1.6 CHRONIC OBSTRUCTIVE PULMONARY DISEASE

Chronic obstructive pulmonary disease (COPD) is a heterogeneous group of respiratory conditions, predominantly composed of chronic bronchitis and emphysema. COPD is defined by airflow limitation that is not completely reversible, and it is associated with an abnormal airway inflammatory response. Exposure to tobacco smoke is the main risk factor. COPD affects more than 12 million Americans and is the third leading cause of death in the United States. A COPD exacerbation is defined as an increase in the usual symptoms of COPD that is beyond day-to-day variations and leads to a change in medication and often results in hospitalization. Annually, more than 670,000 hospital discharges occur with COPD as the primary diagnosis, and nearly 1 of every 5 hospitalized patients 40 years or older has COPD.[1,2] The average length of stay is 4.3 days.[1] COPD is a substantial cause of disability and carries a large economic burden, accounting for almost $17 billion of total hospital charges billed to Medicare each year.[3] The early detection and prompt treatment of exacerbations are essential to ensure optimal outcomes and to reduce the burden of COPD. Hospitalists use evidence-based approaches to optimize care, and they should strive to lead multidisciplinary teams to develop institutional guidelines and/or care pathways to reduce readmission rates and mortality from COPD exacerbations.

KNOWLEDGE

Hospitalists should be able to:

- Define COPD and describe the pathophysiologic processes that lead to small airway obstruction and alveolar destruction.
- Describe potential precipitants of exacerbation, including both infectious and noninfectious etiologies.
- Differentiate the clinical presentation of a COPD exacerbation from asthma, heart failure, and other acute respiratory and nonrespiratory syndromes.
- List the indicators of disease severity.
- Describe the role of diagnostic testing used for the evaluation of COPD.
- Describe the role of pulmonary function tests in the treatment of a COPD exacerbation.
- Distinguish the medical management of patients with COPD exacerbations from that of patients with stable COPD.
- Recognize indications for specialty consultation, which may include pulmonary medicine.
- Describe the evidence-based therapies for treatment of COPD exacerbations, which may include bronchodilators, systemic corticosteroids, oxygen, and antibiotics.
- Identify the potential risks of supplemental oxygen therapy, including development of hypercarbia in patients with chronic respiratory acidosis.
- Explain indications, contraindications, and mechanisms of action of pharmacologic agents used to treat COPD.
- Describe and differentiate the means of ventilatory support, including the use of noninvasive positive pressure ventilation in COPD exacerbation.
- Recognize anxiety and depression as important comorbid conditions that negatively affect outcomes.
- Explain goals for hospital discharge, including specific measures of clinical stability for safe care transition.

SKILLS

Hospitalists should be able to:

- Elicit a thorough and relevant medical history to identify symptoms consistent with a COPD exacerbation and etiologic precipitants.
- Perform a targeted physical examination to elicit signs consistent with a COPD exacerbation, differentiate findings from those of other mimicking conditions, and assess illness severity.
- Diagnose a COPD exacerbation on the basis of history, physical examination, and radiographic data.
- Select and interpret appropriate diagnostic studies to evaluate the severity of a COPD exacerbation.
- Recognize symptoms, signs, and severity of impending respiratory failure and select the indicated evidence-based ventilatory approach.
- Select patients with COPD exacerbation who would benefit from use of positive pressure ventilation and identify those in whom this intervention is contraindicated.
- Prescribe appropriate evidence-based pharmacologic therapies during COPD exacerbation, recommending the most appropriate drug route, dose, frequency, and duration of treatment.
- Address treatment preferences, including advance directives early during hospital stay; implement end-of-life decisions by patients and/or families when indicated or desired.
- Evaluate COPD in perioperative risk assessment, recommend measures to optimize perioperative management of COPD, and manage postoperative complications related to underlying COPD.
- Identify patients with COPD who may benefit from pulmonary rehabilitation.
- Communicate with patients and families to explain the natural history and prognosis of COPD.
- Facilitate discharge planning early during hospitalization.
- Communicate with patients and families to explain discharge medications, potential adverse effects, duration of therapy and dosing, and taper schedule.
- Ensure that patients receive training on proper inhaler techniques and use before hospital discharge.
- Communicate with patients and families to explain the goals of care (including clinical stability criteria, the importance of preventive measures), discharge instructions, and management after hospital discharge to ensure safe follow-up and transitions of care.

- Document the treatment plan and provide clear discharge instructions for postdischarge clinicians.
- Provide and coordinate resources to ensure safe transition from the hospital to arranged follow-up care.

ATTITUDES

Hospitalists should be able to:

- Employ a multidisciplinary approach, which may include pulmonary medicine, respiratory therapy, nursing, and social services, in the care of patients with a COPD exacerbation, beginning at admission and continuing through all care transitions.
- Engage in a collaborative way with primary care physicians and emergency physicians in making admission decisions.
- Promote and encourage preventive strategies, including smoking cessation, vaccinations, and venous thromboembolism prophylaxis.
- Establish and maintain an open dialogue with patients and/or families regarding goals and limitations of care, including palliative care and end-of-life wishes.

SYSTEM ORGANIZATION AND IMPROVEMENT

To improve efficiency and quality within their organizations, hospitalists should:

- Lead, coordinate, and/or participate in multidisciplinary initiatives, which may include collaborative efforts with pulmonologists, to promote patient safety and optimize cost-effective diagnostic and management strategies for patients with COPD.
- Lead, coordinate, and/or participate in the development of educational modules, order sets, and/or pathways that facilitate use of evidence-based strategies for COPD exacerbation in the emergency department and the hospital, with goals of improving outcomes, decreasing length of stay, and reducing rehospitalization rates.
- Lead efforts to educate patients and staff on the importance of smoking cessation and other preventive measures.

References

1. Agency for Healthcare Research and Quality. Healthcare Cost and Utilization Project. U.S. Department of Health & Human Services. Available at: http://hcupnet.ahrq.gov/. Accessed June 2015.
2. Wier LM, Elizhauser A, Pfuntner A, Au DH. Healthcare Cost and Utilization Project (HCUP) Statistical Briefs. Overview of Hospitalizations Among Patients With COPD, 2008. Statistical Brief #106. Rockville, MD; Agency for Health Care Policy and Research (US). 2011. Available at: http://www.ncbi.nlm.nih.gov/books/NBK53969/. Accessed June 2015.
3. Agency for Healthcare Research and Quality. Chronic obstructive pulmonary disease (COPD): hospital 30-day, all-cause, risk-standardized mortality rate following acute exacerbation of COPD. Available at http://www.qualitymeasures.ahrq.gov/content.aspx?id=48198. Accessed June 2015.