



Management of Stable COPD – a Clinical Review

Butterworth K¹

¹Patan Academy of Health Sciences

COPD is a progressive, systemic disease characterized by airflow limitation that is not fully reversible. There have been a number of recent advances in the management of COPD. ¹ The purpose of this review article is to raise awareness of these advances and encourage their implementation in the context of Nepal.

COPD is a chronic disease and the principles of chronic disease management should be followed. The WHO strategy for comprehensive care of patients with chronic disease in the developing world includes:

1. Provide continuity of care with planned visits and regular follow-up
2. Delivery of services should be at the primary care level
3. Effective communication and referral systems between primary, secondary and tertiary levels of health care
4. Centre care on the patient, educate patients about their disease so they can become active participants in their care and promote adherence to long term treatments
5. Link care to community resources; provide education and support to family and community members to assist in care
6. Emphasize prevention
7. Monitor and evaluate the quality of services and long term patient outcomes
8. Develop health policies to support comprehensive care strategies

CORRESPONDENCE •

Dr. Katrina Butterworth

Professor

Department of General Practice and Emergency Medicine

Patan Academy of Health Sciences

Email: martinkatrinab@gmail.com

Reviewing these principles it is clear that there needs to be good education and training of patients, communities and mid level health workers (CMA's and Health assistants) as well as doctors in the best way to manage COPD. Most patients with COPD will be seen in the community setting rather than hospitals.² Good management in the early stages of the disease will slow progression to more serious and debilitating illness.

Prevention is a key principle. The most effective intervention for patients with COPD is stopping smoking. 3. Smoking is a major cause of COPD, but in Nepal another important cause is exposure to wood smoke from cooking fires.² There is similar evidence from Bogota in South America⁴, suggesting that education at a community level on the effects of smoking, and encouraging changes to a smokeless stove will have the greatest impact on reducing the incidence of this serious condition.

In established disease, continuity of care is important and patients should be seen regularly, preferably by the same health professional, who is following an evidence based protocol for disease management.⁵

The correct management of COPD requires that the health professional first makes an assessment of the severity of the disease. This is classically defined in terms of the reduction in forced expiratory volume in 1 second (FEV1) relative to that predicted for age, sex and height. In Nepal, in most hospitals and clinics, spirometry is not available. The Global Initiative for Chronic Lung Disease (GOLD) has also provided a useful clinical definition³:

Gold Class	Classification	Spirometry	Symptoms
0	At Risk (Smoker)	Normal	Chronic cough and sputum
1	Mild COPD	FEV1 50-79%	Cough with white sputum, little or no exertion breathlessness, no abnormal signs
2	Moderate COPD	FEV1 30-49%	Cough +/- sputum. Breathlessness/wheeze on exertion, some abnormal signs
3	Severe COPD	FEV1 < 30	Prominent wheeze and cough, clinical over-inflation, cyanosis (some pts have oedema and polycythaemia), cachexia, arrhythmias, poor exercise tolerance

Table 1: Gold Classification

Treatment of COPD occurs in a stepwise fashion with gradual addition of extra medication as the disease progresses. Unlike in asthma, it is unusual to step down treatment. The updated National Institute for Health and Clinical Excellence (NICE) guideline 5 on management COPD recommends:

All patients with COPD who are still smoking should be encouraged to stop

Gold classification	Clinical presentation	Management
0	Patients with stable COPD who have just occasional symptoms	Short acting inhaled bronchodilators (e.g. salbutamol) as required
1	Patients with stable COPD who are breathless or have exacerbations despite using short-acting bronchodilators	Either a long acting beta-2-agonist (LABA) such as salmeterol 50 mcg bd OR A long-acting antimuscarinic (LAAM) such as tiotropium 18 mcg once daily
2	Patients who remain breathless with the previous treatment	Either a LABA + an inhaled corticosteroid in a combined inhaler (e.g. salmeterol + fluticasone) OR a LABA + a long acting antimuscarinic (e.g. salmeterol and tiotropium)
3	Patients who remain breathless despite the above	LABA + inhaled corticosteroid + LAMA

Table 2: Clinical presentation and management according to GOLD classification

In addition NICE recommends that patients with more severe COPD should be offered pulmonary rehabilitation. In Nepal, a simple form of pulmonary rehabilitation would be to encourage patients to blow up balloons, or to blow through a straw into a glass of water. A Cochrane review 6 of pulmonary rehabilitation programmes after an exacerbation of COPD (graded exercises, education and psychosocial behavioural interventions including smoking reduction) was highly effective and safe intervention for reducing hospital admissions (NNT 3, 95% CI 2 to 4) and mortality (NNT 6, 95% CI 5 to 30)

In Nepal, the cost of medication is an important consideration in being patient-centred in our management and care of patients. See Box 1 for a comparison of costs of medication.

Cost of Medicine (For 1 months at regular dose) approximately in Rs			
Medicine	Oral	MDI	Rotahaler
Salbutamol	75	130	130
Salmeterol	-	120	160
Ipratropium	-	200	-
Tiotropium		450	375
Beclomethasone (200µgm)		350	160
Salmeterol + Fluticasone	-	580	375

Table 3: Approximate cost of medicines

There is no evidence of benefit for the use of oral theophyllines in the management of COPD. In Nepal there is also a widespread practice of using oral salbutamol tablets for the management of COPD. This is partly due to patient preference and lack of understanding about their disease. Patients find taking tablets easier and also there are widely held health beliefs that once you start inhalers you are very “serious” and will need to keep taking them (personal observation).

