

Evidence in Practice

There are just not enough hours in the day to read all the research journals, even if you wanted to. This section of *BJPCN* – Evidence in Practice – will keep you on top of relevant research without having to spend hours in the library.

Each review gives you a bite-size summary of new research, pulling out key points for primary care and recommending the action that you might consider taking.

ANTIBIOTICS DO NOT REDUCE COMPLICATIONS IN URTIs, BUT DO IN CHEST INFECTIONS



Antibiotics do not reduce the risk of serious complications in upper respiratory tract infection, sore throat, or otitis media, confirms a retrospective study using the UK General Practice Research Database. However, their use substantially reduces the risk of pneumonia after chest infection, particularly in elderly people.

The study analysed 3.36 million episodes of respiratory tract infection from the

162 practices contributing to the general practice research database. The researchers looked at the risk of serious complications in patients treated with antibiotics in the month after diagnosis, compared to those who were not treated.

Results showed that serious complications were rare after upper respiratory tract infections, sore throat, and otitis media, and were reduced with the use of antibiotics. But the number needed to treat (NNT; the number of patients who need to be treated to prevent one bad outcome) was high, at over 4,000.

In contrast, the risk of pneumonia after chest infection was high, particularly in elderly people, and was substantially reduced by antibiotic use. Without an antibiotic prescription, 4% of patients aged 65 and over were diagnosed with pneumonia in the month after diagnosis of a chest infection compared with 1.5% of those who were treated with an antibiotic. This gave a number needed to treat of 39 for those aged 65 and over and of 96-119 in younger age groups.

ACTION

These 'real life' results confirm that use of antibiotics is not justified to reduce the risk of serious complications for upper respiratory tract infection, sore throat, or otitis media. However, antibiotics should be considered in patients with chest infections – particularly in older patients, as they substantially reduce the risk of pneumonia.

BMJ 2007; 335: 982.

APPLES AND FISH IN PREGNANCY REDUCE CHILDHOOD ASTHMA

Eating apples and fish during pregnancy may protect against the development of childhood asthma and allergic disease, according to a longitudinal birth cohort study in children born to women recruited during pregnancy.

The study assessed maternal diet during pregnancy using a food frequency questionnaire. A total of 1,253 children were followed up at five years using a symptom questionnaire and food questionnaire. Food groups of particular interest were fruit, vegetables, fruit juice, whole grain products, fish, dairy products and fat spreads.

Results revealed no consistent associations between childhood outcomes and maternal intake of any of the foods analysed apart from apples and fish. Maternal apple intake was beneficially associated with children ever having wheeze (the risk was 37% lower in women in the top third of



apple consumption compared to the bottom third), never having asthma (46% lower) and doctor-confirmed asthma (53% lower). Maternal fish consumption was beneficially associated with doctor-confirmed eczema (43% lower in women eating fish once a week compared to those never eating fish).

ACTION

Consumption of apples and fish during pregnancy may have a protective effect against the development of childhood asthma and allergic disease. The results provide more reason to encourage women to eat healthily, including fruit and fish in their diet, during pregnancy.

Thorax 2007; 62: 773-779.



PRIMARY CARE RESEARCH FROM THE EUROPEAN RESPIRATORY SOCIETY (ERS)

September 2007; Stockholm, Sweden

NURSES MOSTLY ADHERE TO RESPIRATORY GUIDELINES BUT SOME OMISSIONS



Primarily care nurses generally deliver care according to national respiratory guidelines; however, there are some notable omissions, according to a survey of practice nurses carried out by Education for Health and the University of Edinburgh.

Omissions included accurately assessing disability in patients with COPD and not stepping down asthma medication – both of which reflect sub-optimal care and may result in poorer patient outcomes, say the researchers.

Questionnaires were sent to lead asthma and COPD nurses at 500 randomly selected UK practices to assess adherence to guidelines (*British Thoracic Society and Scottish Intercollegiate Guidelines Network, 2005* and *National clinical guideline on management of chronic obstructive pulmonary disease, 2004*).

The response rate was high, with 74% of COPD and 78% of asthma nurses completing questionnaires. COPD nurses who conducted follow-up consultations always advised tobacco smokers to quit (97%), checked inhaler technique (84%), asked about symptom control and exercise (79%), asked about exacerbation frequency (70%), recorded spirometry values (51%) and used a validated score to assess disability (31%).

Nurses who conducted asthma follow-up consultations always asked about symptoms that caused difficulty sleeping (92%), occurred during the day (92%), or interfered with usual activities (89%), checked inhaler technique (76%) and stepped down medication when asthma was under control (48%).

ACTION

UK primary care nurses are increasingly responsible for the clinical management of patients with long-term conditions. This survey explored nurses' adherence to national guidelines for asthma and COPD. The results were reassuring, but identified some scope for further improvement.

