Pulmonary Disease, Chronic Obstructive (COPD): Quality of Life

What We Know

› Chronic obstructive pulmonary disease (COPD) is a debilitating and potentially life-threatening disease state that is defined in the 2014 consensus report by the Global Initiative for Chronic Obstructive Lung Disease (GOLD; referred to as the GOLD report) as “characterized by persistent airflow limitation that is usually progressive and associated with enhanced chronic inflammatory response in the airways and the lung to noxious particles or gases.”(5) (For details of the GOLD report, see http://www.goldcopd.org/uploads/users/files/GOLD_Report_2014_Jan23.pdf)

• The chronic inflammation and increasingly obstructed airflow in COPD are not entirely reversible with medication and lead to changes in the structure of the small airways due to chronic bronchitis and to lung parenchyma destruction in patients who develop emphysema (i.e., progressive, permanent distension and subsequent destruction of the alveoli that causes impaired gas exchange). The onset, presence, severity, and contribution to disease status of chronic bronchitis and emphysema vary widely among persons with COPD. For this reason, the definition of COPD in the GOLD report no longer includes these conditions as being definitive of COPD, but describes them as a variable part of the pathology of COPD.(5) (For more information on COPD, see Quick Lesson About … Pulmonary Disease, Chronic Obstructive (COPD): an Overview)

– COPD affects about 5% of adults in the United States and is the third leading cause of death(4)

– Prognosis following hospitalization for COPD exacerbation is poor and the five-year mortality rate after hospitalization is 50%(5)

• Signs and symptoms of COPD include dyspnea, fatigue, cough, sputum production, wheezing, chest tightness, sleep disturbance, and weight loss. Clinical manifestations of advanced COPD include edema, labored breathing, cyanosis, and plethora (i.e., excess of blood or fluid in the tissues marked by ruddy, red complexion)(4,5)

• The course of COPD is marked by acute exacerbation(3,4,5)

• Potential complications of COPD include respiratory infections, pulmonary hypertension, malnutrition, pneumothorax, cor pulmonale, polycythemia, acute and chronic respiratory failure, arrhythmias, depression, poor sleep quality, and nocturnal hypoxia(4)

• Depression and anxiety are often present in patients with COPD.(5) (For information, see Evidence-Based Care Sheet … Pulmonary Disease, Chronic Obstructive (COPD): Anxiety and Depression)

– With disease progression, patients typically experience decreasing functional capacity and increasing social isolation. The difficulty of coping with disease-related manifestations combined with functional limitation reduces patient quality of life (QOL). Factors that affect QOL in patients with COPD include clinical signs and symptoms, physical and social activity, and physiologic, psychological, and spiritual status(1,2,9,11)

• Patient characteristics that are associated with reduced QOL in patients with COPD include older age, female sex, lower body mass index (BMI), decreased lung function, poor health status, low level of exercise capacity, anxiety, depression, comorbid diabetes
mellitus, cerebrovascular disease, alcohol abuse, cancer, atrial fibrillation, prolonged QT time on EKG, lower education level, lower socioeconomic status, and exacerbation of COPD signs and symptoms\(^{(1,7,9,11)}\)

– In a study of 74 patients with COPD, researchers reported a 48.6\% prevalence of depression; depression was associated with greater impairment in respiratory function, increased severity of dyspnea, and poorer QOL\(^{(1)}\)

Although there is no universal method to measure QOL in patients with COPD, instruments in the form of patient questionnaires are commonly used to assess QOL. These include the Chronic Respiratory Disease Questionnaire (CRDQ), the COPD Assessment Test (CAT), the Sickness Impact Profile (SIP), the St. George’s Respiratory Questionnaire (SGRQ), the Living with COPD questionnaire (LCOPD), and the Medical Outcome Study Short Form-36(MOS)\(^{(3,5,7,13)}\)

• Using QOL assessment questionnaires, patients can rate how COPD affects their everyday lives. Assessed domains include levels of fatigue, sleep disturbance, pain, social isolation, physical incapacitation, and dyspnea\(^{(7,13)}\)

– Daily walking intensity as assessed by an accelerometer is predictive of QOL as measured using the SGRQ and MOS\(^{(7)}\)

• QOL assessment helps the clinician determine the health and service needs of patients with COPD, but QOL assessment may not be widely performed in clinical practice because the questionnaires are long and time consuming to complete\(^{(3,13)}\)

– The authors of a systematic review were unable to determine which of the available QOL instruments is best\(^{(12)}\)

– Researchers in a study of 208 patients—108 of whom had asthma and 100 of whom had COPD—reported that the two brief QOL tools, the Clinical COPD Questionnaire (CCQ) and the Airways Questionnaire 20 (AQ20), were able to predict exacerbations to a similar degree as exacerbations were predicted by longer, disease-specific questionnaires\(^{(3)}\)

