

Family Physician Airways Group of Canada

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Report from the Chair

The last few months have brought your executive to many interesting meetings and places and I would like to share with you all some recent developments.

In January, we were represented at a metropolitan Subcommittee of the Canadian Thoracic Society in Toronto, which dealt with issues in management of TB in urban areas across Canada.

I went to London, England for a day in February for a GSK funded forum on Asthma Control Measures, and I will report on the presentation which I did on this at the IPCRG meeting later in this newsletter.

In March, a workshop on Information transfer was held in Winnipeg, led by Dr. Allan Becker, sponsored by Allergen which was attended by members of your executive.

The Alberta Respiratory Disease Symposium meeting in April 2006 gave a forum for presentations by your executive on respiratory topics.

Health Canada has committees to define the requirements for review of new respiratory products in Canada, and a meeting in Ottawa in June 06 reviewed these requirements for SABAs and nasal ICS. A follow-up meeting in September will be held regarding ICS and LABAs.

The IPCRG had its third biannual meeting in Oslo and four members of your executive represented Canada at this meeting,

including doing over eight presentations for this international meeting on primary care physicians with interest in respiratory medicine. More will be reported on this later.

Finally, I am currently at an Asthma Guideline update

meeting, wherein we are reviewing the Canadian Asthma Guidelines in an effort to continue to decrease the care gaps that occur in Canada, to highlight new education, and encourage active participation of multiple stakeholders. Dissemination and Implementation of past and current guidelines were discussed at a special meeting I attended and will be reported in detail also.

I am excited to report on the IPCRG meeting in Oslo, and invite you to consider scheduling May 28-31, 2008 in Seville, Spain for the next meeting. Now for 2010... More to come!!

ALAN KAPLAN, MD CCFP(EM), CHAIR, FPAGC

CNAC meeting – May 12, 2006

1. Stats Canada will include questions re: respiratory issues in 2008 chronic health condition survey, such as hospitalization for asthma, ever received formal education?
2. Exam process. Certified Asthma Educators provide an important, but often unappreciated, and definitely undervalued, resource for the asthma care of Canadians. Unfortunately, many outpatient clinics have been cut due to financial pressures that hospitals face. Many CAEs no longer have jobs, many asthma clinics have been closed. Four hundred and forty eight CAEs have passed their exams. Re-certification has been recommended and offered, and less than 50% of certificants have been recertified. Although there is no regulation for certification, it does ensure that consistent messages are given to our patients across the country.

CAEs are valuable, not utilized enough, and decreasing in numbers. This is a step in the wrong direction. Perhaps regionalization of health care will allow increased utilization across local levels.

3. Pediatric guidelines for asthma care have been completed. Dissemination and implementation of such, continue to be of issue, as with all guidelines.
4. Much discussion over the newer certification examination of Certified Respiratory Educators, which would also include COPD management issues. This is a step outside the Asthma arena, and would incorporate input from the Canadian COPD Alliance.
5. ASED 7 occurred in Calgary November 17-19/05 and was very successful.

Suggestions from feedback from the exam will be incorporated into ASED 8 which will occur in Halifax in November 2007.

Alan Kaplan, MD CCFP(EM)

How do you diagnose Asthma?

The following article is a review of my presentation done at the IPCRG in June 2006.

Asthma is a common condition, with estimates of prevalence as high as one in five. We do know, however, not all that wheezes, is Asthma. There is a large differential diagnosis of the common symptoms in asthma of cough, wheeze and dyspnea. In adults it can include COPD, cardiac issues, upper airway issues, bronchiectasis, other lung diseases, pulmonary emboli, vocal cord dysfunction and hyperventilation syndrome, and others.

In children, special considerations in the differential are necessary, including congenital airway or vascular issues, bronchiolitis, foreign body, cystic fibrosis, and immune deficiencies.

How do you diagnose Asthma? Classically, it is a diagnosis based on spirometric evidence of airway obstruction and reversibility of FEV₁ in a patient with recurrent airways symptoms, flared by exposure to airway triggers. This is not the norm though, is it? What about children under 6, who cannot properly do spirometry? Trials of therapy abound in clinical practice, but are not always the correct decision upon review.

In children especially, it is useful to review risk factors for asthma in their assessment. The documented ones may include: Family history of asthma (esp. maternal), Smoking- prenatal and current, Male sex, Dust mite exposure, Prematurity/low birth weight/BPD, Low SES, Personal allergy history, urban setting, and Hospitalized RSV bronchiolitis. Controversial ones include Viral infections (Single child status/no daycare), Dietary factors, Diet low in omega fatty oils, No Breastfeeding, Obesity/inactivity, Pet ownership, Endotoxin (farm exposure).

Thus, diagnosis in children should include history and physical, risk factors, smoking exposure, atopic history, response to medications and the underused objective lung function measurement. What about those kids under 6? A study by Jose Castro-Rodriguez (American Journal of Respiratory and Critical Care Medicine V162. Pp1403-1406, 2000) has reviewed which children, under the age of six who have recurrent wheeze, are likely to have asthma. One major or two minor criteria as below are associated with asthma.

Major criteria include parental/physician diagnosis of asthma or physician diagnosed eczema. Minor criteria include physician diagnosed allergic rhinitis, wheezing apart from colds, and eosinophilia >4%.

There are newly created International Primary Care Airway Guidelines (IPAG) that assist in the diagnosis and management of Asthma, COPD and Rhinitis with the use of a series of questionnaires. These allow diagnoses based on relative

likelihood, recognizing that there are parts of the world where objective measurements of lung function are not available.

As mentioned, classically, spirometry and observation of an increase with bronchodilator in FEV₁ of 12% and at least 180 ml, or with time or treatment an increase of 20% and 250 ml is diagnostic. A Peak flow increase of 20% is also diagnostic. Unfortunately there is a higher false negative rate with Peak Flow than spirometry.

Variability in Peak Flow measurements by more than 10% can be used to assess inflammation also, but lacks sensitivity and specificity.

Testing for bronchial hyperresponsiveness with challenge tests can be useful in those patients with typical symptoms but normal pulmonary function tests (PFTs), atypical symptoms, or occupational asthma. There are false positives that we must be aware of, and access is not universal to this test. Methacholine and Histamine are the classic challenge tests. Office based testing with Mannitol is being done in many parts of the world.

Beyond this, we know that airway inflammation is the crux of the problem. As such, there are measurements of airway inflammation that are newer, and in fact likely more sensitive and even better guides of therapy than relying on symptoms or lung function. Sputum measurement of white blood cells after inhalation of hypertonic saline can reveal eosinophilic predominance vs. a neutrophilic one and can help to differentiate asthma vs. infection or COPD. This is done in only a few specialized centers and is very cost intensive requiring skilled cytologists.

A newer test is the measurement of exhaled Nitric Oxide. NO is produced by airways epithelial and endothelial cells ('eNOS') but in larger amounts by inflammatory cells (iNOS) It has multiple functions in lung including:

- mediating ciliary beat frequency
- promoting mucus secretion
- promoting vascular and bronchial dilatation
- neurotransmitter-non-adrenergic, non-cholinergic neurons

Eosinophilic inflammation can be reliably predicted with this measurement, with certain caveats including the measurement for diagnosis to not occur during a viral exacerbation. Currently, the testing machines are large and expensive, but there are newly developed hand-held, less expensive machines that will revolutionize this test. It can also be used for monitoring therapy, and not just diagnosis. The current Canadian expert in this technology is Dr. Steven Bence in Ottawa, Ontario.

In summary, asthma diagnosis is based on history, physical, radiology, questionnaires, lung function, bronchial provocation studies, or measurements of airway inflammation. Empiric trials of therapy are what are really done, but I would like to challenge you to consider an objective measurement prior to institution of potential lifelong therapies.

ALAN KAPLAN, MD CCFP(EM)
PRÉSIDENT, FPAGC

Control of Asthma, how do we do it and how do we measure it?

IPCRG, June 2006

The goals of asthma management are to improve quality of life, reduce exacerbations, minimize medication, ensure maximal lung function, decrease symptoms and absences, and minimize activity limitation. The reality is that in all countries, with studies of such in Canada, USA, and Europe, we have not reached sufficient levels of control. I would like to review some of the reasons why and how to approach our patients, and then review some tools to better measure control.

Patients who have poor control are associated with more exacerbations, more absences, lower quality of life, higher costs and more unplanned visits. Estimates from studies show that 80% of costs come from 20% of patients (Buxton HERG 1996). Costs of asthma care in patients with no exacerbations are a mean of £265 vs. those with exacerbations of £1319 (Brown R, Lloyd A, Price D IPCRG 2004). Quality of life, measured in the same paper, in patients with exacerbations is clearly significantly lower than those without.

The indicators of control are clearly laid out in the Canadian Asthma Guidelines and include daytime symptoms less than four times per week, use of rescue β_2 less than four times per week, no exacerbations, no activity limitations, no school or work absences, and optimization of lung function. There are slight differences in all international guidelines and I include the most recent GINA guidelines of control. These highlight what they feel are full control, uncontrolled and partly controlled which needs negotiation between patient and physician. Clearly there is still a difference in which areas of control are lost (such as nocturnal awakenings being a significant concern) but they give a flavour of where to intervene.

Recent work by Bateman et al (GOAL investigators group) showed that with aggressive higher dose combination therapy excellent control was achievable in most, but not all patients. This highlights that drug therapy alone, even including Prednisone, cannot ensure complete control in all of our

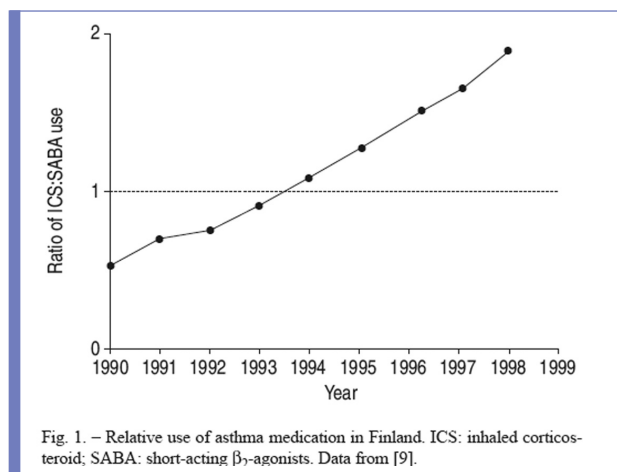
patients. Thus we must look at other issues such as adherence, technique, comorbidities, and continued trigger exposure.

