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The Role of Physical Therapy In Treating the Patient with COPD in the Home: Medication Management, Smoking Cessation and Pulmonary Rehabilitation

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Disclosures

- **Presenter Disclosures:**
  - Financial: Presenter has received an honorarium for presenting this course, has courses available on MedBridge and is a faculty member of the APTA Advanced Competency in Home Health
  - Non-financial: Presenter is a member of the American Thoracic Society Pulmonary Rehabilitation Assembly
- **Content Disclosure:** This learning event does not focus exclusively on any specific product or service.
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Learning Outcomes

After this course, participants will be able to:

1. Identify classes of pharmacological agents used in the treatment of COPD.
2. List tools available to assist with medication management in the home health setting.
3. Describe clinical practice guidelines to support a patient in smoking cessation and how to modify if the patient is not ready to quit.
4. Describe the components of outpatient pulmonary rehabilitation.
5. Describe the role of the home health physical therapist in the management of a patient with COPD.

Chronic Obstructive Pulmonary Disease

- Airflow limitation that is not fully reversible
- Chronic Bronchitis
  - Perpetual inflammation with excess mucus production in lung bronchioles
- Emphysema
  - Abnormal and permanent enlargement of the alveoli
- (Asthma)

GOLD

- Global Initiative for Chronic Obstructive Lung Disease (GOLD): Global Strategy for the Diagnosis, Management, and Prevention of Chronic Obstructive Pulmonary Disease (2020 Report)

- ABCD Assessment Tool initiated in 2011

Diagnosis of COPD

- Symptoms
  - Dyspnea
  - Chronic cough
  - Sputum production

- Diagnosis through spirometry
  - Post-bronchodilator $FEV_1/FVC < .70$

Diagnosis of COPD

- Postbronchodilator $FEV_1/FVC < .70$
- FEV_1
  - GOLD 1: Mild with $FEV_1 \geq 80\%$ predicted
  - GOLD 2: Moderate with $50\% \leq FEV_1 < 80\%$ predicted
  - GOLD 3: Severe with $30\% \leq FEV_1 < 50\%$ predicted
  - GOLD 4: Very severe with $< 30\%$ FEV_1 predicted

Symptom Measures

- Modified British Medical Research Council (mMRC) Questionnaire
  - Measure of breathlessness
  - Grade 0 to Grade 4
  - Higher grade = more impairment
- COPD Assessment Test (CAT)
  - More comprehensive assessment of symptoms
  - 8-items on a Likert scale from 0 to 5
  - Total score 0-40 with higher score = more impairment

ABCD Assessment Tool

- Step 1: Confirm diagnosis through spirometry
- Step 2: Assess airflow limitation (GOLD 1-4)
- Step 3: Assess symptoms/risk of exacerbations
  - A: mMRC/CAT ↓ AND 0/1 exacerbations not leading to hospital admission
  - B: mMRC/CAT ↑ AND 0/1 exacerbations not leading to hospital admission
  - C: mMRC/CAT ↓ AND ≥ 2 exacerbations or ≥ 1 leading to hospital admission
  - D: mMRC/CAT ↑ AND ≥ 2 exacerbations or ≥ 1 leading to hospital admission

Initial Pharm Management

- Short-acting bronchodilator for symptom relief
- Group A:
  - Short- or long-acting bronchodilator
- Group B:
  - LABA or LAMA
- Group C:
  - LAMA
- Group D:
  - LAMA or LABA+LAMA or LABA+ICS

Initial Non-Pharm Management

- Group A:
  - Smoking cessation is essential
  - Physical activity is recommended
- Group B, C, D:
  - Smoking cessation and pulmonary rehab are essential
  - Physical activity is recommended

Bronchodilators – Beta$_2$-Agonists

- Short-acting beta$_2$-agonists (SABA)
  - ProAir HFA (albuterol)
    - 4-6 hours
  - Xopenex (levalbuterol)
    - 6-8 hours
- Long-acting beta$_2$-agonists (LABA)
  - Serevent (salmeterol)
    - 12 hours
- Side effects: tachycardia, tremor, hypokalemia, hyperglycemia

Bronchodilators - Anticholinergics

- Short-acting muscarinic antagonist (SAMA)
  - Atrovent (ipratropium bromide)
    - 6-8 hours
- Long-acting muscarinic antagonist (LAMA)
  - Spiriva (tiotropium)
    - 24 hours
  - Greater effect on reducing exacerbations (versus LABA)
- Side effects: dry mouth, urinary symptoms