Treatment for COPD that is associated with improved QOL includes pulmonary rehabilitation (PR; i.e., a self-management program of education and exercise that assists the patient with COPD in initiating and maintaining certain lifestyle modifications, including maintenance of regular physical activity such as low-intensity exercise training), regular use of long-acting bronchodilators (e.g., \(\beta_2\)-agonists) and inhaled corticosteroids, continuous oxygen therapy for patients with hypoxia, surgery to reduce lung volume in select patients with advanced disease, preventive care strategies to reduce risk of acute exacerbations, and prompt medical attention for acute exacerbations\(^{(2,5,10)}\)

• PR performed in the hospital, in outpatient settings, or at home is useful for educating patients with COPD regarding how to perform activities with less dyspnea and strategies for resolution of exercise deconditioning, social isolation, depression, anxiety, muscle wasting, and weight loss. PR can reduce the frequency and severity of exacerbations, improve response to pharmacotherapy, and help patients maintain functional status during disease exacerbations\(^{(2,10)}\)

– PR programs typically involve attending 2–3 sessions per week. Researchers in a randomized controlled study of 81 patients reported that even once weekly PR sessions produced clinically relevant improvement in functional capacity and QOL\(^{(2)}\)

• Other treatment strategies that encourage making healthy lifestyle changes, reduce COPD signs and symptoms, help maintain independence with activities of daily living (ADLs), and enhance QOL include education about smoking cessation and performing self-management activities, including activities involving improved nutrition and regular physical activity.\(^{(4,8,10)}\) (For more information on nutritional strategies, see Evidence-Based Care Sheet ... Pulmonary Disease, Chronic Obstructive (COPD): Nutrition)

– Authors of a 2012 Cochrane review concluded that breathing exercises improve functional exercise capacity in patients with COPD, but found inconsistent evidence regarding the effects of this intervention on dyspnea and QOL\(^{(6)}\)

– Investigators who randomized 40 patients with COPD to either endurance and strength training or to calisthenics and breathing exercise training concluded that neither program significantly improved patient time spent being active or patient energy expenditure in daily life, but both improved QOL and functional status\(^{(10)}\)

– In a study of 110 patients with severe COPD, researchers found that nonlinear periodized exercise—a training method commonly used by athletes that involves frequent changes in training intensity, duration, and repetitions—led to greater improvement in endurance and QOL compared with conventional exercise training\(^{(8)}\)

– Investigators evaluating the correlation between healthy eating and COPD found that the risk of developing COPD was lower in persons who consumed a healthy diet, suggesting that in addition to smoking cessation, patients should be encouraged to increase the nutritional value of the foods they consume\(^{(12)}\)
What We Can Do

› Learn about the impact of COPD on QOL so you can accurately assess your patients’ personal characteristics and health education needs; share this knowledge with your colleagues

› Assess QOL in your patients with COPD
  • In taking a patient history, include questions about alcohol and tobacco use, fatigue level, unintentional weight loss, activity restrictions, sleep patterns, and current medications
    – When interviewing your patients, assess QOL using the CRDQ, MOS, and/or other tools that are approved for use in your healthcare facility
  • Assess for the presence of cough and sputum production; monitor vital signs and capacity for performing ADLs, auscultate lungs, and review laboratory/other diagnostic study results(4)

› Request referral to PR to help improve QOL in patients with COPD
  • Educate your patients that PR focuses on increasing activity tolerance; reducing symptoms of dyspnea, fatigue, and depression; and increasing perceived sense of personal control
  • Encourage patients to maintain the activity level they achieve in PR in order to retain its benefits

› Provide educational information to help patients with COPD and their family members learn about how to improve QOL(4)
  • Educate about the importance of lifestyle modification (e.g., self-pacing performance of ADLs to improve tolerance, attention to food preferences when planning meals to promote good appetite, performing regular exercise, and smoking cessation)(4)
  • Educate about the impact of COPD and its treatment on QOL
    – Educate about treatment risks and benefits
    – Explain that treatment focuses on symptom management
    – Emphasize that adherence to the prescribed treatment regimen reduces risk of symptom exacerbation

› Request referral to a social worker for identification of local resources for support groups, PR programs, smoking cessation programs, and other educational programs on health and nutrition relevant to COPD
Coding Matrix

References are rated using the following codes, listed in order of strength:

- **M** Published meta-analysis
- **SR** Published systematic or integrative literature review
- **RCT** Published research (randomized controlled trial)
- **R** Published research (not randomized controlled trial)
- **C** Case histories, case studies
- **G** Published guidelines
- **RV** Published review of the literature
- **RU** Published research utilization report
- **GI** Published quality improvement report
- **L** Legislation
- **PGR** Published government report
- **PP** Policies, procedures, protocols
- **PFR** Published funded report
- **X** Practice exemplars, stories, opinions
- **G** General or background information/texts/reports
- **U** Unpublished research, reviews, poster presentations or other such materials
- **CP** Conference proceedings, abstracts, presentation

References

1. Asuka, I., Hideaki, S., Yoshika, H., Rumi, K., Shoko, I., Sumihisa, H., ... Naoto, R. (2013). Relationship between depression in patients with COPD and the percent of predicted FEV1, BODE index, and health-related quality of life. Respiratory Care, 58(2), 334-339. doi:10.4187/respcare.01844 (R)