

Evidence in Practice

TEENAGERS WITH ALLERGIC RHINITIS DROP EXAM GRADES



Maryn F. Chilla/Science Photo Library

Teenagers who have allergic rhinitis symptoms on an exam day are 40% more likely to drop a grade in their GCSE exams, according to the first study to show the detrimental effects of hayfever in real life.

Hayfever has a peak age of onset in adolescence. Unfortunately, GCSE exams, which run from mid-May to the end of June, coincide with when the grass pollen season is at its height, and hayfever prevalence is at its greatest.

The study analysed 1,834 students (aged 15-17 years) sitting national examinations. It compared children who dropped one or more grades in any of three core subjects (mathematics, English, and science) between practice (winter) and final (summer) examinations with controls, whose grades were unchanged or improved.

Results showed that 38%-43% of students reported symptoms of seasonal allergic rhinitis on any one of the examination days. Those who dropped one or more grades in core subjects were 40% more likely than controls to have had allergic rhinitis symptoms during the examination period (odds ratio [OR], 1.4; $p < 0.002$). They were 70% more likely to have taken sedating antihistamines (OR, 1.7; $p < 0.03$).

The researchers noted that although current guidelines advocate the use of non-sedating medication, 28% of the students taking medication for their symptoms were on a sedating antihistamine.

ACTION

This is the first time the relationship between symptomatic allergic rhinitis and poor examination performance has been demonstrated in real life, which has significant implications for clinical practice. The results support early and effective treatment of allergic rhinitis, avoiding sedative antihistamines.

J Allergy Clin Immunol – in press, 2007.

EATING CURED MEATS COULD INCREASE RISK OF LUNG DISEASE



Eating large quantities of cured meats such as bacon could impair lung function and increase the risk of lung disease, according to a US study which showed that people who ate cured meats at least 14 times a month were more likely to have COPD than those eating less.

The study looked at 7,352 American individuals who participated in the Third National Health and Nutrition Examination Survey, conducted between 1988 and 1994. They compared the results of lung function tests and the risks of developing COPD in participants and found those who ate cured meats more often had worse lung function and were more likely to have COPD.

People eating the most cured meat were nearly twice as likely to have COPD as those eating the least. The multivariate odds ratio for COPD ($FEV_1/FVC < 0.7$ and $FEV_1 < 80\%$ predicted) was 1.78 (95% confidence interval, 1.29–2.47), comparing the highest with the lowest category of cured meat consumption. The corresponding odds ratios for mild, moderate, and severe COPD were 1.11, 1.46, and 2.41, respectively.

The researchers pointed out that high levels of nitrites are used in cured meats such as bacon, as preservatives, anti-bacterial agents and colour fixatives. These produce highly reactive nitrogen species, which can damage body tissues, including the lungs, producing structural changes resembling emphysema.

The study also found individuals who consumed cured meats frequently were more likely to be male and of a lower socio-economic status, and to smoke, than those who never consumed cured meats. They also often had lower intakes of vitamin C, fish, fruits and vegetables, and higher energy intakes. However, the researchers controlled for these factors so concluded they were not to blame for the effects on lungs.

ACTION

A healthy diet is as important for good lung health as for the rest of the body. This study suggested that frequent consumption of cured meat was independently associated with an obstructive pattern of lung function and increased risk of COPD.

Thorax. Published ahead of print on 25 January 2007, doi:10.1164/rccm.200607-9690C.



NEWS FROM THE GENERAL PRACTICE AIRWAYS GROUP (GPIAG) ANNUAL CONFERENCE (22-23 JUNE 2007, KEELE UNIVERSITY, UK)

LEUKOTRIENE RECEPTOR ANTAGONISTS IMPROVE QUALITY OF LIFE



Early results from a new NHS-funded trial show that leukotriene receptor antagonists (LTRAs) are as effective as inhaled steroids and long-acting beta-agonists (LABAs) in improving asthma-specific quality of life at steps 2 and 3 of the British Thoracic Society (BTS) asthma guidelines.

A total of 633 patients with uncontrolled asthma at steps 1 or 2 of the BTS guidelines were enrolled from 55 practices in the UK

into the ELEVATE study. They were given either the recommended treatments at steps 2 and 3 of the BTS guidelines or a LTRA for a minimum of eight weeks up to a total of two years.

In the patients undergoing step 2 treatment, quality of life scores, the number of exacerbations and beta-agonist use were the same in those receiving inhaled steroids as in those taking the LTRA. Similar levels of improvement were seen in patients receiving step 3 treatment. Data on drug and hospital costs will be published at a later date, although LTRAs are currently a more expensive option.

The lead author of the study, Professor David Price, General Practice Airways Group Professor of Primary Care Respiratory Medicine, University of Aberdeen, said that the results showed that LTRAs were as effective as inhaled steroids at step 2 and as effective as LABAs at step 3 of the asthma guidelines. He suggested that the guidelines might need revising based on the findings.

