JUNE 2018

When guidelines collide – part one: Asthma diagnosis

There is a plethora of guidelines available to guide us in our diagnosis of asthma, but what should we do when the guidelines are at odds with each other? Beverley Bostock-Cox charts a pragmatic course

BEVERLEY BOSTOCK-COX
RGN MSc MA QN
Nurse Practitioner Mann Cottage Surgery
Moreton in Marsh
Education Lead Education for Health Warwick

Asthma puts a significant burden on healthcare resources in the UK. Mortality and morbidity in the UK is also one of the highest globally in spite of the easy availability of evidence-based guidelines and free healthcare.[1] The National Review of Asthma Deaths (NRAD) has had little impact on asthma mortality and many recommendations have not been implemented.[2] For a condition which is, for the most part, highly treatable, and which has a plethora of guidelines to inform practice, health care professionals should be eminently competent in the diagnosis and management of asthma. However, there are some key differences between these guidelines and these differences have caused some debate and confusion.

INTERNATIONAL, NATIONAL AND LOCAL GUIDELINES AND THEIR PROVENANCE

The key international guideline for asthma used in the United Kingdom is the Global Initiative for Asthma (GINA).[3] Although this is not the main guideline used in practice, it is often referred to in the literature. There are key similarities and differences between GINA and other commonly used asthma guidelines; for example, GINA recommends stepping up treatment if people are using a short acting beta2 agonist (SABA) two or more times a week, whereas the British Thoracic Society/Scottish Intercollegiate Guidelines Network advocate doing so if a SABA is required three times a week or more.[4] The GINA guidelines were first published in 1993 and have been regularly updated since then. The latest version was published in 2017, and updated in March this year.

The British Thoracic Society/Scottish Intercollegiate Guidelines Network (BTS/SIGN) has produced asthma guidelines since 2003; the latest version, which made some important changes to previous guideline recommendations about how asthma was diagnosed and managed, was produced in 2016.

Last year, the National Institute for Health and Care Excellence (NICE) published its first asthma guideline.[5] NICE guidelines are developed along slightly different lines when compared with other guidelines, in that there is a strong focus on the cost of interventions and not just how clinically effective they are. This financial element means that NICE will recommend the most cost-effective intervention if there is little or nothing to choose between two or

more options. This is what sometimes leads to NICE making recommendations which are out of synch with current practice, even though the recommendations are evidence based. NICE has received a great deal of criticism for its approach to developing guidelines using this approach and has recently been accused of producing guidelines which are not fit for purpose.[6]

Local guidelines are usually modelled on the BTS/SIGN publication but put a particular emphasis on local needs and recommendations, particularly when it comes to inhaler device and drug choice. While local guidelines and formularies can be used to support prescribing practice, it is essential, both ethically and clinically, to ensure that all patients get the treatment which best fits their own personal requirements. All guidelines and formularies are suggestions for management; they are not the law and most areas are looking for formulary-adherence rates of around 80%. A good local guideline will offer enough choice for most people to be treated effectively within the formulary and provide enough leeway with the 20% off-formulary prescribing allowance for this to happen. However, there can be difficulties if the local guideline is based primarily on the cost of treatment without consideration of the holistic needs and well-being of the individual concerned.

THE SCOPE OF NATIONAL GUIDELINES

The BTS/SIGN guideline is a broad guideline which includes the diagnosis of asthma and treatment of the condition across different ages groups and situations (e.g. in pregnancy) in both acute and long-term settings.

In contrast, the NICE guideline looks purely at diagnosis and ongoing management. There is nothing about acute asthma or emergency treatment and no reference to the management of severe or brittle asthma. Unlike BTS/SIGN, there is nothing about non-pharmacological treatments such as weight management or complementary therapies. It is, therefore, a guideline on the diagnosis of asthma and the management of chronic asthma rather than a full guideline on the management of asthma in all its presentations.

