PALLIATIVE PEARLS
BY ENCLARA PHARMACIA

Fluid Retention & Effect on Dyspnea Case
April 2018

Patient Case

MR is a 90 year old female with heart failure and comorbidities of atrial fibrillation, depression, and urinary incontinence and no known drug allergies. She lives with her daughter who is her primary caregiver. MR was admitted to hospice 3 weeks ago.

Current medications:

- Acetaminophen 325mg; 2 tablets PO every 4 hours as needed for mild pain
- Aripiprazole (Abilify®) 2mg; 1 tablet PO daily for mood
- Aspirin 81mg; 1 tablet PO daily for the heart
- Carvedilol 12.5mg; 1 tablet PO every 12 hours for the heart
- Duloxetine (Cymbalta®) 30mg; 1 capsule PO daily for mood
- Furosemide 20mg; 1 tablet PO daily for fluid retention
- Lisinopril 2.5mg; 1 tablet PO daily for blood pressure
- Lorazepam 2mg/mL; 0.25mL (0.5mg) PO every 6 hours as needed for anxiety
- Morphine 20mg/mL; 0.25mL (5mg) PO every 4 hours as needed for mod-severe pain
- Nitroglycerin 0.4mg tablet; 1 tablet SL every 5 minutes as needed for chest pain
- Pantoprazole (Protonix®) 40mg; 1 tablet PO daily for reflux
- Tolterodine (Detrol®) 1mg; 1 tablet PO BID for incontinence

Prior to hospice care, MR weighed herself regularly to monitor for fluid retention caused by heart failure. In addition, she understood triggers to fluid gain and was able maintain her target weight. With concomitant urinary incontinence issues, MR was historically resistant to increasing her furosemide dose choosing to regulate with fluid and dietary restrictions instead. Three weeks into hospice care, MR rarely gets out of bed due to fatigue and she has been less strict with her dietary intake. During your last visit, a urinary catheter was placed. Today, crackles are heard in her chest and she has been experiencing increased breathlessness – MR's daughter describes it as "heavy breathing". Oxygen saturation on room air is 92% and vitals include Temp 98°F, BP 115/80, HR 65 and RR 24. Upon review of her medication list and change of status, what recommendations could you make to manage MR's worsening dyspnea?

DYSPNEA IN ADVANCED DISEASE[1,2]

Dyspnea, defined as an uncomfortable awareness of breathing, is a frequent symptom in patients with advanced illness and has been well documented to have prognostic value. It may be described in terms of "air hunger", "suffocation", or "choking", or "heavy breathing" and is distressing for both patients and family members. Although dyspnea is common in patients with lung disease, it is also frequent in patients with no evident lung involvement. The causes of dyspnea in persons with advanced disease are multi-faceted, ranging from obstructive lung disease to psychological factors such as anxiety.

HEART FAILURE AND DYSPNEA MANAGEMENT[3-6]

The etiology of HF symptoms is complex and not completely understood. Although most patients have worsened dyspnea with episodes of volume overload, HF-related dyspnea and exertional fatigue is thought to be a result of systemic effects of HF, including generalized myopathy, rather than due to pulmonary capillary wedge pressure or cardiac output.[3] Some symptoms may overlap with other comorbidities such as COPD, which are particularly prevalent in older individuals with HF. Symptoms are significantly impacted by depression and by the patients' perceived control over their condition.

Medication management in end-stage heart failure include:

- Discontinue medications not impacting symptoms
- Continue ACE inhibitor or ARB therapy and titrate beta-blocker dose, as tolerated
    - Hypotension and renal dysfunction may limit use
    - Beta-blockers have the potential to worsen fluid retention. Discontinue if hypotensive.
- Maintain euvolemia using diuretics
    - Spironolactone (Aldactone®) – Aldosterone blockade may help manage volume overload in addition to its neuroendocrine action. Spironolactone may increase serum potassium levels.
    - Loop diuretics (i.e., furosemide (Lasix®), torsemide (Demadex®), bumetanide (Bumex®)) for volume overload will improve energy and breathlessness
    - Patients, families, and clinicians should routinely use weight as a proxy for volume, adjusting diuretics to maintain a euvolemic target weight, recognizing that weighing patients may become more difficult as the patient's condition worsens
- Inotrope trial if hypotensive and volume overloaded, where appropriate and feasible