Combination Drugs

- SABA/SAMA
  - Combivent (salbutamol/ipratropium)
    - 6-8 hours
- LABA/LAMA
  - Brevespi (indacaterol/glycopyrronium)
    - 12-24 hours
- LABA/ICS
  - Inhaled corticosteroids
  - Advair HFA (salmeterol/fluticasone)
    - 12 hours
- Triple therapy: LABA/LAMA/ICS
  - Trelegy Ellipta (fluticasone/umeclidinium/vilanterol)
    - 24 hours

Medication Management

American Geriatrics Society 2019 Updated AGS Beers Criteria® for Potentially Inappropriate Medication Use in Older Adults
By the 2019 American Geriatrics Society Beers Criteria® Update Expert Panel

STOPP/START criteria for potentially inappropriate prescribing in older people: version 2

By Denis O'Mahony, David O'Sullivan, Stephen Byrne, Marie Noelle O'Conner, Cristin Ryan, Paul Gallagher

Beers Criteria

- Developed by a consensus panel of experts under the lead of geriatrician Mark H. Beers in 1991
- Updates in 1997, 2003, 2012, 2015 and January 2019
- Intended for use by clinicians treating patients 65+ in all settings except hospice and palliative care
- Medications are divided into 5 categories:
  - Potentially inappropriate medications (PIMs) in most older adults
  - Drugs to avoid in the older adult with certain conditions
  - Drugs to use with caution
  - Drug-drug interactions
  - Drug dose adjustment based on kidney function

STOPP

- Screening Tool of Older Persons' potentially inappropriate Prescriptions
- Initially developed in 2008 through an evidence-based European study in an *age-specific* population
- 65 clinically significant criteria organized by physiological system
  - Updated in 2015 to now include 80 criteria
- Addresses
  - Drug-drug interactions
  - Drug-disease interactions
  - Medications that will increase risk of falls
  - Duplicate drug classes

Examples of STOPP

- Drug-drug interaction
  - β-blocker in combination with verapamil (*risk of symptomatic heart block*)
- Drug-disease interaction
  - NSAID with moderate-to-severe hypertension *(risk of exacerbation of hypertension)*
- Medications that will increase risk of falls
  - Benzodiazepines *(sedative, may cause reduced sensorium, impair balance)*
- Duplicate drug classes
  - Any duplicate drug class prescription, e.g. two concurrent opiates, NSAIDs, SSRIs, loop diuretics, ACE inhibitors (*optimization of monotherapy within a single drug class should be observed prior to considering a new class of drug*)

START

- Screening Tool to Alert doctors to the Right Treatment
- Initially developed in 2007 to identify potentially beneficial medication omissions
- 22 evidence-based indicators organized by physiological system
  - Updated in 2015 to include 34 indicators
- Examples
  - Angiotensin converting enzyme (ACE) inhibitor with chronic heart failure
  - Bisphosphonates in patients taking maintenance corticosteroid therapy

Smoking Cessation

Importance

The role of physical therapists in smoking cessation: opportunities for improving treatment outcomes

Physical Therapy

Pignataro, R. M., Ohtake, P. J., Swisher, A., & Dino, G. (2012

Barriers

The use of motivational interviewing in physical therapy education and practice: empowering patients through effective self-management. *Journal of Physical Therapy Education* Pignataro, R. M., & Huddleston, J. (2015)

Clinical practice guidelines: 5A's

- Agency for Healthcare Research and Quality (AHRQ)/US Public Health Service (USPHS)
- 5 A's of Smoking Cessation
  - (1) Ask
  - (2) Advise
  - (3) Assess – move on to assist vs. "5R's"
  - (4) Assist
  - (5) Arrange

Clinical practice guidelines: 5R's

- When the patient is not ready to quit in the next 30 days
- 5 R's
  - (1) Relevance
  - (2) Risks
  - (3) Rewards
  - (4) Roadblocks
  - (5) Repetition

Motivational Interviewing

- Evidence-based, collaborative approach to patient education
  - Patients play an active role
- A technique that allows PTs to assess readiness for change, provide individualized patient education and help individuals play an active role in self-management
  - Many "teachable moments" are available during the course of care
- Assumptions:
  - (1) Change comes from within
  - (2) Negative messages/confrontation are usually ineffective
  - (3) Knowledge and encouragement to change is not enough
  - (4) Reducing ambivalence is the key to change