ERS Abstract #1788.

CONTINUATION OF EXERCISE FOLLOWING PULMONARY REHABILITATION

Pulmonary rehabilitation can be an effective intervention for patients with chronic obstructive pulmonary disease (COPD); however, patients need encouragement if benefits are to be maintained long term, according to an audit by Nigel Window and colleagues, Community COPD Team, Worcester Primary Care Trust, Worcester.

COPD patients in Worcester are encouraged to continue their exercise programme at a weekly exercise group run by members of the Community COPD Team. Attendance at the free sessions varies between 22 and 40 participants. The class consists of group exercise, relaxation and information giving.

In an audit of attendees (age 56-87 years) anonymous questionnaires were used to establish the reasons for attendance and the perceived benefit.

Their reasons for attending the group were: maintaining their fitness (22), social interaction (12), gaining information (9), and to see the nurse (6). Seventeen participants felt that they could do more than when they started their course. Participants were asked if they would have continued exercising after their rehabilitation programme if the class had not been available: 16 felt they would not have, 6 felt they would have and one was not sure.



ACTION

Many patients successfully complete pulmonary rehabilitation programmes. However, at one year post programme the effects decline. A maintenance programme appears to be a useful way of motivating respiratory patients to maintain their improvement in exercise tolerance following pulmonary rehabilitation.

ERS Abstract #P1170.

PATIENT NEEDS FOLLOWING HOSPITAL DISCHARGE AFTER ACUTE EXACERBATION OF COPD

Interventions to reduce readmission for COPD exacerbations need to take into account the psychosocial as well as medical needs of patients, according to a pilot study by Dr Kevin Gruffydd-Jones and colleagues from Wiltshire, and the Universities of Bath and Bristol.

They used qualitative and semi-quantitative home-based interviews to explore the needs of COPD patients after hospital discharge (n=25). The results identified high levels of depression (64%) and anxiety (40%). Feelings of anxiety after discharge were associated with the fear of another "attack".

Anxiety was associated with uncertainties about social and medical care provision. Dr Gruffydd-Jones felt that poor discharge procedures and lack of communication with the community teams might have been responsible for this.

Only 4% patients had self-management plans yet patients expressed a need for more information about what to do in an acute attack. No patient had received post-discharge rehabilitation.

"Interventions to reduce readmission for COPD exacerbations need to take into account the psychosocial as well as medical needs of patients. There appears to be a need for improved hospital discharge procedures, increased use of pulmonary rehabilitation and encouragement of self-management strategies," the authors concluded.

ACTION

Interventions such as supported hospital discharge after an acute exacerbation of COPD have previously been shown to have variable effects on the high rate of hospital readmission. However, ensuring that patients have a self-management plan and are aware of what to do if they have an exacerbation could help to reduce risk, in addition to greater access to pulmonary rehabilitation.

ERS Abstract P856.

PROACTIVE SUPPORT NEEDED FOR 'INVISIBLE' COPD PATIENTS

When and how do people with advanced COPD seek support from healthcare practitioners? This apparently simple question was the trigger for a research study by Cathy Shipman and colleagues from the Department of General Practice and Primary Care, King's College, London.

A qualitative study was undertaken with 17 people suffering from advanced COPD. Interviewees were selected from general practice registers by indicators of severity including $FEV_1 \leq 30\%$, predicted acute exacerbations and/or use of home oxygen.



The sample included nine men and eight women, with a mean age of 69 years and mean FEV_1 of 26% predicted. Symptoms experienced included breathlessness, pain, fatigue and low mood. During acute exacerbations, interviewees reported contacting GPs, hospital clinicians or the ambulance service.

The service approached depended on perceived availability, urgency, confidence in getting a response and quality of relationship. Some patients felt they could talk directly with their GP at any time, but others did not like to bother their GP. At other times, help-seeking included contact with practice and respiratory nurses and pulmonary rehabilitation. Some interviewees appeared isolated from social contact, only approaching practitioners in an emergency.

"Many suggested that coping would be enhanced by proactive GP contact... while health service contact varied, lack of contact did not necessarily imply lack of need for health care. Greater vigilance could provide proactive support to this often invisible group of patients," the authors concluded.

ACTION

Advanced COPD is a disabling and isolating condition often characterised by acute exacerbations of breathlessness, which can be unpredictable, frightening and life-threatening. We need to optimise our efforts to get in touch with, and monitor, advanced COPD patients, rather than waiting for them to contact the practice or hospital clinic.

ERS Abstract P857.

