Acute Exacerbation of COPD (AE-COPD)

EXACERBATION OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) IS A PROBLEMATIC DIAGNOSIS FOR ACUTE CARE HOSPITALS. THIS HAS BEEN RECOGNIZED SINCE THE 1990s WHEN THERE WAS WORK DONE TO DEFINE BOTH THE SCOPE OF THE PROBLEM, AS WELL AS THE NATURE OF THE ILLNESS AND MANAGEMENT STRATEGIES.

More than 16 million adults suffer from COPD in the United States. This results in more than 500,000 acute care hospitalizations annually. Hospitalization is usually prompted by an "exacerbation in COPD." Once hospitalized, a significant number of patients experience a decreased quality of life. And more than half of these patients are hospitalized more than once in the six months following the initial hospitalization.

Until the late 1990s, there was no consensus definition of Acute Exacerbation of COPD (AE-COPD). The consensus definition is: **"a sustained worsening of the patient's condition, from the stable state and beyond normal day-to-day variations, that is acute in onset and necessitates a change in regular medication in a patient with underlying COPD."** *(CHEST)* There is uniform understanding that this term encompasses three primary clinical findings: worsening dyspnea, an increase in sputum purulence and an increase in sputum volume. There are often accompanying findings such as fever, infection, decline in both physical and mental functioning, worsening hypoxemia and hypercarbia, and exacerbation of other chronic illnesses, particularly Heart Failure.

A rating scale has been developed:

SEVERITY OF LEVEL OF HEALTH CARE UTILIZATION

MILD	Patient has an increased need for medication, which he/she can manage in his/her own normal environment.
MODERATE	Patient has increased need for medication and feels the need to seek additional medical assistance.
SEVERE	Patient/caregiver recognizes obvious and/or rapid deterioration in condition, requiring hospitalization.

Another scale stratifies the patients according to the number of the three primary presenting symptoms: increased dyspnea, increased sputum production and increased sputum purulence. **Type 1 AE-COPD-Severe** would have all three symptoms present. **Type 2-Moderate** would have two symptoms present and **Type 1-Mild** would have one symptom present. *(CHEST)* Studies that predict outpatient relapse (seeking acute care subsequent to a discharge) have been done. Factors that are implicated in relapse include: lower baseline FEV1 , low pO2 , low pH and increased need for bronchodilators.

There are two primary goals in caring for patients with AE-COPD:

1. Stabilize the patient medically
2. Provide support to prevent a cycle of readmissions and to restore maximum quality of life

There are recommendations for medical management and restoration of physiologic stability. **The primary aspects of this phase of care include:**

- Bronchodilators
- Corticosteroids
- Antibiotics (somewhat controversial)
- Titration of oxygen therapy
- Use of non-invasive ventilation (NPPV)

Acute Exacerbation of COPD (AE-COPD)

(CONTINUED)

There are no recommendations for use of mucolytic agents, xanthenes (aminophylline) and chest physiotherapy. An effective program for AE-COPD would concentrate on rapid stabilization of the patient in these key areas.

The second goal of preventing the cycle of readmissions and restoring quality of life is best accomplished by a rehabilitation approach involving a team of skilled clinicians. A paper published in *Respiratory Research* in 2005, provides an analysis of the research studies. An organized program of patient education, exercise and conditioning; breathing training and exercises; management of co-morbid conditions (especially Heart Failure); and titration of medications and oxygen improves the overall quality of life and reduces readmissions and mortality.

An Inpatient AE-COPD Program should be considered for:

- Severe AE-COPD regardless of rating scale used
- Recurrent admissions to acute care
- Social support available to patient does not support success in being maintained in the community

When selecting an Inpatient Program, the following factors should be considered:

- Availability of daily physician assessment
- Competence of staff in managing respiratory care, including use of non-invasive ventilation
- Monitoring and diagnostic capability

AE-COPD will likely remain a troublesome diagnosis for the acute care hospitals. It is a progressive and complex disease and is often associated with other chronic conditions such as Heart Failure, which also needs a management plan. Inpatient programs have demonstrated success in providing the best opportunity for the patient to be maintained in the community.