

Improving the Outcomes of COPD Patients

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Chronic Obstructive Pulmonary Disease (COPD) is a common disease that can be prevented and treated. It is characterized by lasting respiratory disease symptom and airflow obstruction caused by significant exposure to hazardous particles or gases. In most cases, COPD related to concomitant chronic illness.¹ This is a new boundary stated by the Global Obstructive Lung Disease (GOLD) in 2017 that omitted the previous one, which is, “usually progressive and associated with an enhanced chronic inflammatory response.” It also replaced the often-encountered term “extra-pulmonary effects and comorbidities” with “concomitant chronic illness.”

These changes obviously affected the clinical guidelines. The major impacts of the novel definition are:

1. Deprivation of the words “usually progressive” eliminated the skeptical attitude and mindset that consider patients with worsening condition even after taking continuous medication is a common consequence of COPD. This leads the clinical guidelines to aim for efforts in stopping COPD progression. In 2011, ECLIPSE study reported one third of COPD sufferers were not experiencing any progression. Moreover, a quarter of not-worsening patients were actually experiencing improvement.² It used to be believed that the more serious the COPD is, the faster the lung function decreases.³ But Tantucci et al, in 2012 reported that even though it is true that COPD sufferers’ lung function were keep decreasing along with the disease, it decreases the fastest at the initial phase.⁴ In the later phase (stage GOLD 3 and 4), the decline of lung function minimized instead. While in the previous, doctors disparaging the initial phase, now they need to be more aggressive in giving medication the early phase. Since COPD is a chronic disease that requires long term usage of drugs, early drug therapy will affect the total of drug usage that can eventually have impact on the potential drug side effect risk. Therefore, with consideration of the advantages and the risk of drug side effects, drugs with lower risk of side effect in prolonged use, will be the priority. Take an example, steroid, if it is used continuously, will raise the infection risk. Thus, steroid is no longer a priority compared to other drugs that have lower or even no risk.
2. Removal of the words “enhanced chronic inflammatory response” reduced the role of anti-inflammatory especially corticosteroid in COPD long-term therapy.
3. The words “extrapulmonary effects” gave an impression that several other diseases found in COPD sufferers are associated with the systemic effects of COPD.⁵ This phrase is now replaced with “associated with significant concomitant extrapulmonary disease” which implies that other diseases found in COPD sufferers are not caused by the COPD itself. It is most likely a coincidence or caused by any other factors that also incurred with COPD. The recognition that other diseases are frequently incurred but not any consequence of COPD, lead to active finding and treating other disease in COPD.

In the guideline of COPD treatment by GOLD 2017, several principals addressed to improve outcome of COPD sufferers are:

1. Primary indicator to early diagnose COPD is age above 40 years old with history of smoking or other noxious gas particles.
2. Evaluate exacerbation and living quality in the recent year and group the patients into class A, B, C, or D. The A and B groups are they who suffer less exacerbation (< 2 times per year), while C and D groups are those with two exacerbations or more in the last year. The A and C groups consist of patients with less symptoms whilst the B and D groups cover patients with more symptoms. The treatment of chronic stable COPD patients is then guided by this grouping (see figure 1.)¹

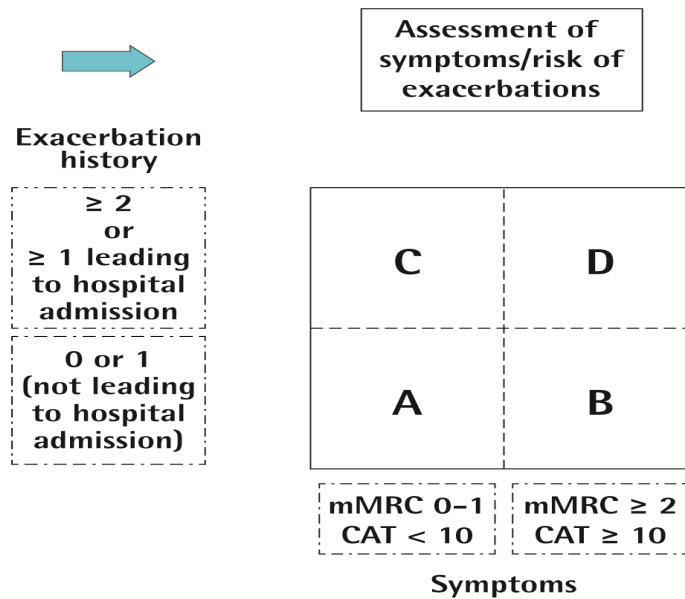


Figure 1. Grouping of COPD

- The assessment of symptoms are made by scoring the sufferers with COPD Assessment Test (CAT) scoring system or the modified British Medical Research Council (mMRC) questionnaire. In CAT score the sufferers should point themselves in the range of 1 to 5 the severity of their cough, phlegm, feeling of tightness, breathlessness, limitation of activities, sleep quality, feeling of lost of and confidentiality of leaving home. In the mMRC the sufferers define the breathlessness in their daily living.