In addition, most of the large studies have been done in specialist offices (who have lots of resources), nurse educators, respiratory therapists in clinics, etc. We must practically be able to assess control in a rapid efficient manner in the primary care practitioner's office.

An integrated national approach may be what is needed to improve the situation. The lesson can be taken from Finland, where asthma was taken to be a significant national issue, with an increase in prevalence and hospital admissions (and thus cost!). A ten year plan was created in 1994 with the following goals and results:

1. Decrease in special reimbursement for drugs.
2. Decrease in; hospital days, disability pensions, days off work with no increase in relievers.
3. Decrease in severe asthma (40-35%)
4. Decrease in hospital beds by 35% (goal was 50%)
5. Total cost per patient decreased by 10-20% but increase in medication cost.

(T.Hahtela, et al, Thorax 2001;56; 806-814)



As you can see from the graph above, there was a steady improvement in the ratio of ICS:LABA. This is a clear indicator of our desire to improve the use of anti-inflammatories and decrease the reliance on β_2 -agonists.

In order to discuss Control, we must consider the differentiation between control and severity. This is something that is difficult for even specialists to often agree on! A study on pediatric asthma specialists found that the agreement was fairly poor on severity, especially as severity worsened (KM Baker et al. Chest 2003).

Another area wherein we may be underestimating our patients suffering is the fear that they have, due to their asthma. In addition, more work is being done on patient goals in decisions of their treatment. When patients are asked what they want, four domains are usually responded; activity limitations, asthma

GINA 2006			
	Controlled	Partly controlled	Uncontrolled
Daytime symptoms	None	2 or more/week	≥ 3 present per week
β_2 use/rescue	None	2 or more/week	of these
Nocturnal symptoms/Awakenings	None	Any	
Activity Limitation	None	Any	
Lung function	Normal	<80% predicted	
Exacerbations	None	≥ 1 per yr	1 in any week

symptoms, exacerbations, and to be less reliant on medication.

Patient adherence to therapy is a huge issue. In an interesting model by Dr. Rob Horne, a balance between the perceived necessity and the concerns of the drug will decide on the likelihood of the patient actually using the drug. As such, it is clear that when a patient has significant concerns about ICS safety, there is a real risk of patient non-adherence. Clearly also, SABA give immediate results and thus the perceived benefit will be high. Recognition, education and reassurance are the solution to this problem.

Clearly, we recognize that patients often accept their symptoms as their normal. Thus explanation of what they should expect, i.e., raising expectations, can often change their behaviours. Patient expectations of their asthma are clearly quite low (Price D, et al. *Asthma J* 1999). A study by current IPCRG president, Dr. John Haughney (Haughney J, Barnes G, Partridge M, Cleland J. *The living and breathing study: a study of patients views of asthma and its treatment. Primary Care Respiratory J.* 2004; 13: 28-35.) showed that by demonstrating to a patient what they should expect, can allow them to be more aggressive in their management and subsequent control of their illness.



Comorbidities often prevent full asthma control. They can include the presence of allergic rhinitis (Thomas, Price. *Pediatrics* 2005, Price, Thomas. *Clin Exp All* 2005) smoking, trigger exposure, GERD and other diagnoses (eg. COPD, cardiac).

How should we measure control? Clinically we measure symptoms. Use of objective measures of pulmonary function with spirometry or peak flows can clearly identify patients who have symptom benefit but persistent obstruction. In addition, use of spirometry can identify patients with a

different diagnosis than was expected. This has been shown in a number of primary care studies (Freeman D. et al *ATS* 1999).

We are trying to really assess airway inflammation. This can be done with surrogate markers such as lung function, airway hyperresponsiveness, or markers of airway inflammation. Challenge tests with methacholine or histamine in pulmonary laboratories, or potentially mannitol in our offices, can reveal the twitchy airway, even in patients with normal lung function, and often in those with atypical symptoms. Currently there are two measurable markers of airway inflammation including sputum eosinophils and exhaled Nitric Oxide. In addition, there is some work being done on measuring urine metabolites of the inflammatory cascade, but this is not yet available.

Management of patients with dosing decisions based on airway hyperresponsiveness (Crimi E, et al. *Am J Respir Crit Care Med* 1998;157:4-9. Leuppi JD, et al. *Am J Respir Crit Care Med* 2001; 163:406-12. Sont JK, et al. *Am J Respir Crit Care Med* 1999;159:1043-51), sputum eosinophils (Green RH, et al. *Lancet* 2002;360:1715-21), and exhaled nitric oxide (NEJM May 26 2005), clearly result in lower exacerbations at lower total steroid dosages.

What tools are available to measure control? There are a number of different tools which I will list and display. An article rating these tools for ease of use, validation, and general reliability is pending publication, and thus I will not go into those details here. The tools include the 30 second test, the rules of two, royal college questionnaires, the Asthma control questionnaire, and the Asthma control test. In addition, newer work on questionnaires that include patient goals, attitudes, triggers and inhaler use are being investigated and may well be preferable (MAAT: Minimal Asthma Assessment Tool., Rob Horne, Stan Musgrave, Amanda Lee & David Price GPIAG 2005).

Other investigational studies were reviewed in posters at the IPCRG meeting. Daryl Freeman used a questionnaire delivered by telephone to monitor control. Paolo Renzi has created a paper stamp checklist tool for Quebec

physicians, to ensure that the correct questions are asked in the clinical setting. Barbara Yawn is studying the Asthma APGAR tool in Minnesota. Louis Phillippe Boulet has created a set of playing cards to promote interactivity between primary care physicians and their patients.

Finally, it sometimes just takes education. Do you have time to do the appropriate educating about asthma to your patients? If not, consider the referral to a certified asthma educator to reinforce your messages, ensure adequate inhaler technique, environment trigger review and the review of the condition.

In summary, our goal is to get patients under control.
We can do this with:

- Patient guided objectives.
- Education on what outcomes patients should expect!
- Guideline based treatment.
- Understanding limits based on ongoing triggers, comorbidities, device technique.
- Promote adherence.
- Individualized therapies.
- Consistent measurements in our practice.

ALAN KAPLAN, MD CCFP(EM)

Asthma Control Test™ (ACT)

• In the past 4 weeks, how much of the time did your asthma keep you from getting as much done at work, school or at home?

All of the time **1** Most of the time **2** Some of the time **3** A little of the time **4** None of the time **5**

• During the past 4 weeks, how often have you had shortness of breath?

More than once a day **1** Once a day **2** 3 to 6 times a week **3** Once or twice a week **4** Not at all **5**

• During the past 4 weeks, how often did your asthma symptoms (wheezing, coughing, shortness of breath, chest tightness or pain) wake you up at night, or earlier than usual in the morning?

4 or more nights a week **1** 2 or 3 nights a week **2** Once a week **3** Once or twice **4** Not at all **5**

• During the past 4 weeks, how often have you used your rescue inhaler or nebulizer medication (such as albuterol)?

3 or more times per day **1** 1 or 2 times per day **2** 2 or 3 times per week **3** Once a week or less **4** Not at all **5**

• How would you rate your asthma control during the past 4 weeks?

Not controlled at all **1** Poorly controlled **2** Somewhat controlled **3** Well controlled **4** Completely controlled **5**

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Asthma Control Questionnaire

Please answer questions 1-6. Circle the number of the response that best describes how you have been during the past week:

- On average, during the past week, how often were you woken up by your asthma during the night?

0 Never	1 Hardly ever	2 A few minutes	3 Several times	4 Many times	5 A great many times	6 Unable to sleep because of asthma	7 FEV ₁ pre-bronchodilator: _____ FEV ₁ predicted: _____ FEV ₁ % predicted: _____
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- On average, during the past week, how bad were your asthma symptoms when you woke up in the morning?

0 Never	1 Hardly ever	2 A few minutes	3 Several times	4 Many times	5 A great many times	6 Unable to sleep because of asthma	7 FEV ₁ pre-bronchodilator: _____ FEV ₁ predicted: _____ FEV ₁ % predicted: _____
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- In general, during the past week, how limited were you in your activities because of your asthma?

0 Never	1 Hardly ever	2 A few minutes	3 Several times	4 Many times	5 A great many times	6 Unable to sleep because of asthma	7 FEV ₁ pre-bronchodilator: _____ FEV ₁ predicted: _____ FEV ₁ % predicted: _____
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- In general, during the past week, how much shortness of breath did you experience because of you asthma?

0 Never	1 Hardly ever	2 A few minutes	3 Several times	4 Many times	5 A great many times	6 Unable to sleep because of asthma	7 FEV ₁ pre-bronchodilator: _____ FEV ₁ predicted: _____ FEV ₁ % predicted: _____
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- In general, during the past week, how much of the time did you wheeze?

0 Never	1 Hardly ever	2 A few minutes	3 Several times	4 Many times	5 A great many times	6 Unable to sleep because of asthma	7 FEV ₁ pre-bronchodilator: _____ FEV ₁ predicted: _____ FEV ₁ % predicted: _____
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- On average, during the past week, how many puffs of short-acting bronchodilator (eg. Ventolin) have you used each day?

0 Never	1 Hardly ever	2 A few minutes	3 Several times	4 Many times	5 A great many times	6 Unable to sleep because of asthma	7 FEV ₁ pre-bronchodilator: _____ FEV ₁ predicted: _____ FEV ₁ % predicted: _____
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FPAGC Annual General Meeting

This year the FPAGC is holding its Annual General Meeting in conjunction with the Canadian COPD Alliance Conference at the Westin Hotel, Calgary.

Besides the business meeting we hope to provide you with an update on some of our initiatives as well as a couple of short presentations, "CHF v COPD" by Rob Hauptman and "Asthma Sucks" by Tony Ciaverella.

