



## EDUCATION MODULE

### CONSIDERATIONS WHEN PRESCRIBING OPIOIDS FOR PATIENTS WITH HEART FAILURE\*

*This module provides additional details and risk-reduction guidance specific for this risk factor for serious prescription opioid overdose. It **supplements** but does not replace the general best practices for opioid prescribing presented in the "Considerations for Safe and Responsible Opioid Prescribing" module.*

#### **Background**

1. Approximately 5.7 million U.S. adults have heart failure, and 1 million are hospitalized each year. Approximately 50% of patients will die within 5 years of diagnosis.<sup>1</sup>
2. The prevalence of heart failure rises exponentially with advancing age, ranging from 6% in persons aged 60 to 79 years to 14% among those aged  $\geq 80$  years. Eighty percent of heart failure occurs in those  $\geq 65$  years of age.<sup>2</sup>
3. Opioid use is common in patients with heart failure, occurring in up to 25% of those hospitalized with heart failure and is associated with increased morbidity and mortality.<sup>3-5</sup>

#### **Heart failure and opioid overdose**

1. Reduced cardiac output and/or compensatory neuro-humoral reactions decrease blood flow (and drug delivery) to the liver and kidneys, and cause pulmonary and systemic vascular congestion.
  - a. The pharmacokinetics of many drugs may be altered due to impaired intestinal absorption and changes in drug distribution, metabolism, and elimination by the liver and kidneys.<sup>6,7</sup>
    - i. Decreased clearance of certain opioids and their metabolites may lead to their accumulation, resulting in an enhanced and prolonged duration action, thereby increasing the risk of over-sedation, hypotension, bradycardia, respiratory depression, and death. (see "Renal Impairment" module)
  - b. Cognitive impairment is common in patients with heart failure, correlates with the degree of left ventricular dysfunction, and may be exacerbated by opioid use.
    - i. Cognitive impairment can increase the risk for medication administration errors and overdose.<sup>8-9</sup> (see "Cerebrovascular disease" module)
2. Age-related changes in the respiratory system that reduce the ability to tolerate opioid-induced respiratory depression include decreased sensitivity of central and peripheral chemoreceptors to hypercapnia and hypoxia, and diminished compensatory respiratory drive.<sup>10-12</sup>
3. Older patients with heart failure commonly have comorbidities that increase the risk for opioid-induced respiratory depression such as coronary heart disease, stroke, chronic obstructive pulmonary disease (see "Chronic Pulmonary Disease" module), and sleep-disordered breathing.<sup>13,14</sup>



**Risk-mitigating interventions to consider when prescribing opioids for patients with heart failure**  
[Refer to the full prescribing information (FDA label) for important product-specific details]

1. Optimize medical management of heart failure to restore normal oxygenation and improve the patient's volume status and symptoms.<sup>15,16</sup>
2. Optimize non-opioid and non-pharmacologic measures to control pain in patients with heart failure. Avoid nonsteroidal anti-inflammatory drugs, as they may impair renal function, lead to fluid retention, and heart failure exacerbation.<sup>16,17</sup>
3. If opioid analgesic therapy is indicated in heart failure:
  - a. Start with a short-acting opioid at the lowest effective dose (25% to 50% below the usual adult dose.<sup>8,18</sup> (see "**Considerations for Safe and Responsible Opioid Prescribing**")
  - b. Slowly and cautiously titrate dosage by 25% increments based on clinical effectiveness and tolerability.<sup>8,18</sup>
  - c. Monitor hemodynamic status and renal and hepatic function closely and select/adjust the choice of opioid and dosage accordingly.<sup>8,18</sup>
  - d. Use caution if initiating opioid therapy during acute decompensated heart failure or in patients who are dehydrated.
    - i. A retrospective study of 150,000 patients in the Acute Decompensated Heart Failure National Registry found that use of intravenous morphine during acute decompensated heart failure was associated with an increase in mechanical ventilation, intensive care unit admissions, length of hospitalization, and a nearly fivefold higher mortality.<sup>5</sup>
  - e. Long-term opioids may be continued cautiously to manage chronic non-cancer pain during decompensated heart failure at reduced dosage and with close monitoring for adverse effects.<sup>3</sup>
4. Closely monitor opioid-treated patients with heart failure for respiratory depression, over-sedation, hypotension, and bradycardia, particularly during opioid initiation and after dosage escalation. The risk for overdose is greatest during the first 3 to 7 days after starting an opioid or increasing the dosage. This occurs because tolerance to an opioid's respiratory depressant effects is slower to develop and less complete than tolerance to its analgesic or euphoric effects.<sup>8,18-20</sup>
5. Avoid concurrent use of other medications or substances that are central nervous system depressants, such as benzodiazepines, sedatives/hypnotics, and alcohol in opioid-treated patients. The combination can result in profound sedation, respiratory depression, coma, and death and should be restricted to the minimum required dosage and duration in patients for whom alternative treatment options are inadequate.<sup>8,18,21</sup> (see also: FDA label)
6. Consider consultation or co-management with a specialist in pain medicine and/or cardiovascular medicine when prescribing opioids to manage pain in patients with heart failure.<sup>8</sup>
7. Consider prescribing take-home naloxone for opioid-treated patients with heart failure to reverse life-threatening respiratory depression if an overdose occurs. Educate the patient, family/household members, and caregivers about signs and symptoms of opioid overdose and



train them to properly use naloxone if an opioid-related overdose is suspected.<sup>8,22</sup> (see 'Follow Up' section, #5 in the "**Considerations for Safe and Responsible Opioid Prescribing**" module)

### Additional Resources

*\*The information presented in this module highlights some fundamental concepts of opioid prescribing for adult outpatients. It excludes certain populations (pediatrics, pregnancy, patients with active cancer or receiving palliative or end-of-life care) and settings (perioperative, emergency, in-patient). The information provided is intended to support safe and effective opioid therapy and minimize serious adverse outcomes, particularly overdose. It is not intended to be exhaustive nor substitute for consulting a medication's full prescribing information for complete details and warnings. Links and references to selected, more comprehensive clinical and prescribing resources are provided to facilitate safe and effective opioid prescribing.*

1. **FDA-approved drug label information:** [FDA Online Label Repository](#) or [Daily Med](#) (NIH/National Library of Medicine)
2. [Heart Failure Society of America](#)
3. [Clinical Tools for Heart Failure-American Heart Association](#)

### References

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