DIAGNOSIS

Much has been made of the different approaches to diagnosing asthma in BTS/SIGN versus NICE. However, there is a lot of similarity between the guidelines too, as would be expected if both are using an evidence-based approach. BTS/SIGN states that the diagnosis of asthma is a clinical one that should be made after carrying out a structured clinical assessment to assess the initial probability of asthma. The history should provide the basis for this decision. Typical symptoms such as cough, wheeze, tight chest and shortness of breath should be identified along with the presence of any triggers. A family or personal history of atopy increases the probability of an asthma diagnosis as does any report of variability in symptoms, both diurnal and as a result of the presence of good days and bad days. In the case of high probability, a trial of treatment should be initiated. If there is a low probability of asthma, an alternative diagnosis should be sought. If there is an intermediate probability of asthma, further objective tests should be carried out to confirm the diagnosis. However, it should be recognised that there is no diagnostic test which will confirm the diagnosis of asthma beyond all doubt.

According to BTS/SIGN, then, objective tests can influence the probability of a diagnosis of asthma but do not prove a diagnosis. In respect of the objective tests recommended by BTS/SIGN, spirometry is the investigation of choice, using the lower limit of normal to diagnose, together with bronchodilator reversibility testing. Other tests have a place however, including peak flow monitoring, measuring eosinophils, challenge tests and fractional exhaled nitric oxide (FeNO) testing.

Conversely, the NICE guidelines consider objective testing to be king. Although NICE endorses the importance of history taking, these guidelines state that asthma should not be diagnosed on symptoms alone but on a combination of history, examination and tests. The guideline places a strong emphasis on the role of spirometry in children, with or without FeNO testing. In adults, however, the advice is that everyone should have both spirometry and FeNO testing. NICE also recommends that history taking, examination

and objective testing should all be undertaken at the first presentation, if possible, with reversibility testing carried out if there is evidence of airways obstruction.

OPPORTUNITIES AND THREATS

It is understandable that with any diagnosis, it is desirable to have a black and white, positive or negative situation – desirable but unrealistic. There are several issues which make NICE's laudable aims difficult to achieve in practice.

NICE advocates FeNO in ALL adults with suspected asthma. There are significant resource implications here, as people will need access to expensive equipment and consumables, which often have a short shelf life. Anyone who has the equipment will need to be trained in both using it correctly and interpreting the results. If FeNO testing is outsourced to hubs there could be a delay in making the diagnosis, which is at odds with NICE's own recommendations and leaves patients at risk. The positioning of FeNO in the BTS/SIGN guidance suggests that, in their view, the role of FeNO is as an adjunct, not as a key diagnostic tool. GINA considers that FeNO is unhelpful in ruling in or ruling out an asthma diagnosis, and should not be used as the basis for a decision to withhold inhaled corticosteroids. For the latter two bodies, their views are largely based on the fact that FeNO testing is not widely available and that it gives false positives AND false negatives especially in people with a chest infection or in those who smoke. On that basis, the main focus of the diagnosis, they say, should be on the history.

Spirometry also comes with its challenges. Both BTS/SIGN and NICE recognise that normal spirometry does not exclude a diagnosis of asthma. In NICE's own feasibility study for implementing their guideline, spirometry was normal in 73% of those diagnosed with asthma.[7]

Spirometry is not always performed well and many tests have been shown to fail the national standards as defined by BTS/SIGN8 and the Quality Assured Diagnostic Spirometry (QADS) document.[9] Anyone involved in spirometry should be working towards inclusion on the national register by 2021. However, both the qualification and the register are for people performing and interpreting spirometry in adults whereas NICE recommends that spirometry should be carried out in anyone over the age of 5 years. If we take the same robust approach to paediatric spirometry training as we have with adult spirometry, this could mean people taking another qualification in order to diagnose asthma in children and adolescents. This will bring up yet another resource implication – time, training and cost – for all involved. Again, the understandable move that many areas are making to develop diagnostic hubs, will result in a potential delay to making the diagnosis in people who have symptoms of asthma.

OTHER TESTS

There are other tests which are suggested by both national guidelines, including peak flow readings, challenge tests and measuring eosinophils (in blood or sputum). Peak flow meters have much to recommend them as a portable tool for assessing variability and reversibility and an aid to education and self-management as patient see the impact of treatment (or not taking treatment) on lung function as well as symptoms.