Our meeting will start at 8:00 p.m. on Friday November 17th. Refreshments will be served. So that we are able to plan for the refreshments please pre-register with Glyn Smith at admin@fpagc.com no later than November 14th.

See you there!

IPCRG Report

I attended a number of meetings at the IPCRG including research, education, and membership.

Research subcommittee IPCRG:

1. *LTRI (Lower Respiratory Tract Infection) project*
 - Comparison of antibiotics vs. no-treatment in global setting
 - IPCRG and NRC (UK)
2. *ESPACE*
 - Global study in 9 countries on asthma assessment tool endorsed by IPCRG for use in children. Co-ordinated with EFA and GALEN
3. *GARD (Global Alliance Against Respiratory Disease)*
 - Umbrella organization on asthma, COPD, and rhinitis including multiple (42) organizations led by WHO with first meeting in Beijing this year. It includes groups like GOLD, GINA, ERS, ATS, ARIA and multiple others. It has been created as a part of chronic disease management in WHO, to keep respiratory disease in perspective. The short term goal of GARD is policy change with eventual action. The only primary care groups were WONCA and IPCRG.
 - Three projects suggested by Niels Chavannes of the IPCRG,
 - a) hands on educational materials and guidelines.
 - b) smoking cessation, like cost effectiveness issues.
 - c) educational process, measuring effects of educational processes locally in environments.
4. *Dr. Rupert Jones project on rehabilitation in COPD in UK patients*
 - Mild COPD with FEV1 50-80%.
 - Start Tio in patients not controlled on SABD.
 - Randomized to normal care or an exercise program (vs. full pulmonary rehab which is academic and not-available).
 - Health enhancing physical activity.
 - Endpoints QoL, shuttle walk test.
 - These methods will be on website, perhaps allowing meta-analyses in the future.
5. *Specialist and Generalist in same person. UK GPs with special interest in Respiratory diseases*
 - The UK Government likes this to shorten waiting lists. There are accreditation and training interests and local issues in different settings can limit uptake.
 - The benefits of a GPSI (GP with special interest) are clinical local benefits and leadership issues to improve educational standards in individual communities.

6. Spirometry quality issues

- Spirometry in primary care not up to proper standards. Are there tools like spirometers with quality feedback to encourage proper spirometry? This highlights the need for simple spirometry tools to assure standards in primary care, and reduce the criticism of specialist groups that claim that FP done spirometry is inferior. Adequate respiratory care in primary care necessitates spirometry availability.

Education committee June 10, 2006:

1. BI sponsored IPCRG website based slide set that can be worked with on the site to create slides for a talk.
2. IPCRG to create speaker bureau for subjects around the world for topics, content and speaking ability. Get onto the list by being nominated by a representative from an IPCRG member country (like me!) with languages available.
3. Position paper (needs to be dated and updated).
 - Creative Commons license: legal process to allow people to use it freely, but not for commercial profit and not changed, with appropriate acknowledgment but not copyrighted, so that they are easily usable.
 - Done: Theophylline
Children's asthma
Spirometry
Asthma control measures
 - To do: Nasal Steroids
Smoking cessation
Allergic testing
Palliative care in COPD (GPIAG started)
4. Membership of committee
5. Communication by email, subcommittee face to face meetings at IPCRG and ERS meetings.
6. IPAG guidelines owned by MCR Vision, but they are on IPCRG website and can be used.
7. Patient care resources a future value added.

Membership Committee:

This meeting highlighted how to bring new country members to the IPCRG. In order to become a member, the country must have a local group involving family physicians with a respiratory interest. Membership is steadily growing and enthusiasm for the group is occurring, especially with membership in key organizations like GARD.

Future meetings:

This is the exciting part. The next meeting is in Seville, Spain May 28-31, 2006. We are coming to CANADA in 2010!!

We want to see you there!! More details coming!!

ALAN KAPLAN, MD CCFP(EM)

Asthma Guideline Update

Niagara on
the Lake

June 15-17, 2006

This meeting, under the leadership of the CTS Asthma Committee chair, Dr. Andrew McIvor, met to review asthma management in Canada. Topics include controller therapy, LTRA update, IgE update, diagnosis, non-invasive markers, asthma education, asthma in ER, asthma in ICU, a review of the asthma continuum, and the issue of knowledge translation in family and specialist practices. Details of recommendations cannot be released until they are published, but I will highlight what was discussed.

GINA updated its guidelines in a 400 page document this year with representation by Canadians, Dr. Paul O'Byrne and Dr. Mark Fitzgerald. The meeting was not to re-review all the data, but instead, to endorse GINA guidelines and to flavor them with the Canadian landscape, and ensure adequate dissemination and implementation.

LTRA update discussion

Place in therapy was discussed in monotherapy, add on therapy, exercise induced asthma, and treatment with co-existent allergic rhinitis. Other issues such as adverse effects and use in other special populations were discussed.

IgE update

This expensive, injection based therapy is to be considered for patients with severe asthma, especially those requiring systemic steroids. This should be recognized by the family physician as a potential therapy, but will be provided in specialized centers. A full work-up to investigate why the standard therapy has not allowed control, should occur prior to starting this therapy, and is the rationale behind why expert consultation should be had prior to this medication being used. Assessment of efficacy should be performed at six months to decide on continuation of the medication.

LABAs

Studies were reviewed on the use and safety of LABAs. This was the most controversial part of the weekend, especially in light of the recent USA SMART study and the concern of mortality in a subset of patients on monotherapy with LABA.

Airway Inflammation

There is no question that measurement of markers of inflammation would assist in the management of asthma. Induced sputum and exhaled nitric oxide can indicate eosinophilic inflammation and help decide diagnosis and further therapy.

Asthma Education

Asthma is a disease that should be controlled, but frequently is not. Education to change behavior is the only way that the gap between treatment efficacy and effectiveness can be closed. We understand that Asthma is a chronic disease that can be controlled with medications, device technique, environmental adjustment, and review. Certified asthma educators are a resource that we have in Canada, use them!

Asthma in ICU

GINA did not have a section on this and a case based program will be created on this, not to be a part of the document for FPs, but will be web linked. In addition, there is clearly a relationship to the ER management of asthma.

Occupational asthma

New adult asthma should have the diagnosis of OA considered, as people who are sensitized to work exposures, may well develop a severe fulminant form of the disease. New onset adult asthma should be considered for OA, and referred accordingly. A list of OA resources need to be created.

CTS Asthma website

Discussion occurred as to how it will be set up and even more importantly, who is the target audience? It needs tools, links to useful websites with resources (such as inhaler technique). Marketing of the site is important. Should the site be coordinated with others?

Continuum

The diagram was reviewed and revised to iterate the new areas of emphasis.

Alan Kaplan, MD CCFP(EM)

Pediatric Asthma

Lack of evidence on the use of long-acting β_2 -agonists (LABAs)

Dr. Alan Kaplan, MD CCFP(EM)

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Approximately one million Canadian children have asthma. Many are treated with a combination of medications often including long-acting β_2 -agonists (LABAs) which are in a class known as bronchodilators.

There is incredible data regarding the safety, efficacy, improvement in quality of life, and exacerbation prevention in the use of the combination of inhaled steroids and LABAs in adults. Efficacy and safety data for the paediatric market, however, is often incomplete; instead relying on extrapolating adult data. This adult data is now being called into question due to the recently published SMART Trial.

Recent commentaries published in *The Lancet*¹, *CHEST*^{2,3} and *The New England Journal of Medicine*⁴ put into question the safety of LABAs.

Dr. H. Bisgaard and Dr. S. Szefer in *The Lancet* question the current approach to treating childhood asthma with these medications: "(...) there is no evidence to support the use of LABAs as standard add-on treatment in paediatric asthma and children are rapidly being switched to treatment with LABAs in the absence of paediatric data" and, "(...) it is appropriate that physicians, parents of patients and patients are made aware of this lack of evidence".

The SMART data involved a study of monotherapy of Asthma with Salmeterol. Being that Asthma is an inflammatory disease, in hindsight it is clear that asthma should not be treated in the absence of an anti-inflammatory. It is also known that in a certain genotype⁵, there is an increased risk of tachyphylaxis from continued use of β_2 -agonists, which will worsen the disease. Unfortunately, a subset of young male African Americans had an increased risk of mortality in the study, thus bringing up the issues written above. Again, however, this was a study of monotherapy with LABAs in asthma, which is not how they are prescribed when in combination therapy such as Advair or Symbicort. Some may say that 48% of patients went into the study on ICS, but the data is unclear on how many patients remained on ICS, thus we must assume that a significant number of patients were on LABA alone. It was also not a study of patients with COPD, wherein LABAs are an approved monotherapy.

Over the past twelve months, both the FDA and Health Canada have initiated reviews on LABAs. In early March, the U.S. FDA strengthened the warnings for drugs containing

long-acting beta-agonists (including salmeterol and fluticasone/salmeterol combination therapy). "Long-acting beta-adrenergic agonists may increase the risk of asthma-related death, therefore, when treating patients with asthma, physicians should only prescribe Advair[®] for patients not adequately controlled on other asthma-controller medication (low-to-medium dose inhaled corticosteroids) or whose disease severity clearly warrants initiation of treatment with two maintenance therapies".

Dr. F.D. Martinez in *The New England Journal of Medicine*⁴ mentions that for patients taking long-acting beta-agonists, there is "an increased incidence of serious asthma related events... in both patients who were using inhaled corticosteroids concomitantly and those who were not". He also adds that because of the "increased risks of severe exacerbations of asthma and of death from asthma in a small but not inconsequential subgroup of patients regularly taking long-acting beta-agonists".

Dr. F.D. Martinez, in a follow-up comment in *The New England Journal*⁷, reinforces that it "would be truly irresponsible to induce in physicians a false sense of security regarding the safety of long-acting beta-agonists when prescribed in combination with inhaled steroids." In fact, "In patients with mild to moderate asthma, inhaled corticosteroids should be used in sufficient amounts to control chronic symptoms. If symptoms cannot be controlled in this way, some such patients may also benefit from the addition of leukotriene-receptor antagonists or low-dose theophylline therapy. With adequate doses of inhaled corticosteroids and other treatments, long-acting beta-agonists should not usually be needed."