Oral salbutamol has far more side effects than the inhaled method, and is much less effective at relieving symptoms. In terms of cost, taking 4mg oral salbutamol three times per day, costs RS 75 per month. The benefit to the patient of reduced cost must be balanced with the improved quality of life and ability to work if using more effective medication.

There is also lack of knowledge and lack of confidence amongst health professionals in which inhalers are indicated and how to use them properly. Recent research in Nepal showed that the majority of health care workers do not know how to use an inhaler properly themselves⁷ so how can they effectively teach patients how to use them?

Patients will only benefit from using inhaled therapy if they have the correct inhalation technique. It is the responsibility of the prescribing health professional to teach patients how to use their medication properly.⁸

A description on how to use an inhaler properly is shown in Box 2 8. Detailed pictures showing correct use of an

inhaler are available on the internet 9. Many patients struggle to co-ordinate their breathing correctly with an MDI (metered dose inhaler), and for these patients the use of a spacer device is recommended. In the rural setting or in poorer patients a homemade spacer can be easily and cheaply produced by taking an empty mineral water bottle and cutting a hole at the base in which to insert the mouthpiece of the MDI. The patient then closes their lips around the mouth of the bottle, as they would with a spacer device and proceeds as shown in Table 4.

Step	MDI
1	Remove Cap
2	Shake Inhaler
3	Hold Inhaler Upright
4	Tilt head back or keep at level
5	Exhale to functional residual capacity (FRC) or residual volume (RV)
6	Insert or keep mouth piece 2-4 cm away from mouth
7	Begin breathing then actuate canister once
8	Continue slow, deep respiration
9	Hold breath for 5-10 seconds
10	Exhale, wait for 20-30 seconds before second actuation
11	Shake again before a second actuation

Table 4: Steps of using MDI

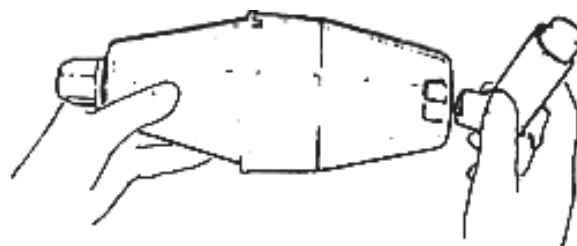


Figure 1: Use of a spacer device

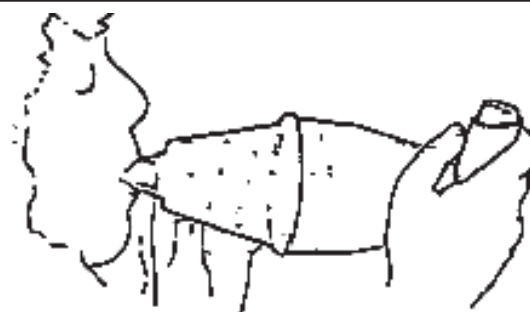


Figure 1: Use of a spacer device

CONCLUSION

COPD is a common, important chronic disease. Many patients present to the doctor only at the time of an acute exacerbation, the management of which is not covered in this article. The doctor however has a professional duty to review this patient when they are stable and ensure that they are fully informed about their illness and the optimal treatment available.

There is a firm evidence base now for the use of appropriate inhaled therapy, which depends on good clinical assessment of the severity of disease. Patients and health professionals need to know how to use inhalers properly to gain the maximum benefit. There is an urgent need for better education in the community as well as amongst medical staff of the benefits of better COPD management.

REFERENCES

1. Shankar P S, Recent advances in assessment and management of Chronic obstructive pulmonary disease, The Indian Journal of Chest Diseases and Allied Sciences, 2008: Vol 8: 79-88
2. Rajpandey M Domestic Smoke Pollution and Chronic Bronchitis in a Rural Community of the Hill Region of Nepal. Thorax 1984;39:337-339
3. Drug and Therapeutics Bulletin. Preventing exacerbations in chronic obstructive pulmonary disease. BMJ 2011;342:c7207
4. Dennis R, Maldonado D, Norman S, Baena E, Martinez G. Woodsmoke exposure and Risk for Obstructive Airways Disease among women. CHEST 1996;109:115-119
5. National Clinical Guideline Centre. Chronic obstructive pulmonary disease: management of chronic obstructive pulmonary disease in adults in primary and secondary care. 2010.<http://guidance.nice.org.uk/CG101/Guidance/pdf/English>
6. Puhan M, Scharplatz M, Troosters T, Walters EH, Steurer J. Pulmonary rehabilitation following exacerbations of chronic obstructive pulmonary disease. Cochrane Database Syst Rev 2009;1:CD005 305.
7. Shrestha A. Knowledge of Medical Personnels in using MDI device. SAJFM. Jan 2011: Vol 2(1): 21-25
8. Crompton GK. Problems patients have using pressurized aerosol inhalers. Eur J Respir Dis 1982; 63(suppl 119):101-04
9. Patient information: Inhaler techniques in adults <http://www.uptodate.com/contents/patient-information-asthma-inhaler-techniques-in-adults> Patient instructions for inhaled devices in English and Spanish. American College of Chest Physicians. <http://accpstorage.org/newOrganization/patients/inhaledDevices/patientEducation6.pdf> Emergency treatment via spacer device. GINA – the global initiative for asthma <http://www.ginasthma.com/OtherResourcesInhalerItem.asp?l1=2&l2=3&name=Emergency>