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Global strategy for asthma management and prevention (2018 update)

The latest GINA report clarifies the concept of independent risk factors for exacerbation and puts new emphasis on the importance of uncontrolled asthma symptoms, higher bronchodilator reversibility, and identifies additional risk factors for developing persistent airflow limitation. It also updates advice about FeNO testing in diagnosis and ongoing treatment.1

The 2018 update follows the routine twice-yearly review of the literature by the GINA scientific committee. As this update is not classed as a major review, this summary focuses on what has changed. For completeness, it includes other sections such as assessment of control and treatment, including stepping up and stepping down therapy, but should be read in conjunction with our summary of the 2017 report.

WHAT'S NEW IN GINA 2018?

Assessment of asthma

The concept of independent risk factors for exacerbations has been clarified. These are factors that increase the risk of exacerbations, even if the patient has few symptoms.

Having uncontrolled asthma symptoms is an important risk factor for exacerbations.

Other potentially modifiable risk factors, even in patients with few symptoms, include:

- High SABA use (with increased mortality if >1 x 200 dose inhaler/month)
- Inadequate ICS: not prescribed ICS, poor adherence, incorrect inhaler technique
- Low FEV1, especially if <60% predicted
- Higher bronchodilator reversibility
- Major psychological or socioeconomic problems
- Exposures – smoking, allergen exposure
- Comorbidities: obesity, chronic rhinosinusitis, confirmed food allergy
- Elevated fractional exhaled nitric oxide (FeNO) in adults with adults with

allergic asthma taking ICS

Assessment of asthma symptom control

In the past 4 weeks, has the patient had

- Daytime symptoms more than twice a week?
- Any night-time waking due to asthma?
- Reliever needed for symptoms more than twice a week?
- Any activity limitation due to asthma?

Well controlled – none of the above

Partly controlled – 1–2 of these

Uncontrolled – 3–4 of these

Fractional exhaled nitric oxide (FeNO)

This test is becoming more widely available (and is recommended by NICE2 as an objective test for the diagnosis of asthma).

FeNO has not been established as useful for ruling in or ruling out a diagnosis of asthma. It is elevated in asthma categorised by type 2 airway inflammation but it is also elevated in non-asthma conditions, such as eosinophilic bronchitis, atopy, allergic rhinitis and eczema, and it is not elevated in some asthma pheontypes, e.g. neutrophilic asthma. It is lower in smokers, and decreased during bronchoconstriction and in the early phases of allergic response. It may be increased or decreased during viral respiratory infections.

In adult steroid-naïve patients (mainly non-smokers) with non-specific respiratory symptoms, a finding of FeNO >50 parts per billion (ppb) was associated with a good short-term response to inhaled corticosteroids (ICS). However, there are no long-term studies examining the safety, in terms of risk of exacerbations, of withholding ICS in patients with low initial FeNO.

FeNO can support the decision to start ICS but FeNO cannot currently be safely recommended for deciding against treatment with ICS. Based on current evidence, GINA recommends treatment with low-dose ICS, even for those with infrequent symptoms.

A raised FeNO test in pre-school children (>4 weeks after an upper respiratory tract infection) may predict the development of asthma by school age. Reference values have been published for children aged 1-5 years.[3]

In children and young adults with asthma, FeNO-guided treatment was associated with a significant reduction in the number of patients with ≥ exacerbation and in exacerbation rate per year compared with guidelines-based treatment. No significant differences were seen in symptoms or ICS dose with FeNO-guided treatment compared with other strategies. Further studies are needed to determine the optimal frequency of FeNO monitoring.

TREATMENT

Step 1

As need inhaled short-acting beta2-agonist (SABA)

SABAs are highly effective for the quick relief of asthma symptoms, but there is insufficient evidence about the safety of treating asthma with SABA alone, so this option should be reserved for patients with occasional daytime symptoms (less than twice a month) of short duration (a few hours), with no night-time waking and normal lung function. More frequent symptoms or the

presence of any exacerbation risk factors indicate that regular ICS is needed.

Step 2

Regular low dose ICS plus as-needed SABA

Treatment with ICS at low doses reduces asthma symptoms, increases lung function, improves quality life, and reduces the risk of exacerbations and asthma-related hospitalisations or death.

For patients with purely seasonal asthma, e.g. triggered by birch pollen, with no interval asthma symptoms, ICS should be started immediately symptoms start and continue until 4 weeks after the relevant pollen season ends.

Step 3

One or two controllers plus as needed reliever medication

GINA's preferred options for adults/adolescents are combination low-dose ICS/LABA as maintenance treatment plus as needed SABA OR combination low-dose ICS/formoterol as both maintenance and reliever treatment

In at risk patients, ICS/formoterol maintenance and reliever regimen significantly reduces exacerbations and provides similar levels of asthma control at relative low doses of ICS, compared with a fixed dose of ICS/LABA as maintenance treatment or a higher dose of ICS, both with as-needed SABA.

For maintenance treatment with as-needed SABA, adding LABA to ICS in a combination inhaler provides additional improvements in symptoms and lung function with a reduced risk of exacerbations compared with the same dose of ICS but there is only a small reduction in reliever use.

In children, the preferred option is to increase ICS to medium dose, which has a similar effect to adding a LABA to low-dose ICS.

Step 4

Two or more controllers plus as-needed reliever

Preferred option (adults/adolescents): combination low dose ICS/formoterol as maintenance and reliever treatment OR combination medium dose ICS/LABA plus as-needed SABA.