Although Health Canada has not yet tightened its restrictions for LABAs, the recent decisions by the United States and by other countries (which include precautions on the possibility of death due to these agents), it seems that stricter restrictions or label changes might be introduced in the Canadian market as well.

Catherine Lemiere, the chief author of the most recent Adult consensus guidelines was the lead author of an article in *CMAJ*⁹ which stated that initial maintenance therapy with combination products for *mild* asthma was expensive and likely unnecessary to gain control of these asthmatics. The other side of the coin is, as mentioned, the great body of literature showing the improvement of asthma control and rate of exacerbations that occur with the use of combination products.

Current Canadian Asthma consensus guidelines clearly state that when control of asthma is not achieved with education, environmental control, inhaler technique review, and assessment for differential diagnosis or comorbidities there are three choices for add on therapy. These include LABAs, Leukotriene receptor antagonists or theophylline. For completeness, Omaluzimab has recently been released and is another potential add on therapy for adults with severe uncontrolled asthma and exacerbations.

Until clear data are published on the safety of this category, it might be wise for treating physicians of asthmatic children to take all of this into consideration.

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Respiratory and Allergy Therapies

Scientific Advisory Committee

June 1-2, 2006
Ottawa, Ontario

This is a committee of Health Canada to review submissions for drugs used for treatment of respiratory diseases and allergic conditions. The mandate can include advice on:

- the development of guidelines for review of new or generic drugs
- determine acceptable efficacy endpoints for studies carried out in patients for respiratory or allergic diseases
- determine the clinically meaningful change of the efficacy endpoints
- identify new trends or technologies
- review sponsor submissions
- review issues arising from post-market surveillance activities
- labeling, warning, monograph issues
- risk communication
- risk management strategies

The committee reports to the Director General of the Therapeutic Product Directorate. Members are invited and have a two year term repeatable for a total tenure up to six years. All participants go through a security check and disclosure of conflicts of interests. There is no compensation for being on the committee, it is totally volunteer.

I have been recommended as a representative by the College of Family Physicians of Canada and represent Family Practice and the Family Physician Airways Group of Canada at these meetings (at least twice yearly and at the call of the chair).

The issues that were dealt with at this meeting included the review of the guidelines for acceptance of SABA, and the creation of guidelines for acceptance of nasal corticosteroids.

Multiple issues with SABAs included dosing, number of doses involved, types of studies, the use of spacers with studies, and other safety concerns.

Nasal ICS issues included types of studies, symptom scores such as the TNSS (Total Nasal Symptom Scores), equivalence of effect, and safety concerns.

Pediatric safety and efficacy concerns were a significant concern by the committee.

Thank you for the opportunity to represent you, my peers, at this important meeting.

Alan Kaplan MD CCF(EM)

CTS Dissemination & Implementation Committee Niagara on the Lake, June 15, 2006

This meeting was held to co-ordinate implementation of multiple CTS committees guidelines. Overlying strategy to decide on how to prioritize the guidelines, especially to not compete with themselves for funding. CTS subcommittee chairs/representatives for the sections on Sleep medicine, Asthma, TB, COPD, pulmonary vascular disease and myself representing Family Practice. Implementation of guidelines is the forgotten issue, but usually the most difficult. Dr. Paul O'Byrne has described implementation of guidelines (wrt GINA guidelines) as their "Achilles heel".

Dissemination and implementation of guidelines is a continuum from development to utilization and behavior change. (Davis D, Taylor-Vaisey A. Implementing CPGs, A Handbook for clinicians CMAJ 1991)

There is a tool called the AGREE tool which is a scoring tool for acceptability of guidelines and their ultimate utility. They need, of course, to be non-biased, relevant, and utilizable. It is a 23 item scoring system across six domains including scope, stakeholder involvement, rigor of development, clarity of presentation, applicability and editorial independence. Use of a tool like this can ensure that our guidelines cannot be criticized, as all guidelines have been recently done by a prominent journal author.

A recent guideline including executive summary of the guidelines of Sleep Apnea guidelines has been created under the leadership of Dr. John Fleetham. Sleep apnea is a condition which is underrecognized and underdiagnosed, with a lack of diagnostic resources outside Ontario. Therapy is expensive, with the average price in BC at \$3000! Political issues to improve access is important, but primary care recognition of this important condition is clearly a key goal.

Dr. Sanjay Mehta represented the ad hoc committee of the CTS Pulmonary Vascular Disease. It is a cardiopulmonary disease with involvement of cardiologists as well as respirologists. Most common conditions include pulmonary hypertension, pulmonary thromboembolic conditions and pulmonary arterio venous malformations. These are uncommon conditions with difficulty in diagnosis and complex new therapies with poorer prognoses. The average delay of diagnosis of Pulmonary Hypertension is 12-18 months from onset of symptoms. There are ACCP guidelines, ECS guidelines which are systematic reviews of the literature. The CTS/CCS created a position statement regarding issues in Canada including availabilities of diagnostics, funding, and treatment.

The goals are improving physician awareness and subsequent increase in diagnosis, earlier treatment and better outcomes for the management of Pulmonary Hypertension (PH). This can occur due to pulmonary arterial hypertension, secondary to thromboembolic pulmonary issues, related to left ventricular disease (pulmonary venous hypertension) and related to chronic hypoxemia (COPD, sleep apnea, and fibrotic lung disease), and others (vasculitis, shunts).

Their CME has been mostly a push to those interested in PH, less so to family physicians. Recognize that the presentation is dyspnea. A patient focused website on PH will be created to assist in recognition, management and resources.

The TB committee led by Heather Ward created standards for TB management working with Public health. The 2006 (sixth edition, fifth in 2000) guidelines are considered a reference, 400 pages with a systematic review of literature and the subsequent Canadian approaches. The Public health agency has put the guidelines on line, but they are not linked to

the CTS. These guidelines are a reference and thus issues have been on dissemination (done poorly) and not implementation.

Asthma group, led by Dr. Andrew McIvor is not to review the literature (again) but to utilize the GINA work and the Cochrane work and make this utilizable to Canadians. The work done by Dr. Louis Phillippe Boulet at an international symposium of Dissemination and Implementation guidelines in Quebec City last year highlighted the need to make the issues Canadian and most importantly TARGET the intervention (eg. Use of Action Plans). There is a rapid response group of the Asthma committee including Pierre Ernst, Ken Chapman, Mark Fitzgerald and Andrew McIvor to deal with key issues.

Support for GP practice must include incentives, tools to facilitate, practice aids, resources and make them all user friendly. The goal is to change behaviors, studies show we have not made great inroads to this yet. This will involve a philosophy of common themes in case based workshops for physicians, and eventually a direct to patient intervention.

Dr. Becker reviewed the Pediatric asthma guidelines. A second guideline for pediatrics was created as the last guidelines were otherwise to be adult issue based. Canadian Network for Asthma Care (CNAC) agreed to support the guidelines with the dissemination and implementation as the CTS did not want to have that responsibility. CNAC could not do this to the measure that was desired, and grouping the pediatric with adult asthma management dispersion would be the correct way forward, joining the groups together for the common goals.

Common website for all guidelines is important for access. A core committee of the CTS for D & I would be preferable to doing it by individual diagnoses. A fast track for publishing important issues, needs to be accommodating to facilitate knowledge transfer.

A guideline criticism is the potential for bias, as many people who are involved in creating guidelines have multiple relationships. The respiratory guidelines have been open and transparent, with review by independent international experts to try to alleviate that.

The most recent Respiratory guidelines were the COPD guidelines under the auspices of Dr. Paul Hernandez. A process including guidelines, executive summary, a review for Family Physicians, tools and dissemination were reviewed. Dr. Paul Hernandez reviewed the current status of the D&I committee of the COPD guidelines. Clearly recognized is that getting good people hired to help with this is important. Early alliance with the CTS, Breathworks, Canadian COPD Alliance made this more efficient. A huge change was to define treatment severity based on symptoms not on lung function, with treatment recommended based on symptoms. Recognition of the condition being a systemic (not just respiratory) and a lifelong condition (including being a terminal condition and end of life care). The concept of COPD's tagline of being "underdiagnosed, treatable and preventable" was well thought out. Needs assessments had been created and utilized in creating health care messages. Public relations firms can be involved, but can be utilized within existing resources, such as the Canadian Lung Association. Tools for dissemination including PDAs, mousepads, CME slide kits, clinic posters, websites, and pocket cards. Ranking on search engines like Google, Yahoo, and MSN is an important issue. The more linking that you get, the higher the ranking.

Costs: Each poster, pocket care and mouse pad cost \$1 each. Advertising in journals cost overall almost \$23,000. The overall cost of the D and I guidelines were highest in 2005 at \$250,000.

Chronic Cough guidelines are used from the ACCP cough guidelines, with no specific D&I in Canada.

Dr. Nigel Duguid discussed issues brought to the CTS Standards committee and discussion occurred to its relationship to each group.

At the end of the day, a recommendation was made to have a D&I committee of the CTS to deal with all respiratory guidelines in Canada.

The Canadian Respiratory Campaign (TCRC) is a concept for a national community to improve respiratory care in Canada.

Clearly, it is important to have Family Physician/Primary Care input into guidelines and their subsequent review and ultimate implementation. The FPAGC members are clearly a potential important partner. Potentially, a formal relationship between the FPAGC (as the representative of the CFPC) and the CTS has been proposed. In addition, clearly D and I must occur at the onset of the guideline process. In addition, we should ask the question, how do we evaluate the success of any guidelines? Can we get data from sentinel practices constantly received to review efficacy? Effects of different forms of dissemination (passive, active, peer to peer) also are worth investigating.

Key messages for each group were suggested:

<i>Sleep Apnea:</i>	Recognition, access, standards, driving
<i>Pulmonary Hypertension:</i>	Earlier diagnosis, recognition (eg. Echocardiogram in patients with Scleroderma) newer treatments
<i>TB:</i>	Proper dissemination and treatment advise
<i>Asthma:</i>	Patient expectations of their care, ie. Bottom up education
<i>COPD:</i>	Underdiagnosed, preventable, and treatable What about Pulmonary Rehab?

