

One Breath At a Time

By Cherdchai Nopmaneejumrulers, MD

Senior clinical and research fellow, division of respirology,
University of Toronto, Toronto, Ontario.

Charles K.N. Chan, MD, FRCPC, FCCP, FACP

Associate professor of medicine, University of Toronto, and head,
division of respirology, University Health Network and Mount Sinai
Hospital. He is also acting head, division of respirology, Sunnybrook
and Women's College Health Sciences Centre, Toronto, Ontario.

What have we learned about respiratory illnesses?

Asthma

In years past, we had come to recognize that

there was a lack of optimal control of asthma in North America and Europe. New therapeutic options to help improve compliance, and perhaps assist in optimization of asthma control became available (Table 1).

Table 1

Asthma treatment options and their functions

Treatment type	Examples	Function/additional comments
Long-acting bronchodilators	Salmeterol, formoterol	Allow a reduction in daily inhaled steroids
Combination therapy	Fluticasone/salmeterol, budesonide/formoterol	More convenient to use
New class of non-steroidal antileukotriene agents	Zileuton, zafirlukast, montelukast	Active on the 5-lipoxygenase pathway; shown to be effective alternatives to inhaled steroids for patients with mild, persistent asthma.

Table 2

COPD treatment options and their functions

Treatment	Examples	Function
Lung transplant		Only viable for selected few
Lung volume reduction		Benefits patients with emphysema, but is not readily funded
Pulmonary rehabilitation		Improves quality of life and exercise tolerance
Non-invasive ventilation BIPAP		Reduces mortality, length of hospital stay, and the need for mechanical ventilation in acute exacerbation of COPD
New class of once-daily, long-acting anticholinergics	Tiotropium	Improves compliance and symptom relief, lengthens time to exacerbation
Oral prednisone		Important for acute exacerbation of chronic bronchitis in moderate/severe populations
Combination of inhaled steroid and a long-acting beta agonist	Fluticasone/salmeterol, budesonide/formoterol	Reduces exacerbations of COPD

BIPAP: Bilevel positive airway pressure
COPD: Chronic obstructive pulmonary disease

COPD

There have also been many developments in the treatment of chronic obstructive pulmonary disease (COPD) (Table 2).

Pneumonia

With the emergence of bacterial resistance to the traditional classes of antimicrobials, a new generation of quinolone has simplified the treatment regimen for pneumonia. This new treatment can be administered intravenously in ambulatory practice. A new generation of

macrolide has also just become available. As such, we will have more antibiotic options for the treatment of pneumonia. Resistance is going down overall in Canada due to more awareness and more restraint in antibiotic use. The use of the pneumonia severity index (PSI) clinical prediction rule can safely reduce admissions for low-risk patients presenting with community-acquired pneumonia and can also be used to choose treatment alternatives (outpatient parenteral antibiotic therapy, in-home nursing services, *etc.*) in specific groups of patients.

New viruses are now causing severe acute respiratory syndrome (SARS) in humans. We are currently awaiting rapid diagnostic tools, but it is unlikely to see antiviral products or vaccines for some time. Respiratory precaution has become a “normal” standard of practice in day-to-day patient care.

What's new in investigation techniques?

The new function of computed tomography (CT) (*i.e.*, high-resolution CT), with or without intravenous contrast and magnetic resonance imaging, has become an important and less invasive tool in the evaluation of chest structures.

Recent technologic developments have also introduced a number of improvements in the ability of clinical laboratories to cultivate and identify mycobacterium diseases more quickly than was previously done. These developments include more rapid detection of growth and tests to identify ribonucleic acid or deoxyribonucleic acid of mycobacterium tuberculosis complex and mycobacteria other than tuberculosis directly in clinical samples.

The scoop on PPH

For most of the last 40 years, the management of primary pulmonary hypertension (PPH) was largely supportive and invariably ineffective in improving symptoms or survival. However, the past decade has witnessed the development of a

variety of medical treatments which can result in substantial improvement in most patients. Treatments, such as epoprostenol and its analogue, a potent vasodilator, as well as bosentan, a novel, non-selective endothelin-receptor antagonist, were used in a randomized, controlled trial and showed that both responders and nonresponders to conventional therapy manifest improvements in exercise tolerance and hemodynamic stability, as well as prolonged survival. \square

Surf your way to...

1. The Canadian Lung Association:
www.lung.ca
2. The American Association for Respiratory Care:
www.aarc.org

