS data will continue to be reviewed and reported to the MAP and VPEs on a regular basis. Data on thyroid, pulmonary and hepatic adverse events, as well as drug interaction data with warfarin and other antiarrhythmic agents for comparison, will be discussed when available. With the recent discontinuation of a clinical trial with dronedarone in patients with permanent atrial fibrillation (non-FDA approved indication; refer to PBM Safety Communication dated 07/28/2011 below) due to an increased risk of death and cardiovascular events, it has been suggested that the rate of death in VA patients on dronedarone also be evaluated.

Recently, several National PBM Safety Communications have been disseminated by VAMedSAFE and the PBM-MAP including:
- Dronedarone (Multaq) and Increased Risk of Death and Serious Cardiovascular Events in Patients with Permanent Atrial Fibrillation, 07/28/2011
- Dronedarone and Liver Injury, 01/21/2011

In addition, several updates to the dronedarone criteria for use have been made as a result of safety alerts and changes to the product labeling.

Contributed by: Elaine Furmaga, Pharm.D.