The selection of Step 4 treatment depends on the prior selection at Step 3. Before stepping up, check for common problems such as incorrect inhaler technique, poor adherence, and environmental exposures, and confirm that the symptoms are due to asthma.

For adults and adolescents with ≥1 exacerbations in the previous year, combination low dose ICS/formoterol as maintenance and reliever treatment is more effective in reducing exacerbations than the same dose of maintenance ICS/LABA or higher doses of ICS.

Tiotropium, a long-acting muscarinic antagonist, in a mist inhaler may be used as add-on therapy for adults or adolescents with a history of exacerbations. It modestly improves lung function and modestly increases time to severe exacerbation.

For children aged 6–11, if asthma is not well controlled on moderate dose ICS, refer for expert assessment and advice.

Step 5

Higher level care and/or add-on treatment

Patients with persistent symptoms or exacerbations despite correct inhaler technique and good adherence with Step 4 treatment and in whom other controller options have been considered, should be referred to a specialist with expertise in management of severe asthma for further investigation and consideration of add-on treatment.

Stepping up

Asthma is a variable condition and treatment adjustments may be needed.

- Sustained step up (for at least 2–3 months): some patients may fail to respond adequately to initial treatment. A step up is recommended if the symptoms are confirmed to be due to asthma, inhaler technique and adherence are satisfactory, and modifiable risk factors such as smoking have been addressed. If there is no response to the step up, treatment should be reduced to the previous level and alternative options or referral considered
- Short-term step up (for 1–2 weeks): an occasional short-term increase in maintenance ICS dose may be needed e.g. during viral infections or seasonal allergen exposure. This can be included on the patient's written asthma action plan so the patient can self-initiate.
- Day-to-day adjustment: for patients prescribed combination ICS/formoterol as maintenance and reliever treatment, the patient can adjust the number of as needed doses according to symptoms, while continuing the maintenance dosage.

Stepping down

Once good asthma control has been achieved and maintained for 3 months and lung function has plateaued, treatment can often be successfully reduced without loss of asthma control. The aims are:

- To find the patient's minimum effective treatment
- To encourage the patient to continue regular controller treatment: lower doses can be achieved if controller treatment is taken every day

REVIEWING RESPONSE AND ADJUSTING TREATMENT

How often should asthma be reviewed?

Patients with asthma should be reviewed regularly to monitor their symptom control, risk factors and occurrence of exacerbations, and to document response to treatment changes. For most controller medications, improvement begins within days, but the full benefit may only be evident after 3–4 months. In severe and chronically under-treated asthma, it may take longer.

Clinicians should assess control, adherence and inhaler technique at every visit, not just when the patient presents because of their asthma. Ideally patients should be seen 1–3 months after starting treatment and every 3–12 months thereafter. After an exacerbation, a review should be scheduled within 1 week.

FOLLOW-UP AFTER ACUTE EXACERBATION

On discharge for an exacerbation, medications should include as-needed reliever medication, a short course of oral corticosteroids (OCS), and for most patients, regular controller treatment. Patients should be advised to use their reliever inhaler only as needed, rather than routinely.

At the review visit, the clinician should assess whether the exacerbation has resolved and whether OCS can be stopped. They should assess the patient's level of symptom control and risk factors; explore the potential cause of the exacerbation; and review the written asthma plan (or provide one if the patient does not already have one). Maintenance controller treatment can generally be stepped back to pre-exacerbation levels 2–4 weeks after the attack, unless it was preceded by symptoms suggesting chronically poorly controlled asthma. In this situation, provided inhaler technique and adherence have been checked, a step up in treatment is indicated.

ASTHMA IN PREGNANCY

GINA has updated its advice on asthma in pregnancy, when asthma control often changes: in a third of women, symptoms worsen, in a third they improve, and in the remaining third, they remain the same. Exacerbations are common, particularly in the second trimester.

Although there are concerns about medication use in pregnancy, the advantages of actively treating asthma greatly outweigh the potential risks. Importantly, ICS reduce the risk of exacerbations during pregnancy, whereas stopping ICS is a significant risk factor for exacerbations. Given the evidence in pregnancy and for the fetus for adverse outcomes from exacerbations, stepping down treatment (whether guided by FeNO or other methods) should be a low priority until after delivery.

PERIMENSTRUAL ASTHMA

In approximately 20% of women, asthma is worse in the premenstrual phase. These women tend to be older, have more severe asthma, a higher body mass index, a longer duration of asthma and a greater likelihood of aspirin-exacerbated respiratory disease.

These women are also more likely to have dysmenorrhea, premenstrual syndrome, shorter menstrual cycles and longer menstrual bleeding. The role of hormone levels and systemic inflammation remains unclear.

In addition to the usual strategies for the management of asthma, oral contraceptives and leukotriene receptor antagonists may be helpful, but further research is needed.

PRACTICE NURSE – EDITOR'S COMMENT

The GINA report is the leading international guideline for asthma, and although it is not the main guideline used in practice, it is often referred to in the literature. The first GINA report was published in 1993, and it has been updated regularly since then, and because GINA reports take into account the latest evidence (to within 6 months of publication), provide a useful sense check for evaluating other guideline recommendations where there is contradiction or confusion.

References

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

3. Van der Heijden HH, Brouwer ML, Hoekstra F, et al. Reference values of exhaled nitric oxide in healthy children 1–5 years using off-line tidal breathing. Pediatr Pulmonol 2014;49:291-5

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