I never cough	0 1 2 3 4 5	I cough all the time	<input type="checkbox"/>
I have no phlegm (mucus) in my chest at all	0 1 2 3 4 5	My chest is completely full of phlegm (mucus)	<input type="checkbox"/>
My chest does not feel tight at all	0 1 2 3 4 5	My chest feels very tight	<input type="checkbox"/>
When I walk up a hill or one flight of stairs I am not breathless	0 1 2 3 4 5	When I walk up a hill or one flight of stairs I am very breathless	<input type="checkbox"/>
I am not limited doing any activities at home	0 1 2 3 4 5	I am very limited doing activities at home	<input type="checkbox"/>
I am confident leaving my home despite my lung condition	0 1 2 3 4 5	I am not at all confident leaving my home because of my lung condition	<input type="checkbox"/>
I sleep soundly	0 1 2 3 4 5	I don't sleep soundly because of my lung condition	<input type="checkbox"/>
I have lots of energy	0 1 2 3 4 5	I have no energy at all	<input type="checkbox"/>

Figure 2. The COPD Assessment Test (CAT) Scoring⁶

Table 1. The Modified Medical Research Council (mMRC) Dyspnea Scale⁷

PLEASE TICK IN THE BOX THAT APPLIES TO YOU (ONE BOX ONLY) (GRADES 0-4)		
mMRC Grade 0	I only get breathless with strenuous exercise	
mMRC Grade 1	I get short of breath when hurrying on the level or walking up a slight hill	
mMRC Grade 2	I walk slower than people of the same age on the level because of breathlessness, or I have to stop for breath when walking on my own pace on the level	
mMRC Grade 3	I stop for breath after walking about 100 meters or after a few minutes on the level	
mMRC Grade 4	I am too breathless to leave the house or I am breathless when dressing or undressing	

- Start bronchodilator early in the progress of COPD. Short acting B2 agonist (SABA) or short acting muscarinic antagonist (SAMA) may be used for group A patients. Long acting bronchodilators are also can be used when risk factors are still available.
- For group B to D, the use of long acting muscarinic antagonist (LAMA) should always be considered. Treatment could be changed to other drug/s in accordance to the persistence of symptoms and exacerbation.

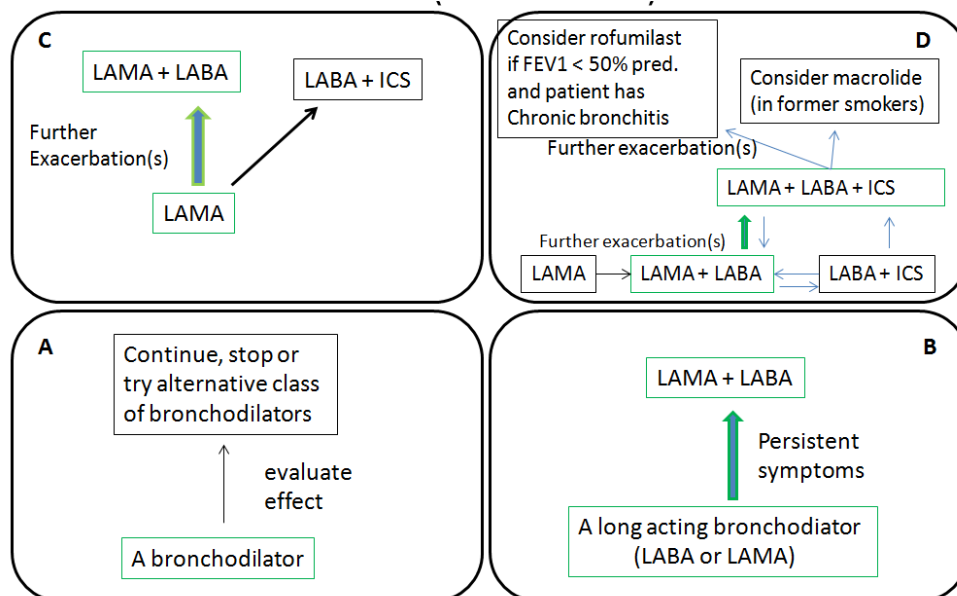


Figure 3. Pharmacologic treatment algorithms of COPD (GOLD 2017)

- In addition to drug treatment, patients should be assessed regularly in their inhaler technique. Any physician should understand the importance of education and training. Inhaler device has to be individualised depend on patient's ability and preference. Instructions and demonstration of a proper inhalation technique and re-check should be done at each visit. Adherence should be evaluated before a treatment is assessed as insufficient
- In hospitalized patients due to exacerbations the inclusion of hospital discharge criteria should be favourable results of full review of all clinical and laboratory data, confirmed maintenance therapy and understanding, reassessment of inhaler technique has been done, reassessment on the need for long-term oxygen has been done, capacity to do physical activities and activities of daily living has been documented, the CAT or mMRC score has been recorded and measurement of FEV₁ has been done.

8. Recommendation of 1-4 weeks of follow up and then 12-16 weeks of follow up should be given as an outpatient. Evaluation to patients ability to cope in the usual environment has to be assessed. In the follow up a complete review has to assess the understanding on treatment regimen, reassess of inhaler technique , reassess of long-term oxygen therapy, document the capacity to do physical activity and activities of daily living, document symptoms using CAT or mMRC, determine status of comorbidities and measure spirometry i.e the FEV₁
9. Comorbidities should be addressed and treated. The important comorbidities are cardiovascular disease, osteoporosis, anxiety and depression, lung cancer, metabolic syndrome and diabetes, gastroesophageal reflux (GERD), bronchiectasis, obstructive sleep apnea.
10. Importance of education and training cannot be over-emphasised. Choice of inhaler device has to be individualised and will depend most importantly on patient's ability and preference. Instructions and demonstration of a proper inhalation technique are essential also a re-check at each visit to ensure a correct use of the inhaler. Inhaler technique (and adherence) should be evaluated before a treatment is assessed as insufficient
11. In COPD patients not receiving corticosteroids, regular treatment with mucolytics such as carbocystein or N-acetylsysteine may reduce exacerbation.¹
12. At last, in GOLD 2017, management of stable COPD should be predominantly based on individualised assessment of symptoms and future risk of exacerbations. Appropriate non-pharmacologic interventions should complement pharmacologic treatments

Reference

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