Alan Kaplan, MD CCFP(EM)

Peak Expiratory Flow in Family Practice

Dr. Anthony Ciavarella, MD

When asthma research tell us that Peak Expiratory Flow is of no value in research papers, are we correct in concluding that PEF is of no value in general practice for general practice patients?

Asthma patients in research papers know they have asthma; they have been worked up and are basically in 'steady state' with respect to knowing their asthma. Patients in family practice often don't know that they have asthma; rarely are they fully worked up for asthma and never are they ready to just look after themselves. Family practice patients are usually in a 'transitional state'. Often times neither the patient nor the family doctor are fully aware that the final diagnosis will be asthma. Both parties are simply aware that there is a breathing problem and it might be related to asthma. We give the patient a possible solution; try to get them to buy into that solution; initiate therapy; show them how to use that therapy and 'see you next week' (all done in 8 minutes, unless there are more problems on the list).

Finding research data from 'steady state' patients in research studies and trying to apply that research data to 'transitional' patients in a family practice office is an extrapolation. At times that extrapolation is too stretched and can be easily off the mark.

Concluding the Peak Expiratory Flow is of no extra benefit to an asthma research patient or appropriate in an asthma research setting. Extrapolating that to a Family Practice patient in transition can be very misleading, very confusing and often not very useful.

Peak Expiratory Flow can be useful in the following ways:

1. Simple equipment, inexpensive, quick and easy to do.
2. It objectifies with numbers a very subjective feeling of dyspnea.
3. It gets the patient to buy into the diagnosis.
4. It gives the doctor an objective starting point when initiating therapy.
5. It gives the patient an objective measure of response to therapy.
6. The repeated demonstration reversible airflow either spontaneously or in response to therapy, establishes asthma as the diagnosis.³

So don't throw your Peak Expiratory Flow meters away. In fact start using them more often. Use the numbers to objectify this very subjective problem, get your patients to buy into their problem and let them take control of their asthma.

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Editor's note: Dr. Ciavarella has reviewed the evidence on Peak flow utilization and makes a great argument for its use in asthma management, both for diagnosis and for ongoing follow-up. The availability of new electronic Peak flow meters such as PIKO has added to the interest. Do not forget, however, that spirometry has a lower false negative result in asthma and can help with diagnosis of restrictive diseases as well.

ALAN KAPLAN, MD CCFP(EM) PRÉSIDENT, FPAGC

Everything you've always wanted to know about coughing in children

By Jacques Bouchard and Renée-Claude Duval

Dr. Jacques Bouchard is a general practitioner, a consulting physician and head of the allergy and respiratory physiology laboratory at the Centre hospitalier St-Joseph de la Malbaie, Quebec. Dr. Renée-Claude Duval is a pediatrician who works in the pediatric out-patient clinic of the Centre hospitalier de l'Université Laval, Quebec City. She takes a particular interest in respiratory and allergic illnesses.

Summary

Everything you've always wanted to know about coughing in children... Coughing is a common complaint among the pediatric population. It can be triggered by a variety of stimuli, but there are few objective tools to help with diagnosis. Consequently, its assessment requires a thorough questionnaire, including personal and family history, and a proper physical exam. Coughing is considered to be chronic if it persists for three weeks after onset. Chest X-rays should be performed if it is a first-time chronic episode. Identification of the underlying cause is important in order to provide the appropriate treatment. In more difficult cases, codeine could be indicated. However, in any case, special attention should be given to specific key "signs and symptoms" that could hint at more serious conditions. Finally, educating parents can help to reassure them and decrease their level of anxiety toward their children's cough.

Keywords: cough, children, cough medication, sinusitis, asthma

In December, Emily comes to your facility's walk-in clinic. She's with her parents, who are deeply worried by a cough that has been lingering since she caught a cold back in October...

THE COUGH IS AT ITS WORST in the daytime, when Emily is playing outdoors with her friends. But it's also there at night, at bedtime, and early in the morning. Emily also suffers from nasal congestion related to mucopurulent rhinorrhea. Her

parents have been giving her cough syrups and decongestants, with only slight relief.

Looking at the girl's personal history, we note a case of bronchiolitis at the age of four months, eczema, and several episodes of persistent coughing when suffering a cold. The family history reveals that her father suffers seasonal allergic rhinitis.

A chest x-ray done the same day shows nothing unusual.

You start to consider a possible diagnosis of sinusitis and, because the holidays are approaching, you prescribe a 14-day course of antibiotics, especially because of the purulent rhinorrhea. You are certain that you've made the right diagnosis and prescribed appropriate medication for young Emily.

But really, what is a cough?

Above all, coughing is a symptom. It is a highly complex reflex phenomenon triggered by a variety of stimuli whose confluence involves forced exhalation following a rapid increase of intrathoracic pressure (up to 300 mm Hg), caused by the contraction of exhalatory muscles against a closed epiglottis. This preparatory phase leads to the very high-speed expulsion of gas, leading to a clearing of the lower respiratory tract.¹

Coughing is a common reason for patient visits. In fact, this symptom is among the top ten reasons for consultation seen in outpatient clinics.² However, major dilemmas often result from the symptom's lack of specificity, which makes it difficult to identify the underlying illness.³ It has also been shown that parents are not always able to provide an adequate description of the "frequency" and "nature" of their child's cough.⁴ For these reasons, the diagnostic approach requires a careful characterization of the symptom, accounting for several elements of anamnesis and relevant signs revealed through physical examination.

Anamnesis

Anamnesis is the most important diagnostic tool in treating pediatric coughing, when we consider that few objective tests are useful in characterizing the majority of cases.⁵ It is important to question the child and her parents carefully in order to better delineate the differential diagnoses (*Table 1*).

A systematic approach will reveal the elements that will help you arrive at a correct diagnosis, even when you are seeing a patient in an overcrowded walk-in clinic. Here are seven important elements that should form an integral part of anamnesis during consultation for coughing in a child:

Characteristics

You should ask whether the cough is loose, productive or dry. A loose cough with purulent expectorations can be a sign of bacterial infection with secretions, while a dry cough will point toward an irritative stimulation. A rasping cough may be indicative of pertussis, whereas a barking, raspy cough accompanied by laryngeal stridor may be due to stridulous laryngitis or laryngo-tracheobronchitis.

Differential diagnosis of a cough in children^{5,9}

Infectious causes

- * Pneumonia
- * Sinusitis
- * Bronchitis/tracheitis caused by viral infection
- * Tuberculosis
- * Bronchiectasis

Respiratory causes

- * Asthma
- * Post-infectious cough
- * Recurring aspiration secondary to a tracheo-esophageal fistula
- Hypersensitivity pneumonitis

Irritative causes

- * Passive and active smoking
- * Pertussis-like syndrome

Mechanical causes

- * Inhalation of a foreign body
- * Extrinsic compression of the tracheobronchial tree
- * Endobronchial tumour
- * Tracheobronchomalacia

Gastric causes

- * Gastro-esophageal reflux with or without aspiration

Otorhinolaryngological cause

- * Irritation of the external auditory canal
- * Sinusitis

Systematic and other causes

- * Pulmonary cystic fibrosis (mucoviscidosis)
- * Psychogenic cough

Table 1

Chronology

Whether the cough is diurnal, nocturnal or both are extremely relevant information. If a cough has a nocturnal component, it is necessary to specify whether the cough starts early, just after bedtime, pointing to sinusitis with post-nasal drip.⁶ On the other hand, a cough starting four to six hours after going to sleep suggests an asthma-related condition.

Triggers

It is always relevant to check whether the cough is triggered by exertion, by exposure to cold air in winter, as is the case with asthma, or by an allergen such as a cat. All these factors are important to define, since they will help determine whether there is a cause and effect relationship between an extrinsic situation and the appearance of symptoms.

Related symptoms

The search for related symptoms is very important. You need to check for nasal symptoms, such as congestion (with or without mouth breathing), post- or pre-nasal rhinorrhea, sniffing, sneezing, and even nocturnal snoring.⁷ Can the clinical table make it possible to suspect an underlying gastro-esophageal reflux? Are there signs or symptoms of a systemic condition — unexplained fatigue, lack of energy, weight loss, or hyperthermia? Of course, it will be easier to identify probable causes using a systemic review (Table 2).

Progress of the cough

If the cough is chronic, that is if it has lasted for more than three weeks,⁸ has there been a change in the symptoms in the past 8 to 12 weeks? A cough that started dry or rasping

that has become loose and productive can help point us toward a bacterial infection subsequent to a viral infection.

Previous therapeutic attempts (medication history)

This is a part of anamnesis that must not be overlooked. Was there a response to the usual cough suppressants? Were inhalers used? If so, which ones? Was it a short-acting β_2 receptor agonist, a nebulized corticosteroid, or a combination of the two? Has the patient already taken a course of antibiotics? If so, which one, for how long and for what reason(s)?

Elements relevant to systemic review* in cases of coughing

Otorhinolaryngological

- * Otagia
- * Rhinitis (with or without the sensation of postnasal running)
- * Breathing through the nose/snoring
- * Allergic salute

Cardiac

- * Palpitations
- * Dyspnea on exertion or at rest

Digestive

- * Food intolerance
- * Chronic diarrhea
- * Constipation
- * Deglutition or breathlessness
- * Pyrosis
- * Halitosis

Neurological

- * Headaches

Skin and phanera

- * Skin problems (eczema, urticaria, etc.)

* Other than respiratory

Table 2

Vaccination record

The child's vaccination record should be checked systematically to be well aware of his or her vaccination status, with particular attention being paid to vaccination for pertussis, H. influenzae, pneumococcus and varicella (chicken pox).

It is also important to review the family and personal history, in case they hold additional clues that may support a diagnostic hypothesis (Table 3).

