Using the asthma control test to improve asthma outcomes

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Abstract

There is a major gap between what can be achieved with modern asthma management and what is currently being achieved. One of the main reasons for this is a lack of recognition of asthma control and the requirement for more effective treatment—it is only through identifying those patients with uncontrolled asthma that appropriate treatment will be prescribed.

In part, the difficulty in the assessment of control relates to the lack of a clear therapeutic target in asthma. This contrasts with other chronic diseases such as hypertension or diabetes where treatment is prescribed in order to achieve a definite therapeutic target. One approach to this difficulty is to develop a simple test which is a screening tool to identify patients with poorly controlled asthma.

The Asthma Control Test (ACT) has been developed and validated for this purpose. It involves patients completing a simple written questionnaire of 5 questions, from which a score (out of 25) is obtained. It has been shown that the ACT is a simple, quick and accurate tool for assessing asthma control and it has been shown to be responsive to changes in asthma control over time. It can easily be incorporated into the routine assessment of patients with asthma and enable busy healthcare professionals to more easily identify patients whose asthma control can be improved, enabling changes to their management to be made and thereby improve outcomes.

The burden of asthma in New Zealand

Around 1 in 6 New Zealanders has asthma. The prevalence of asthma, along with other allergic disorders such as eczema, allergic rhinitis and food allergy is increasing and New Zealand has the joint highest levels of these allergic disorders in the world. Although deaths are uncommon, asthma is a very important disease as it is both common and chronic.

The economic burden has been estimated to be over $1 billion a year in New Zealand, the vast majority of this being indirect costs such as those associated with time off school and work due to exacerbations. Around half of costs are incurred by the 10% of patients with the most severe asthma, and the cost of care for a person with asthma has been estimated to be 100 times greater if a patient’s asthma is poorly controlled.

In terms of years lost to disability (YLD), asthma ranks first in males, third in females and third overall.

The disconnect between asthma control and its perception

Two large studies estimating the level of asthma control in New Zealand patients provide a fascinating insight into the disconnect that occurs between asthma control and how this level of control is perceived by patients.
The Patient Outcomes Management Survey (POMS) found that the vast majority of New Zealand patients did not have well-controlled asthma—7% were well controlled, 71% had asthma that was not well controlled and 19% were classified as having asthma that was markedly out of control.\(^4\)

However, a surprise finding was that 80% of patients were satisfied with their level of asthma control and 76% thought that their asthma was well-controlled.

Similarly, the 2007 NZ mini-INSPIRE study found that although 76% of patients were using their reliever on most days, 81% thought that their asthma was well-controlled and 77% were satisfied with their level of control.\(^5\)

How can it be that so many patients have poor asthma control, but think that they are actually well-controlled and are happy with the level of control? And how can understanding this disconnect help clinical practice? The answer to the first question is that patients have a natural tendency to tell their doctor what they think they want to hear. But more importantly, it is likely that patients with asthma seldom have few or no symptoms and so they do not know what good asthma control feels like – they have nothing to compare their current symptom level with.

Asthma researchers and clinicians are well aware of this fact if they have added a LABA to a patient’s treatment as part of a clinical study – many patients report that they never knew what it was like to experience few or no symptoms. The GOAL study demonstrated that excellent control can be achieved in the vast majority of patients.\(^6\)

As for the second question, how can understanding this disconnect help clinical practice...one lesson we can learn is that the way we assess asthma control now is often not detecting these high levels of poor control, and so we need better ways to assess asthma control.

**The need for a simple asthma monitoring tool**

What is asthma control? It depends who you talk to; patients, parents, doctors and regulatory authorities have very different ideas, as follows:

| Patients—no symptoms which interfere with normal lifestyle, no exacerbations, normal quality of life, particularly, no cough |
| Carers (parents)—able to get to school, no night cough |
| GPs—no unscheduled visits, few exacerbations, no admissions, maintenance of PEF |
| Respiratory physicians—no night symptoms, maintenance of lung function (FEV\(_1\)), few exacerbations, no admissions |
| Regulatory authorities—improvement in morning PEF & FEV\(_1\), improvement in symptom scores and quality of life, enhanced cost-effectiveness analyses |

The recently published joint American Thoracic Society/European Respiratory Society statement on asthma control and exacerbations has a detailed discussion of the many parameters that can be used to define control.

In this document asthma control is described, generally, as “the extent to which the various manifestations of asthma have been reduced or removed by treatment” which
is determined by “features such as symptoms, and the extent to which the patient can carry out activities of daily living and achieve optimum quality of life.” A variety of questions can be used to assess asthma control, such as the presence of night-time cough and frequency of reliever use, as well as measurements such as peak flow meters.

Not surprisingly, these varied approaches to assessing asthma mean that poor control is often not detected, even by respiratory specialists. If control is not accurately assessed, how can we effectively alter a patient’s management to obtain the best level of asthma control possible?

Asthma is almost unique when compared to other long-term chronic conditions in that there is not a single, simple, objective measure of the disease manifestation, which can be monitored over time and with treatment changes. For hypertension we measure blood pressure, for hypercholesterolaemia we measure blood lipids, and for patients with diabetes we measure HbA\textsubscript{1c} levels. No such measure is commonly used for asthma.

Such a measure would enable health care professionals to identify poor asthma control in their patients and treatments could be altered accordingly.

The Asthma Control Test (ACT)

A simple 5-question test for asthma has been developed and validated in several studies.\textsuperscript{7–12} The ACT was initially developed in a study which looked at 22 of the most common questions that doctors ask when talking to patients about asthma control, with 5 questions standing out as being the most accurate predictors.\textsuperscript{7}

The 5 questions take less than a minute to answer and can be asked by the health care professional or the patient can complete the test themselves. There is a score of 1–5 for each question, and an overall score in the range of 5–25, with low scores corresponding to a high level of symptoms and therefore poor asthma control.

Studies have shown that the ACT score effectively discriminates between patients who differ in asthma control, is responsive to changes in control, and can discriminate between groups of patients in different lung function ranges. The ACT score is highly effective as a screen for uncontrolled asthma and can correctly predict GINA-defined partly controlled or uncontrolled asthma in over 90% of cases.

A score of 20–25 means that a patient’s asthma is controlled. A score of 15–19 means that it may be possible to increase the level of asthma control and a full review of the treatment plan, including education on inhaler technique and the important of compliance with treatment, is warranted.

A score of 14 or less indicates that asthma is poorly or not controlled and that an urgent review of and changes to the patient’s management are needed. Although there are no randomised studies that demonstrate that use of the ACT translates into better asthma control, its use is highly likely to improve patient outcomes as asthma therapy can be confidently adjusted up if control is demonstrated to be poor.
Summary

There are high levels of morbidity from asthma in New Zealand, partly as a result of difficulties in identifying patients whose asthma is poorly controlled. There is no simple and objective assessment measure commonly used for asthma, unlike many other chronic conditions.

The ACT score provides a quick and simple assessment of asthma control with a result that is objective, easily understood by the health care professional and patient, and changes over time as asthma control changes.

The ACT score can easily be incorporated into the routine assessment of patients with asthma. This could enable busy health care professionals to more easily identify patients whose asthma control can be improved, enabling changes to their management to be made and thereby improving outcomes.

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