Challenge tests are usually carried out in hospital and where there is diagnostic uncertainty. However, NICE's own assessment of the availability and impact of challenge testing was deeply disappointing.[7] In its feasibility study, 10% of the patients required bronchial provocation testing to confirm the diagnosis according to the NICE algorithm, and none had been able to access this by the time the study ended.

Eosinophils will potentially be raised in both blood and sputum in people with eosinophilic asthma.[10] However, the use of these tests is not fully established in general practice at this time.

THE PRAGMATIC APPROACH?

In essence, then, when it comes to using tests, BTS/SIGN says to use them if

the individual is not presenting as a 'barn door' case of asthma, whereas NICE says the tests should still be done even if they are. With the previously reported increase in asthma deaths, it might be postulated that under-diagnosis, delays in diagnosis and under-treatment should be a key concern and that a trial of treatment as a diagnostic aid, as advocated by BTS/SIGN, is a pragmatic and safer way of confirming the diagnosis for both patient and clinician.

IN SUMMARY

The Primary Care Respiratory Society says: 'A diagnostic algorithm based on repeated clinical assessments, peak flow monitoring and trials of initiating and discontinuing therapy, supported by objective clinical tests and with referral to specialist services in cases of doubt or difficulty, is a practical way forward.'[12]

It could be argued that both the NICE and BTS/SIGN guidelines provide this in their own ways. It is down to each organisation and ultimately each clinician to decide which guideline offers the best 'real-life' approach to diagnosing asthma by combining best evidence with available resources, including staff who are trained and competent in all aspects of the diagnostic process – history taking, objective testing and assessing response to therapies.

- Next time in When guidelines collide, treatment options and management issues

REFERENCES

1. Gupta RP, Mukherjee M, Sheikh A, et al. Persistent variations in national asthma mortality, hospital admissions and prevalence by socioeconomic status and region in England Thorax 2018; Published Online First: 14 May 2018. doi: 10.1136/thoraxjnl-2017-210714

2. Royal College of Physicians National Review of Asthma Deaths (NRAD): why asthma still kills, 2014 https://www.rcplondon.ac.uk/projects/outputs/why-asthma-still-kills

3. Global Initiative for Asthma (GINA) Report 2017 http://ginasthma.org/2017-gina-report-global-strategy-for-asthma-management-and-prevention/

4. BTS/SIGN British guideline on the management of asthma, 2016 https://www.brit-thoracic.org.uk/document-library/clinical-information/asthma/btssign-asthma-guideline-2016/

5. NICE NG80. Asthma: diagnosis, monitoring and chronic asthma management, 2017 https://www.nice.org.uk/guidance/ng80

6. Mahase E. NICE delays depression guideline labelled 'not fit for purpose' by GP expert group. Pulse 24 April 2018. http://www.pulsetoday.co.uk/clinical/mental-health/nice-delays-depression-guideline-labelled-not-fit-for-purpose-by-gp-expert-group/20036559.article

7. NICE NG80 Asthma: diagnosis and monitoring guideline. Primary care implementation feasibility project. Appendix Q: Feasibility report https://www.nice.org.uk/guidance/ng80/evidence/appendices-a-r-pdf-4656178048

8. BTS Spirometry in Practice, 2005. https://www.brit-thoracic.org.uk/document-library/delivery-of-respiratory-care/spirometry/spirometry-in-practice-a-practical-guide-(2005)/

9. Primary Care Commissioning Quality Assured Diagnostic Spirometry, 2013 https://www.pcc-cic.org.uk/sites/default/files/articles/attachments/spirometry_e-guide_1-5-13_0.pdf

10. De Groot JC, ten Brinke A, Bel EHD. (2015). Management of the patient with eosinophilic asthma: a new era begins. ERJ Open Research 2015;1:00024–2015. http://doi.org/10.1183/23120541.00024-2015

11. Primary Care Respiratory Society. PCRS-UK briefing document Asthma guidelines, 2017 https://view.officeapps.live.com/op/view.aspx?src=https://pcrs-uk.org/sites/pcrs-uk.org/files/BriefingAsthmaGuidelines_V3.docx

Back to top