Certain symptoms should prompt you to consider a more serious underlying condition. Table 4 lists "alerts" that should lead to more detailed investigations.⁵

Antecedents important to identify in cough patients

Personal antecedents

Neonatal period

- * Premature birth
- * Respiratory distress issues

Related systemic problems

- * Slow growth
- * Maturation lag and/or neurological illness

Previous respiratory or infectious illnesses

- * Bronchiolitis at an early age
- * Recurring ORL infections
- * Inhalation of foreign object
- * Prolonged cough when afflicted with a cold
- * Frequent pneumonia and bronchitis
- * Varicella
- * Pertussis

Atopy

- * Food or respiratory allergies
- * Eczema

Gastro-intestinal difficulty

- * Prior or current gastro-esophageal reflux

Surgical antecedents

- * Polypectomy
- * Sinus surgery

Familial antecedents

Respiratory illnesses

- * Asthma
- * Cystic fibrosis (mucoviscidosis)

Atopy

- * Food or respiratory allergies
- * Eczema

Other

- * Mother smoked during pregnancy
- * Exposure to second-hand smoke
- * Immune deficiency

Table 3

Physical examination

The physical examination is an essential step after the rigorous investigation described above. It must be well structured, to allow you to confirm your diagnostic hypotheses (Table 5).

• **Visual examination.** As always, it is important to observe the child's attitude throughout the interview. Does the general state of health seem good? Is the child lively or listless and clinging to her mother? These few signs can quickly direct you toward a more serious issue. At the outset, you should look for signs of lack of growth, and check for signs of malnutrition. The doctor can also listen for wheezing, a respiratory noise audible as spontaneous whistling in the patient at rest, heard on exhalation.

• **ORL.** Is there constant mouth-breathing, indicating nasal or nasopharyngeal congestion? Is there a palpebral edema or a reddened bulbar conjunctiva (symptoms of underlying allergy)? Are the palpebral conjunctiva pale (possibly indicating underlying anemia)? Is there a nasal fold characteristic of an allergic salute? Are the tympanic membranes normal? Is there purulent rhinorrhea, fully visible on examination of the endonasal cavities (possible indication of sinusitis)? Are there significant cerebral adenopathies?

• **Heart.** Continuing with a careful auscultation of the heart, listen for abnormal cardiac noises, such as murmurs. You should also listen for signs of cardiac overload (heart failure).

Cough alerts⁵

- * Persistent fever
- * Limitation of activity
- * Inhibited growth
- * Lack of weight gain
- * Clubbing of the fingers
- * Persistent tachypnea and retraction
- * Chronic purulent expectorations

Table 4

breathing (retraction). Auscultation will allow you to observe prolonged exhalation with sibilance (asthma) or crepitant wheezing (pneumonia). It is also possible that you will note a reduction in respiratory noise.

• **Skin and phanera.** Check for the presence of features suggesting undernourishment with marasmus. You should also look for clubbing of the fingers, indicating a possible chronic illness such as mucoviscidosis (CF) or cyanogenic cardiopathy. Are there signs of allergies or atopic dermatitis (eczema, excoriation)? Are there hives (urticaria)? Are there petechia or ecchymosis, signs of blood-related illness?

• **A useful additional test.** It can also be enlightening to ask the child to run so as to provoke a cough, especially if the symptom is absent during the consultation. This test could make it possible to assess the characteristics of the cough.

• **Lungs.** Look for an increase in the antero-posterior diameter, which may indicate a hyperinflated state. At this point in the exam, since the child is undressed, it is possible to verify whether there is ability to use the muscles accessory to

The physical examination of a coughing child

General appearance

- * Spontaneous respiratory noise at rest
- * Constant mouth breathing
- * Stature-ponderal retardation

Head and neck

- * Nasal fold (may indicate an allergic state)
- * Bags under eyes
- * Hollow palate
- * Tracheal deviation
- * Cervical adenopathy

Heart and lungs

- * Increase in the anteroposterior diameter of the thorax; retraction
- * Anomalies appear on auscultation
 - * Cardiac
 - * Pulmonary
- * Prolongation of time to exhale
- * Sibilant or crepitant wheezing
- * Reduction of lung sounds
- * Signs of cardiac overexertion

Skin and extremities

- * Eczema, urticaria
- * Clubbing of the fingers

Table 5

Should I order laboratory tests?

Generally speaking, no. However, you should not hesitate to request a full blood profile if anything leads you to think that underlying anemia is possible, or if differential diagnosis between viral and bacterial infection is inconclusive.

Elevated leukocytes with lymphocytic predominance will lead you to suspect viral infection, while the presence of above-normal quantities of granulocytes, with stabs present, will direct you to a diagnosis of bacterial infection. Also, you should always consider requesting an iontophoresis (sweat test), if there are signs of stature-ponderal retardation and/or recurring infections of the upper and lower respiratory tracts.

What about x-rays?

A chest x-ray is indicated in almost all cases of chronic and/or recurring cough, since it makes it possible to determine, among other things, the presence of foreign objects, drug-resistant pneumonia and even, however rarely, a tumour, congenital defect, or signs of bronchiectasis.

In pediatrics, current practice for sinus x-rays is to begin a course of antibiotics for rhinitis characterized by purulent rhinorrhea persisting for more than 10 to 14 days despite treatment attempts with saline solution without any requirement for prior x-rays. **The treatment should last at least two weeks, and in some cases, 21 days.** X-rays will be necessary in the most persistent chronic cases, with the aim

of finding an underlying cause that results in predisposition to infection (polyps, cysts, foreign objects, etc.).⁹

Back to the clinical case

Now let's return to Emily's case. You decided to reevaluate in January since the examination performed at the walk-in clinic wasn't completely satisfactory. It left you somewhat worried about the progress of the symptoms.

During this second visit, her mother tells you that Emily's cough has changed and is now rather dry, comes in fits, and no longer includes purulent rhinorrhea.

With this new information in hand, you think that you should now include a presumption of asthma in your diagnostic hypotheses. But how can you prove it?

Of course, the exploration of respiratory function is the standard test making it possible to confirm a diagnosis of asthma. **Pre- and post-bronchodilation spirometry confirms the diagnosis if there is a reversibility of more than 12% from the base forced expired volume per second.** And if that level of reversibility cannot be obtained, it is worthwhile to perform a methacholine challenge test, which will confirm the diagnostic presumption and provide information as to the seriousness of the case. Nevertheless, it is important to remember that this test can be positive if the patient has recently contracted a cold; in this case, the diagnosis is post-infectious bronchial hyperreactivity.¹⁰ This test can be repeated three months later if clinical doubt remains at that time.

In Emily's case, given that spirometry is rarely possible in children younger than six years old,¹¹ it is perfectly adequate, subject to local constraints, to begin treatment with medication and to observe the patient's therapeutic response. Table 6 gives key symptoms that can point to a presumption of asthma in the absence of objective confirmation.

Treatment

As discussed in the other articles in this series, education on the nature of the illness, environmental factors, and the effects of pharmacotherapeutic treatment(s) is an essential part of ensuring therapeutic success and adherence to prescribed courses.

Dealing with parental impatience

In pediatric practice, coughing remains a symptom that parents have difficulty accepting, especially if it keeps them awake at night! In this respect, parents tend to be situated at both extremes of tolerance: there are those who adapt to their child's coughing, believing that it is a common and normal occurrence in children; and there are those who are worried by the fact that their child suffering from a cold has been coughing for several days. The best way to manage such intolerance is, once again, education. You should explain the normal progress of a cold to parents. Tell them that it is

generally unnecessary to treat a cough with antibiotics, since the illness resolves spontaneously. It will therefore be relevant to identify the symptoms that should lead to a consultation, such as the persistence of a fever, coughing on exertion, or deterioration in general health.

Symptoms to look for when asthma is presumed in a preschool-aged child

- * Sibilance or episodes of dyspnea in a child < one year old
- * Presence of sibilance more than three times a year
- * Serious episode of sibilance or dyspnea
- * Persistent cough, especially on exertion or nocturnal
- * Objective alleviation of symptoms following asthma treatment

Note: Atopy is a predictive factor for persistent asthma, especially if there is a positive family history.

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Table 6

What about cough suppressants?

Since coughing is a symptom, it is better to seek treatments for its underlying cause. The use of cough suppressants with or without decongestants is normally not recommended and should be restricted to irritative coughs that disrupt the child's sleep. In such cases, it is preferable to prescribe codeine, a powerful cough suppressant, for a short period (1 to 1.5 mg/kg/24 hours, orally, every 4 to 6 hours as needed).⁹

BECAUSE COUGHING IS A SYMPTOM, it is best to perform a systematic search for the underlying etiological factor, with the aim of prescribing a treatment if necessary. This step can only be completed with rigorous anamnesis and keen observation. Often, the best therapeutic option of all is educating the parents.

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Tout ce que vous avez toujours voulu savoir sur la toux chez l'enfant...

par Jacques Bouchard et Renée-Claude Duval

Le Dr Jacques Bouchard, omnipraticien, est médecin responsable et consultant au laboratoire d'allergie et de physiologie respiratoire du Centre hospitalier St-Joseph de la Malbaie. La Dr^e Renée-Claude Duval, pédiatre, travaille à l'unité de pédiatrie ambulatoire du Centre hospitalier de l'Université Laval, à Québec, et s'intéresse tout spécialement aux maladies respiratoires et allergiques.

Summary

Everything you've always wanted to know about coughing in children... Coughing is a common complaint among the pediatric population. It can be triggered by a variety of stimuli, but there are few objective tools to help with diagnosis. Consequently, its assessment requires a thorough questionnaire, including personal and family history, and a proper physical exam. Coughing is considered to be chronic if it persists for three weeks after onset. Chest X-rays should be performed if it is a first-time chronic episode. Identification of the underlying cause is important in order to provide the appropriate treatment. In more difficult cases, codeine could be indicated. However, in any case, special attention should be given to specific key "signs and symptoms" that could hint at more serious conditions. Finally, educating parents can help to reassure them and decrease their level of anxiety toward their children's cough.

Mots-clés : toux, enfants, antitussifs, sinusite, asthme

En décembre, Émilie vient vous voir au service sans rendez-vous de consultation externe. Elle est accompagnée de ses parents, extrêmement inquiets en raison d'une toux résiduelle toujours présente depuis le rhume qu'elle a contracté en octobre dernier...