Professor Price explained that the ELEVATE study was a 'pragmatic' randomised controlled trial (RCT), which aimed to maintain the rigorous scientific approach of an RCT but made the conditions closer to 'real life' by enrolling patients more representative of the real asthma population over a longer, two-year time-period than looked at in previous trials.

ACTION

This trial adds to the ongoing debate on the use of LTRAs in the treatment of asthma. The results suggest that LTRAs might be an effective alternative to inhaled steroids at step 2 and to LABAs at step 3 of the BTS guidelines.

National Primary Care Conference of the GPIAG, 2007; Abstract 23.

The study was part of the NHS Health Technology Assessment Programme (Project number 98/34/05).

WEATHER FORECASTING MAY AID COPD MANAGEMENT



Two studies presented at the GPIAG conference highlighted the potential benefit of a weather forecasting service for patients with COPD, particularly in reducing hospital admissions.

COPD can be dramatically affected by weather, particularly sudden temperature changes, and early warning allows patients to minimise their risk. Pilot studies evaluated an automated calling system that warned patients with COPD of high-risk weather conditions during the winter of 2006-7. A total of 445 patients from nine practices took part, each receiving four telephone warnings.

Hospital admission rates were 54% lower in practices that took part in the study compared with other local practices (2.21 per 100 patients vs 4.78 per 100 patients). In addition, COPD admissions fell by 52% compared to the previous winter in those practices that took part in the study.

Dr Tish Laing-Morton from the Met Office in Exeter said that it remains unclear, at this stage, why patients participating in the pilot scheme remained healthier. Although a direct association with weather alerts seems most likely, there may be a link with someone showing care, which motivates patients to care better for themselves. However, a detailed survey showed that both patients and practice staff greatly appreciated the service. In addition, the study suggested a potential cost saving of £3,900 per 100 COPD patients in terms of reduced admissions and treatment.

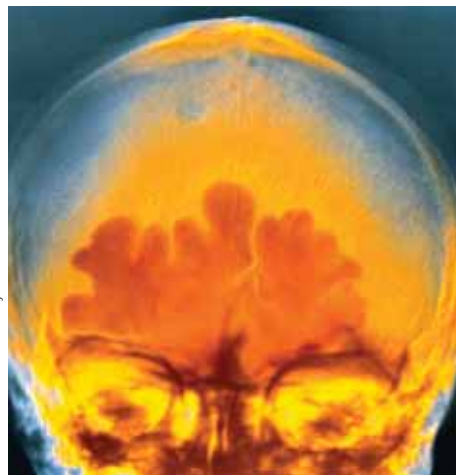
Further studies will be conducted next winter to determine whether a wider roll-out of the service is possible in the future.

ACTION

Weather changes, in particular cold temperatures, and high rates of circulating respiratory viruses have a significant impact on COPD exacerbations. A weather forecasting service direct to patients may be available in the future. For now, it is worth warning patients to monitor their symptoms carefully and to seek help early, or adjust their treatment as set out in their action plan, if they start to deteriorate.

National Primary Care Conference of the GPIAG, 2007; Abstracts 25 and 28.

NEW GUIDELINES ON CHRONIC RHINOSINUSITIS



Alain Pol/Science Photo Library

Chronic rhinosinusitis (the 'constant cold') should be managed using a step-wise approach with first-line therapy based on topical steroids, oral antibiotics and nasal saline douching, recommends a European position paper that updates 2005 guidelines.

Presenting the new guidelines, Dr Glenis Scadding, consultant physician at the Royal National Throat, Nose and Ear Hospital, London, explained that rhinosinusitis, which can cause severe congestion and a runny nose affects 5-15% of the community and results in a large health and financial burden. Its prevalence exceeds that of any other chronic disease.

The new guidelines include a new definition of rhinosinusitis aimed to improve its identification and

diagnosis. It is defined as inflammation of the nose and the paranasal sinuses characterised by two or more symptoms, one of which should be either nasal congestion or nasal discharge. Other symptoms may include facial pain or pressure, reduction or loss of smell; and either endoscopic signs of nasal polyps or mucus and pus discharged primarily from the sinuses, or CT changes showing mucosal changes within the sinuses.

The guidelines also include a review of diagnostic methods and treatments. They recommend a step-wise approach to managing the disease with first-line therapy of topical steroids, oral antibiotics and nasal saline douching. They also provide clear recommendations on when patients should be referred to an ENT specialist.

ACTION

Chronic rhinosinusitis should be carefully diagnosed and treated using a step-wise approach with first-line therapy based on topical steroids, oral antibiotics and nasal saline douching.