End-stage heart failure dyspnea symptom management includes:

- Opioids (also for pain) for refractory symptoms
- Benzodiazepines and supportive counseling to reduce anxiety
- Stimulants for fatigue and/or depression
- Lower extremity strengthening (also for fatigue) as tolerated
- Oxygen in hypoxic patients (O_2 <60mmHg); use a fan if not hypoxic
- Compassionate presence
    - Calm, nonjudgmental and reassuring conversation
    - Active empathetic listening

<u>Pharmacist Assessment:</u>

Crackles are indicative of fluid in the lungs that is contributing to MR's dyspnea in addition to her fatigue and presumed weight gain/volume overload. Her RR is elevated, however, other vital signs and oxygen saturation are within normal limits – oxygen therapy is not indicated. MR has been using morphine for pain on average 4 times a day and lorazepam has been used sparingly.

MR is prescribed duloxetine and aripiprazole for a history of depression. Despite feeling extremely fatigued, her mood is stable. Replacing these therapies with a stimulant is not indicated at this time.

MR has no history of GERD, PUD or condition indicating need for chronic gastric acid suppression therapy. MR began pantoprazole therapy "years ago" and does not recall why it was started. A trial period off of pantoprazole is indicated. In addition, with a urinary catheter in place, urinary incontinence is no longer a concern and tolterodine can be safely discontinued.

Furosemide is currently at a low dose for diuresis with ample room for titration – manufacturer labeled maximum dose is 600mg/day however doses up to 4000mg/day have been found to be safe and effective.[7] The addition of spironolactone or other diuretic may be considered if patient does not respond to furosemide titration. Bolus dosing of parenteral furosemide can produce symptom relief within minutes however should be reserved for refractory cases.[7,8]

Recommendations

- Increase furosemide to 40mg PO BID and titrate upward in 20-40mg increments until symptom relief
- Encourage the use of morphine as needed for breathlessness
    - Update regimen to include "shortness of breath" as an indication
    - Change interval to "every 2 hours as needed"
- Recommend the use of lorazepam as needed for anxiety
- Continue current regimens of carvedilol, lisinopril and nitroglycerin for vasodilation (contingent on stable blood pressure)
- Continue duloxetine (Cymbalta®) and aripiprazole (Abilify®) for depression
- Discontinue tolterodine (Detrol®) and pantoprazole (Protonix®)
- Place fan in room to improve respiration or consider oxygen therapy as needed

For additional information on this topic, please review these references:

1. Del Fabbro E, et al. Symptom control in palliative care—Part III: Dyspnea and delirium. *J Pall Med*. 2006;9(2): 422-437.
2. Kamal AH. Dyspnea review for the palliative care professional: Assessment, burdens, and etiologies. *J Palliat Med.* 2011 Oct; 14(10): 1167–1172. PDF link
3. Goodlin SJ. Palliative care in congestive heart failure. *J Am Coll Cardiol.* 2009;54(5):386-96.
4. Albert NM. Fluid management strategies in heart failure. *Critical Care Nurse*. 2012;32[2]:20-32,34. Article PDF
5. Fairman N, Hirst JM, Irwin SA. Clinical manual of palliative care psychiatry. 1st ed. Arlington: American Psychiatric Association; 2016.
6. Weissman DE. Fast Facts and Concepts #27: Dyspnea at end-of-life. 2015 Apr. Site link
7. Reisfield GM, Wilson GR. Fast Facts and Concepts #144: Palliative care issues in heart failure. 2015 July. Site link
8. Clinical Pharmacology [database online]. Tampa, FL: Elsevier/Gold Standard, Inc.; 2018. Accessed 2018 Apr.