LA TOUX SE MANIFESTE surtout pendant le jour, quand elle s'amuse dehors avec ses amies, mais également le soir, au coucher, et tôt le matin. Émilie souffre aussi de congestion nasale associée à une rhinorrhée mucopurulente. Les parents lui ont surtout administré des sirops antitussifs et décongestionnants, mais n'ont obtenu que des résultats mitigés.

Du côté des antécédents personnels, on note une bronchiolite à l'âge de 4 mois, de l'eczéma et quelques épisodes antérieurs de toux prolongée, lors de ses rhumes. En ce qui concerne les antécédents familiaux, on apprend que le père souffre de rhinite allergique saisonnière.

Une radiographie des poumons, faite le même jour, s'avère normale.

Vous envisagez un diagnostic possible de sinusite et, comme les fêtes approchent, vous lui prescrivez des antibiotiques pendant 14 jours, en raison surtout de cette rhinorrhée purulente. Vous êtes convaincu d'avoir posé le bon diagnostic et d'avoir prescrit une pharmacothérapie appropriée à la petite Émilie !

Mais, à vrai dire, qu'est-ce que la toux ?

D'abord et avant tout, la toux est un symptôme. Il s'agit d'un phénomène réflexe fort complexe, activé par divers stimuli dont le déploiement implique une expiration forcée à la suite d'un accroissement rapide de la pression intrathoracique (jusqu'à 300 mm Hg), créé par la contraction des muscles expiratoires contre une épiglotte en position fermée. Cette phase préparatoire mène à une expulsion de gaz à très haute vitesse et a pour effet de dégager les voies aériennes¹ inférieures.

La toux est un motif de consultation fréquent. D'ailleurs, ce symptôme se trouve au premier rang parmi les dix motifs de consultation le plus fréquemment rencontrés en consultation externe². Cependant, de grands dilemmes découlent souvent du manque de spécificité de ce symptôme, ce qui rend difficile la reconnaissance de la maladie correspondante³. De plus, il a été démontré que les parents n'arrivent pas toujours à décrire adéquatement la « fréquence » et la « nature » de la toux de leurs enfants⁴. Pour ces raisons, l'approche diagnostique nécessite une caractérisation minutieuse du symptôme, en tenant compte de plusieurs éléments de l'anamnèse et des signes pertinents révélés par l'examen physique.

Anamnèse

L'anamnèse est l'outil de diagnostic le plus important de la toux en pédiatrie, compte tenu du fait que peu de tests objectifs s'avèrent utiles pour caractériser la majorité des cas⁵. Il faut habilement interroger l'enfant et ses parents afin de mieux circonscrire les diagnostics différentiels (tableau I). Une approche systématique aidera à mettre en relief les éléments qui pourront aider à poser un diagnostic judicieux et ce, même dans le cas d'une visite à une clinique sans rendez-vous bondée. Voici sept éléments importants qui devraient faire partie intégrante d'une anamnèse lors d'une consultation en raison d'un problème de toux chez l'enfant :

Caractéristiques

On devrait préciser si la toux est grasse, productive ou sèche. Une toux grasse avec expectorations purulentes peut traduire une infection bactérienne avec sécrétions, tandis qu'une toux sèche témoignera plutôt d'une stimulation irritative. Une toux quinteuse peut être rencontrée dans un cas de coqueluche,

Diagnostic différentiel de la toux chez l'enfant^{5,9}

Causes infectieuses

- * Pneumonie
- * Sinusite
- * Bronchite/trachéite due à une infection virale
- * Tuberculose
- * Bronchiectasie

Causes respiratoires

- * Asthme
- * Toux postinfectieuse
- * Aspiration récurrente secondaire à une fistule trachéo-œsophagienne
- * Pneumonite d'hypersensibilité

Causes irritatives

- * Tabagisme passif et actif
- * Syndrome coqueluchoïde

Causes mécaniques

- * Aspiration d'un corps étranger
- * Compression extrinsèque de l'arbre trachéobronchique
- * Tumeur endobronchique
- * Trachéo- et bronchomalacie

Causes gastriques

- * Reflux gastro-œsophagien avec ou sans aspiration

Cause originant de la sphère ORL

- * Irritation du canal auditif externe
- * Sinusite

Causes systémiques et autres

- * Fibrose kystique pulmonaire (mucoviscidose)
- * Toux psychogène

Tableau 1

tandis qu'une toux aboyante, rauque, accompagnée d'un stridor laryngé, pourrait être due à une laryngite striduleuse ou à une laryngo-trachéo-bronchite.

Chronologie

Il est fort pertinent de déterminer si la toux est diurne, nocturne ou les deux. S'il y a une composante de toux nocturne, il faut préciser si cette toux commence tôt, dès le début du sommeil, témoignant d'une sinusite avec décharge nasale postérieure⁶. Cependant, une toux survenant de 4 à 6 heures après le coucher laisse plutôt entrevoir un état asthmatiforme.

Éléments déclencheurs

Il est toujours pertinent de vérifier si la toux est déclenchée par l'effort, comme dans le cas de l'asthme, ou à la suite d'une exposition à l'air froid, l'hiver, ou à un allergène (chat, par exemple). Tous ces éléments sont importants à définir puisqu'ils préciseront s'il y a une relation de cause à effet entre une situation extrinsèque et l'apparition des symptômes.

Symptômes associés

La recherche de symptômes associés est très importante. On devra vérifier s'il y a des symptômes nasaux, comme la congestion avec ou sans respiration buccale, rhinorrhée antérieure ou postérieure, renflements, éternuements et même ronflements nocturnes⁷. Le tableau clinique permettrait-il de soupçonner un reflux gastro-œsophagien sous-jacent ? Y a-t-il des symptômes ou signes d'une atteinte systémique, tels que la fatigue et le manque d'énergie, une perte de poids ou une hyperthermie inexpliquée ? Bien

entendu, il faudra faire le tour de notre revue des systèmes pour mieux cerner les causes les plus probables (*tableau II*).

Évolution de la toux

Si la toux est chronique, c'est-à-dire si elle dure depuis plus de trois semaines⁸, y a-t-il eu modification des symptômes dans les 8 à 12 dernières semaines ? Une toux initialement sèche, quinteuse, devenue grasse et productive peut nous mettre sur la piste d'une infection bactérienne faisant suite à une atteinte virale.

Éléments pertinents à la revue des systèmes* en cas de toux

ORL

- * Otalgie
- * Rhinite (avec ou sans sensation d'écoulement postérieur)
- * Respiration buccale/ronflements
- * Maniérisme allergique (« salut » allergique)

Cardiaque

- * Palpitations
- * Dyspnée au repos ou à l'effort

Digestif

- * Intolérance alimentaire
- * Diarrhée chronique
- * Constipation
- * Problème de déglutition ou d'étouffement
- * Pyrosis
- * Halitose

Neurologique

- * Céphalées

Peau et phanères

- * Problèmes de peau (eczéma, urticaire, etc.)

* Autres que respiratoires.

Tableau 2

Essais thérapeutiques antérieurs (antécédents médicamenteux)

Voici une partie de l'anamnèse qui ne devrait pas être négligée. Y a-t-il eu réponse aux antitussifs usuels ? A-t-on utilisé des aérosols-doseurs ? Si oui, lesquels ? S'agissait-il d'un agoniste du récepteur β_2 à courte durée d'action, d'un corticostéroïde en inhalation ou d'une combinaison des deux ? Le patient a-t-il déjà suivi une antibiothérapie ? Si oui, laquelle, pendant combien de temps et pour quelle(s) raison(s) ?

Carnet d'immunisation

On devra vérifier systématiquement le carnet d'immunisation

Antécédents pertinents à relever en cas de toux

Antécédents personnels

Période néonatale

- * Prématurité
- * Problèmes de détresse respiratoire

Atteintes systémiques associées

- * Retard de croissance
- * Retard de développement et (ou) maladie neurologique

Atteintes respiratoires ou infectieuses passées

- * Bronchiolite en bas âge
- * Infections ORL à répétition
- * Aspiration de corps étrangers
- * Toux prolongée lors des rhumes
- * Pneumonies et bronchites fréquentes
- * Varicelle
- * Coqueluche

Atopie

- * Allergie alimentaire et respiratoire
- * Eczéma

Atteinte gastro-intestinale

- * Antécédents ou présence de reflux gastro-œsophagien

Antécédents chirurgicaux

- * Polypectomie
- * Chirurgies sinusales

Antécédents familiaux

Maladies respiratoires

- * Asthme
- * Fibrose kystique (mucoviscidose)

Atopie

- * Allergie alimentaire ou respiratoire
- * Eczéma

Autres

- * Tabagisme maternel pendant la grossesse
- * Tabagisme passif
- * Déficit immunitaire

Tableau 3

de l'enfant pour bien s'assurer du statut vaccinal, en portant une attention particulière au vaccin contre la coqueluche, contre *Haemophilus influenzae*, contre les pneumocoques et contre la varicelle.

De plus, il est important de revoir les antécédents familiaux et personnels de l'enfant à la recherche d'indices additionnels pour mieux appuyer nos hypothèses diagnostiques (tableau III).

Certains symptômes doivent évoquer chez vous le spectre d'une atteinte sous-jacente plus sérieuse ; vous trouverez au tableau IV, les « signaux d'alarme » qui devraient commander une investigation plus approfondie⁵.

Examen physique

L'examen physique est essentiel et fait suite aux investigations rigoureuses que nous avons décrites ci-dessus. Il doit être bien structuré pour vous permettre de confirmer vos hypothèses diagnostiques (tableau V).

• **Examen visuel** : Comme toujours, il est important d'observer l'attitude de l'enfant tout au long de l'entrevue. Est-ce que l'état général semble bon ? Est-il enjoué ou bien immobile, blotti contre sa mère ? Ces quelques signes peuvent vous orienter rapidement vers un problème plus grave. D'emblée, on recherchera des signes de retard staturopondéral et on vérifiera s'il y a ou non des signes de dénutrition. Le médecin peut aussi percevoir un *wheezing*, bruit respiratoire audible sous la forme de sifflements spontanés au repos, entendus à l'expiration.