National Primary Care Conference of the GPIAG, 2007; Rhinosinusitis (Issues and answers in primary care today – allergy). The guidelines are available at *Rhinology* 2007, Supplement 20. Published online <http://www.rhinologyjournal.com/EPOS.pdf>

COPD PATIENT EDUCATION IS VARIABLE

Education for patients with COPD is variable and poorly targeted, with education on self-management and exercise being particularly neglected, according to a study from Devon.

Although specific and clear education has been shown to be beneficial for patients with long-term conditions, previous studies have shown it to be sub-optimal in people with COPD. To assess patient perceptions of their education, data was gathered from 340 patients with COPD by visiting nurses in 16 practices in the West Country using the Lung Information Needs Questionnaire (LINQ) developed in Plymouth (www.linq.org.uk), together with other clinical tools.

Education needs had been well met in some areas. For example, in current smokers, 93% had been advised to stop smoking and 80% had been given practical help such as nicotine therapy. Understanding of the need for medication was also good. 93% of patients said they tried to take medication as prescribed, and only 7% were confused about their medication.

However, education on self-management was poor – written action plans were given to only 17% of patients, and were provided less often to those in most need (only to 8% of those with accident and emergency admissions and 16% of those admitted to hospital in the last year). In addition, only 21% of patients with hospital admissions knew when to call an ambulance. Only 29% of patients had their information needs met regarding exercise, and in the most breathless patients (MRC grades 4 and 5) this fell to 20%.

ACTION

Education is very important in patients with COPD. Patients may receive good information on smoking cessation and medicines, but are they receiving enough clear information on self-management and exercise?

National Primary Care Conference of the GPIAG, 2007; Abstract 32.

HERBAL MEDICINES REMAIN UNPROVEN IN ASTHMA



A recent Cochrane systematic review shows that although some herbal medicines have potential benefits in treating asthma, the quality of the available evidence is not good enough for them to be recommended to patients.

The study found 2,344 papers in the literature describing herbal remedies for asthma from China, India and Japan, and subjected each paper to a thorough assessment. Only 24 were found to have sufficient scientific merit to be included in the review.

Results showed that use of plants such as *Boswellia*, Mai-Men-Dong-Tang and *Tylophora indica* may be associated with improvements in lung function, although further high-quality studies with large numbers of patients are required to validate these findings.

The use of complementary therapies such as herbal remedies in asthma is quite high, according to Dr Christopher Clark, from the Peninsula Medical School, Plymouth. He quoted a National Asthma Campaign survey showing that 59% of asthma sufferers had used complementary therapy and that 67% of these would consider using it in the future.

Dr Clark concluded, "As an individual you may receive some benefit from taking some of these herbal extracts, but there is not sufficient evidence for a healthcare professional to say if they are effective."

ACTION

Although some patients may take herbal medicines to treat their asthma there are no sufficiently rigorous scientific studies to support their use. More studies are required. For now, patients should be encouraged to take evidence-based therapies as recommended in current guidelines.

National Primary Care Conference of the GPIAG, 2007; Abstract 14.

Study protocol at http://www.cochrane.org/reviews/en/info_822624DE82E26AA201338D3D6E039631.html



BASIC ADVICE IS ENOUGH TO GET SMOKERS TO QUIT

Basic support from primary care staff achieves similar smoking cessation rates to more intensive support, a general practice study has shown.

The controlled trial in 26 UK general practices randomly allocated 925 smokers of 10 or more cigarettes per day to basic or weekly support. All participants were seen prior to quitting, telephoned around quit day, and seen one and four weeks after initial appointment (basic support). In weekly support, participants had an additional telephone call at 10 days and three weeks after their initial appointment and an additional visit at 2 weeks to motivate adherence to nicotine replacement and renew quit attempts. All participants were given 15 mg/16 hour nicotine patches.

The results showed similar numbers quitting at four weeks (22.4% in both groups) and at longer follow-up – 14.1% in the basic group compared to 11.4% in the weekly group at

12 weeks and 7.7% vs 6.6% at 52 weeks.

The researchers commented that the absolute quit rates achieved were those expected from nicotine replacement alone, implying that neither basic nor weekly support were effective. However, they said that primary care smoking cessation treatment should provide pharmacotherapy with sufficient support to ensure it is used appropriately.

ACTION

The trial suggests that primary care professionals have a role in providing medication to support smoking cessation and sufficient support to ensure it is used appropriately. It may be that primary cessation services should reach broadly, rather than aim to give in-depth support.

Published Online 4 May *Thorax*.
doi:10.1136/thx.2006.071837



Alamy Images

PEOPLE WITH MILD ASTHMA WHO SMOKE SHOW REDUCED RESPONSE TO INHALED CORTICOSTEROIDS



Ian Hooton/Science Photo Library

People with mild asthma who smoke show attenuated response to inhaled corticosteroids, according to a recent study.