Principles of MI

- Empathy versus sympathy
- Develop Discrepancy
  - “Change talk” to highlight and resolve ambivalence
- Roll with Resistance
- Support Self-Efficacy

Techniques for MI

- Ask open-ended questions
- Ask about pros/cons of current behavior
- Demonstrate reflective listening
- Look forward
- Assess importance and confidence using a 0-10 scale
  - Inquire why not 2-3 lower; will facilitate “change talk”
- Wait to give advice until asked to do so

Ask→Advise→Assess→Assist→Arrange

Relevance→Risks→Rewards→Roadblocks→Repetition

Pulmonary Rehab (PR)

- An Official American Thoracic Society/European Respiratory Society Statement: Key Concepts and Advances in Pulmonary Rehabilitation (2013)
  - "Pulmonary rehabilitation is a comprehensive intervention based on a thorough patient assessment followed by patient tailored therapies that include, but are not limited to, exercise training, education, and behavior change, designed to improve the physical and psychological condition of people with chronic respiratory disease and to promote the long-term adherence to health-enhancing behaviors."

Phases of PR

- Generally considered to be the same as cardiac rehab but perhaps less well defined in Phase 1 (IP, SNF, HH) and Phase 2 (OP)
  - Differences:
    - Patient is more likely to be referred to PR when stable versus after an acute event
      - More recent literature has shown early initiation of PR (within 3 weeks) of an admission for acute exacerbation of COPD is feasible, safe, and effective
    - First graded exercise test may be in supervised program versus prior to hospital discharge

Qualifications for PR

- Obstructive disease
  - COPD, persistent asthma, bronchiectasis, cystic fibrosis
- Restrictive disease
  - Interstitial lung disease, interstitial fibrosis
- Other
  - Lung cancer, pulmonary hypertension, lung transplant
- More often, referral based on patient c/o dyspnea, fatigue, functional limitations

Benefits of PR

- Reduce dyspnea
- Increase exercise capacity
- Improve quality of life
- Increase motivation for exercise
- Reduce mood disturbance
- Less symptom burden
- Improve cardiovascular function

Underutilized !!!

Components of PR

- Exercise Training
  - Interval training may be an alternative to endurance training for those unable to achieve parameters because of symptoms such as dyspnea, fatigue
  - Monitoring includes vital signs as well as breathing pattern, pulse oximetry, dyspnea rating
  - Neuromuscular electrical stimulation
    - Muscle contraction via NMES does not lead to dyspnea and creates minimal cardiovascular demand → may be beneficial in those with significant cardiac and/or pulmonary impairment
    - Stable COPD
    - Acute exacerbation of COPD
  - Inspiratory muscle training
    - Not helpful when used in isolation but *may* be helpful as an adjunct to exercise training

Collaborative Self Management

- Promote self-efficacy through an increase in patient knowledge/skills
  - Medication adherence
  - Regular exercise / physical activity
  - Nutritional habits
  - Breathing strategies
  - Energy conservation strategies

Barriers to PR

- Attendance
  - Disruption to routine
  - Travel/transportation/location*
  - Influence of patient's doctor
  - Lack of perceived benefit*
  - Inconvenient timing
  - Completion
- Completion
  - Illness and comorbidities
  - Travel and transportation*
  - Smoking
  - Depression
  - Lack of support
  - Lack of perceived benefit*

Case Study – Mrs. C

- 76-year-old female referred to ER from PCP office with 4 days of increased SOB
- PMH: Smoker x50 years - quit 26 years ago, COPD, HTN, DM, CAD
- Meds
  - Short-acting beta2 agonist
  - Long-acting anticholinergic
  - Diuretic
  - ACE inhibitor
  - Metformin

Case Study – Mrs. C (cont.)

- Hospital course x3 days and included addition of nebulizer treatments and antibiotic
- FEV_1 is 28% predicted
- mMRC: I get short of breath when hurrying on the level or walking up a slight hill. (1)
- CAT: 8/40
- History of one exacerbation requiring hospital admission to manage
- Goal is to return to golf and watching grandchildren 2 days / week

Summary

- Resources are available to assist in treatment with patient with COPD
- Accurate symptoms and exacerbation history/hospital admission are important in GOLD treatment recommendations
- Smoking cessation
  - 5A's
  - When not willing to quit in next 30 days, 5R's
- Referral to outpatient pulmonary rehab
  - Underutilized!

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