Signaux d'alarme en présence de toux⁵

- * Fièvre persistante
- * Limitation des activités
- * Retard de croissance
- * Retard pondéral
- * Hippocratismes digitaux
- * Tachypnée persistante et tirage
- * Expectorations purulentes chroniques

Tableau 4

• **ORL** : Y a-t-il respiration buccale constante, témoignant d'une obstruction nasale ou nasopharyngée ? Peut-on noter un œdème palpébral ou une conjonctive bulbaire

injectée (symptômes d'allergie sous-jacente) ? Les conjonctives palpébrales sont-elles pâles (ce qui pourrait évoquer une anémie sous-jacente) ? Y a-t-il un pli nasal caractéristique d'un salut allergique ? Est-ce que les membranes tympaniques sont normales ? Peut-on noter une rhinorrhée purulente, bien visible à l'examen des cavités endonasales, pouvant indiquer une sinusite ? Y a-t-il des adénopathies cervicales importantes ?

• **Coeur** : On procédera à une auscultation attentive du cœur, à la recherche de bruits cardiaques anormaux, tels que des souffles. De plus, on recherchera aussi les signes de surcharge cardiaque (insuffisance cardiaque).

• **Poumons** : On recherchera une augmentation du diamètre antéropostérieur, pouvant témoigner d'un état d'hyperinflation. À ce moment de l'examen, puisque l'enfant est dévêtu, on pourra aussi vérifier s'il y a utilisation des muscles acces-

L'examen physique de l'enfant qui tousse

Apparence générale

- * Bruits respiratoires spontanés au repos
- * Respiration buccale constante
- * Retard staturopondéral

Tête et cou

- * Pli nasal (pouvant indiquer un état allergique)
- * Yeux cernés
- * Palais creux
- * Déviation trachéale
- * Adénopathies cervicales

Cœur et poumons

- * Augmentation du diamètre antéropostérieur du thorax, tirage
- * Anomalies à l'auscultation
 - * Cardiaque
 - * Pulmonaire
- * Allongement du temps expiratoire
- * Présence de sibilances expiratoires ou crépitanes
- * Diminution des bruits pulmonaires
- * Signes de surcharge cardiaque

Peau et extrémités

- * Dermatite atopique/urticaire
- * Hippocratisme digital

Tableau 5

soires de la respiration (tirage). L'auscultation permettra d'observer un allongement du temps expiratoire avec présence de sibilances expiratoires (asthme) ou râles crépitanes (pneumonie). On pourrait aussi noter une diminution des bruits ventilatoires.

• **Peau et phanères** : On devrait vérifier la présence d'éléments évoquant une dénutrition avec cachexie. On devra déterminer s'il y a présence d'hippocratisme digital, témoignant d'une maladie chronique possible, telle que la mucoviscidose (FKP) ou une cardiopathie cyanogène. Y a-t-il des signes d'allergie ou de dermatite atopique (eczéma, excoriations) ? Peut-on retrouver des plaques ortiées (urticaire) ? Peut-on noter des pétéchies ou ecchymoses, évoquant un problème hématologique ?

• **Test complémentaire utile** : Il peut également être révélateur de demander à l'enfant de courir pour tenter de provoquer la toux, surtout si le symptôme est absent pendant la consultation. Ce test pourrait permettre d'en évaluer les caractéristiques.

Mais doit-on demander des examens de laboratoire ?

Habituellement, non. Cependant, vous ne devriez pas hésiter à demander une formule sanguine complète si quelque chose vous porte à penser qu'il pourrait y avoir une anémie sous-jacente ou si le diagnostic différentiel entre une atteinte virale ou bactérienne est difficile à établir. Une leucocytose élevée à

prédominance lymphocytaire vous poussera à suspecter une atteinte virale, tandis que la présence de polynucléaires en quantité supérieure à la normale, avec présence de formes jeunes (*stabs*) vous fera pencher davantage vers une atteinte bactérienne. De plus, vous devriez toujours penser à demander une iontophorèse (test à la sueur), s'il y a des signes de retard staturopondéral et (ou) des infections récurrentes des voies supérieures et inférieures.

Et les radiographies alors ?

En ce qui a trait à la radiographie pulmonaire, celle-ci est nécessaire dans la presque totalité des cas de toux chronique et (ou) récidivante, car elle permettra de déterminer, entre autres, s'il y a présence de corps étrangers, d'une pneumonie résistante ou même, quoique rarement, d'une tumeur, d'une malformation congénitale ou de signes de bronchiectasies. En ce qui concerne la radiographie des sinus, il est courant, en pédiatrie, de commencer un traitement antibiotique en cas de rhinite caractérisée par une rhinorrhée purulente, persistant depuis plus de 10 à 14 jours malgré une tentative de traitement par solution saline, sans qu'il faille obtenir des radiographies au préalable. Ce traitement devrait durer au minimum deux semaines, quelquefois même 21 jours. La radiographie sera nécessaire dans les cas plus chroniques, dans le but de rechercher une cause sous-jacente prédisposant à l'infection (polype, kyste, corps étranger, etc.)⁹.

Retour au cas clinique

Maintenant, revenons au cas d'Émilie. Vous avez décidé de la réévaluer en janvier puisque l'examen effectué à la clinique sans rendez-vous ne vous satisfaisait pas pleinement. En effet, vous étiez un peu inquiet au sujet de l'évolution des symptômes.

Lors de cette deuxième visite, la mère vous apprend que la toux d'Émilie a changé et qu'elle est maintenant plutôt sèche, en quintes, mais qu'il n'y a plus de rhinorrhée purulente.

À la lumière de ces nouveaux éléments, vous pensez que vous devriez maintenant inclure dans vos hypothèses diagnostiques une présomption d'asthme. Mais alors, comment le démontrer ?

Bien entendu, l'exploration de la fonction respiratoire est le test standard permettant de confirmer le diagnostic d'asthme. **Une spirométrie pré- et postbronchodilatation confirme le diagnostic s'il y a réversibilité de plus de 12 % du VEMS de base.** Par ailleurs, si on ne peut obtenir cette réversibilité, il peut être pertinent d'effectuer un test de provocation à la méthacholine, qui pourra confirmer la présomption diagnostique et, aussi, nous renseigner sur la gravité de l'atteinte. Toutefois, il faut savoir que ce test peut être positif si le patient a contracté récemment un rhume ; on parle dans ce cas d'une hyperréactivité bronchique postinfectieuse¹⁰. On peut reprendre ce test trois mois plus tard si le doute clinique persiste à ce moment-là.

Dans le cas d'Émilie, compte tenu qu'une spirométrie est rarement possible chez les enfants de moins de six ans¹¹, il est

Symptômes à rechercher lors d'une présomption d'asthme chez l'enfant d'âge préscolaire

- * Présence de sibilances ou d'épisodes de dyspnée chez l'enfant \leq 1 an
- * Présence de sibilances plus de 3 fois par année
- * Épisode grave de sibilances ou de dyspnée
- * Toux persistante surtout à l'effort ou nocturne
- * Amélioration objective des symptômes à la suite d'un traitement de l'asthme

Remarque: L'atopie est un facteur prédictif d'asthme persistant, surtout s'il y a des antécédents familiaux positifs.

Lemière C et coll. Canadian Asthma Consensus Guidelines 2004. *Can Resp J*, (sous presse).

Tableau 6

tout à fait adéquat, selon les contraintes locales, d'amorcer un traitement médicamenteux et d'observer la réponse thérapeutique du patient. Le *tableau VI* présente les symptômes clés, qui pourront orienter vers une présomption d'asthme, en l'absence d'une confirmation objective.

Traitement

Comme on l'a déjà mentionné dans les autres articles de cette livraison, l'éducation comprenant des explications sur la maladie, sur l'influence de l'environnement et sur le ou les modes d'action des médicaments est une tâche primordiale pour assurer le succès thérapeutique et pour favoriser l'observance.

Comment gérer l'impatience des parents face à la toux ?

En pratique pédiatrique, la toux demeure un symptôme que les parents ont du mal à accepter, surtout si elle perturbe leur sommeil ! À cet égard, les parents se situent aux deux pôles de la tolérance : ceux qui se sont habitués à ce que leur enfant tousse, considérant qu'il s'agit d'un phénomène fréquent et normal chez un enfant, et les autres, qui considèrent qu'il est inquiétant que leur enfant tousse pendant plus de quelques jours s'il est enrhumé. La meilleure façon de gérer cette intolérance est, une fois de plus, l'éducation. On doit expliquer aux parents le cours normal d'un rhume ; on doit leur dire qu'il n'est habituellement pas nécessaire de traiter la toux avec des antibiotiques, puisque la maladie est spontanément résolutive. Il sera donc pertinent de leur préciser les symptômes qui devraient les inciter à consulter, par exemple la persistance d'un tableau hyperthermique ou la présence d'une toux à l'effort ou d'une atteinte de l'état général.

Qu'en est-il des antitussifs ?

Considérant que la toux est un symptôme, on devrait plutôt chercher à traiter sa cause sous-jacente. L'utilisation des antitussifs en association ou non avec des décongestionnants n'est habituellement pas recommandée et doit être réservée aux toux irritatives, qui perturbent le sommeil de l'enfant. Dans un tel cas, il est préférable de prescrire de la codéine, un antitussif puissant, pendant une courte période (de 1 à 1,5 mg/kg/24 heures, par voie orale, toutes les 4 à 6 heures, au besoin)⁹.

LA TOUX ÉTANT UN SYMPTÔME, on devrait rechercher systématiquement le facteur étiologique sous-jacent, dans le but de prescrire un traitement, lorsqu'il est nécessaire. Cette étape ne peut se réaliser que par une anamnèse rigoureuse et un sens de l'observation aiguisé. La meilleure option thérapeutique demeure souvent l'éducation des parents.

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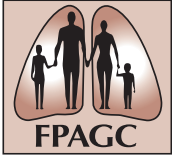


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The Family Physicians Airways Group of Canada is committed to helping those with airway diseases lead a full life. The group is dedicated to helping all family physicians maintain and increase their skill in assisting those with asthma and COPD. The strategy of the Group is to maintain a speaker bank, a data base, and practical tools to help physicians attain in these skills.

The opinions expressed in this newsletter are those of the authors, and not necessarily those of the Family Physicians Airway Group of Canada.

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