The multicentre, placebo-controlled, crossover trial compared 44 nonsmokers and 39 light smokers with mild asthma who were assigned randomly to treatment with inhaled beclometasone (twice daily) or oral montelukast (once daily).

Despite similar FEV₁, bronchodilator response, and sensitivity to methacholine at baseline, subjects with asthma who smoked had significantly more symptoms, worse quality of life, and lower daily peak flow than nonsmokers.

Treatment with beclometasone significantly reduced markers of inflammation (sputum eosinophils and eosinophil cationic protein) in both smokers and nonsmokers, but increased FEV₁ (170 ml, p=0.0003) only in nonsmokers. Montelukast significantly increased morning peak flow in smokers (12.6 L/min, p=0.002), but not in nonsmokers.

ACTION

Response to inhaled corticosteroids is attenuated in people with mild asthma who smoke, suggesting it may be necessary to adjust therapy to attain asthma control in those who cannot quit. One-quarter to one-third of individuals with asthma smoke, so a significant number of patients are affected.

The greater improvement seen in some outcomes in smokers treated with montelukast suggests that leukotrienes may be useful in this setting.

Thorax. Published ahead of print on 4 January 2007,
doi:10.1164/rccm.200511-1746OC.

ECHINACEA HELPS PREVENT COLDS

Echinacea, one of the most commonly used herbal supplements, can halve the risk of catching the common cold, according to a study published in *Lancet Infectious Diseases*.

Earlier studies have failed to find convincing evidence that echinacea worked, so the findings are likely to be controversial. A research team, from the School of Pharmacy at the University of Connecticut, USA, carried out a meta-analysis of 14 studies into the use of echinacea to relieve/protect against catching a cold.

Echinacea reduced the incidence of cold by 65% if it was used to prevent 'natural' catching of a cold. In patients directly inoculated with the cold-causing rhinovirus, it reduced cold incidence by 35%.

Overall, echinacea reduced the chances of catching a cold by 58% (odds ratio 0.42; $p < 0.001$) and shortened the length of a cold by an average of 1.4 days.

In one of the 14 studies the researchers reviewed, echinacea was used together with vitamin C. This combination reduced cold incidence by 86%.

The researchers said: "With over 200 viruses capable of causing the common cold, echinacea could have modest effects against rhinovirus but marked effects against other viruses."

Echinacea is a collection of nine related plant species indigenous to North America. The authors commented that its mechanism of action is unclear but effects on the immune system have been suggested.

ACTION

This analysis of the literature suggests that echinacea has a benefit in decreasing the incidence and duration of the common cold. However, more research is needed to properly understand the mechanisms. Echinacea should not be taken during pregnancy and should not be used by anyone with an autoimmune condition or who has had an organ transplant.

Lancet Infectious Dis 2007; 7: 473-80.



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Gusto Images/Science Photo Library

This article will help you understand how 'blinding' contributes to the rigorousness of randomised controlled trials.

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THE CONTROL OF KNOWLEDGE IN RANDOMISED CONTROLLED TRIALS: BLINDING

Blinding in a research study means:

"Keeping study participants, healthcare providers, and sometimes those collecting and analysing clinical data unaware of the assigned intervention, so they will not be influenced by that knowledge."

(<http://www.consort-statement.org/Statement/examples11a.htm>)

Why is blinding used?

- Patients' beliefs regarding treatment may affect outcomes (for example, cyclists given placebo may cycle faster if they think it is caffeine).¹
- To prevent 'performance bias' (eg knowledge of group allocation may lead to patients or health professionals altering the treatment).
- To prevent biasing outcome measurement or data analyses.

When are patients blinded?

- Study subjects are blinded at the start of the trial, although they may guess they have been given treatment if the effect is marked.²

What are 'single', 'double' and 'triple' blinding?

- These refer to the number of people blinded (eg patients, researchers or others).
- Studies are often double-blind, which means that neither the patients nor the researchers know which treatment or other intervention has been given to individuals in the study.
- There is no shared definition of these terms³ so it is important that researchers clearly state who was blinded.

How is blinding achieved?

- In single-blind RCTs the patient is blinded by making the intervention and placebo indistinguishable (eg same sensation, colour, size and shape).
- Double-blind RCTs are conducted if investigators can give the intervention without knowing exactly what they are administering; it is therefore easier to blind investigators administering drugs than surgery!
- The statistician (who has randomised patients to each group) will provide the investigator with the intervention to be given to each patient, and reveal group allocation to researchers after they have analysed the data.



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3. Devereaux PJ, Manns BJ, Ghali WA, Quan H, Lacchetti C, Montori VM *et al*. Physician interpretations and textbook definitions of blinding terminology in randomized controlled trials. *JAMA* 2001; **285**: 2000-2003.