EASY-TO-USE PRIMARY CARE SCREENING TOOL FOR COPD

A practical screening tool to prioritise patients for use of spirometry to confirm a diagnosis of COPD has been prospectively validated by Peter Frith and colleagues, from Flinders University, Adelaide, South Australia.

The researchers assessed the FEV_1/FEV_6 ratio, measured with an easy-to-use device, as a general practice COPD screening tool. Smokers and former smokers, aged 50 plus with no previous diagnosis of COPD, were recruited from five GP practices (n=333).

COPD diagnosis was based on post-bronchodilation $FEV_1/FVC < 0.70$ (GOLD criterion), measured by independent, trained operators with spirometry.

Pre-bronchodilator FEV_1/FEV_6 was measured by GPs and practice nurses using an inexpensive pocket-sized device (PiKo-6; Ferraris Respiratory, Hertford, UK).

Complete data were available from 297 of the 333 participants (mean age 60); 31% had spirometry-confirmed COPD. The device-measured FEV_1/FEV_6 distinguished those with or without COPD with a high degree of sensitivity (83%) and specificity (70%).



ACTION

These results indicate that the FEV_1/FEV_6 ratio, measured with an inexpensive and easy-to-use device, can provide practice teams with a practical and valid COPD screening tool for identifying patients who should be prioritised for diagnosis with spirometry.

ERS Abstract #E4565.

EATING A MEDITERRANEAN DIET COULD PROTECT AGAINST RESPIRATORY ALLERGIES AND ASTHMA



Eating a diet high in fruits, vegetables and nuts is associated with lower risk of respiratory allergies and asthma, according to a study of children brought up in rural Crete.

Atopy is not uncommon among children living in rural

Crete; but wheeze and rhinitis are rare. So researchers looked at whether this discrepancy could be attributed to a high consumption of fresh fruit and vegetables. They carried out a cross-sectional survey of 690 children aged 7-18 years in rural Crete. Parents completed a questionnaire on the child's respiratory and allergic symptoms, and a 58-item food frequency questionnaire. Children underwent skin prick tests with 10 common aeroallergens.

Results showed that 80% of children ate fresh fruit (and 68% vegetables) at least twice a day. The intake of grapes, oranges, apples, and fresh tomatoes – the main local products in Crete – had no association with atopy but was protective for wheezing and rhinitis. Children with high consumption of nuts were half as likely to suffer wheezing as those eating lower amounts (OR, 0.46; 95% CI, 0.20-0.98), whereas margarine increased the risk of both wheeze (OR, 2.19; 95% CI, 1.01-4.82) and allergic rhinitis (OR, 2.10; 95% CI, 1.31-3.37).

Overall, children with a high level of adherence to the Mediterranean diet were two-thirds less likely to have allergic rhinitis than those with lower adherence (OR, 0.34; 95% CI, 0.18-0.64) while a more modest protection was observed for wheezing and atopy.

ACTION

Daily consumption of fruits, vegetables and nuts (obviously ensuring no nut allergy!) and a high adherence to a traditional Mediterranean diet (high in fruit, vegetables, bread, olive oil and fish) during childhood seems to reduce symptoms of asthma and rhinitis. These findings add to existing evidence that a healthy diet could help reduce the risk of asthma symptoms by providing beneficial vitamins and antioxidants.

Thorax. Published Online First: 5 April 2007.
doi:10.1136/thx.2006.069419.



Evidence in Practice compiled by:
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This article will help you understand how double-blind, randomised controlled trials allow the specific effects of an intervention to be differentiated from non-specific effects.

Jane Upton

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SPECIFIC AND NON-SPECIFIC EFFECTS IN RANDOMISED CONTROLLED TRIALS

Double-blind randomised controlled trials (see previous article in this series) are used to evaluate new interventions such as medications or surgery. This is because this methodology enables the specific effect of an intervention to be measured independently from non-specific effects.

Specific effects are due to the effect of an active ingredient on a particular condition (*eg* the effect of acetylsalicylic acid, the active ingredient of aspirin, on headaches).

Non-specific effects are due to additional factors, *eg* beliefs about the intervention's effectiveness, or to interaction with the clinician. These are often labelled the placebo effect, although the use of this term is controversial.¹

Placebo:

*'a substance or procedure that is without specific activity for the condition being treated.'*²

The double-blind, randomised, controlled trial was developed in 1937 by Gold and colleagues while evaluating the effect of xanthines on angina pectoris.³ Patients were allocated to receive either xanthine or placebo, and blinded to group allocation to prevent their beliefs from affecting the results.

The investigators collecting the data were not blinded, and Gold noticed that patients in the intervention group were asked leading questions about their pain severity. As this might bias the results, Gold stopped the investigators knowing which group patients were in, thereby ensuring that all patients were treated consistently.

Any differences between groups could then be attributed to the specific effects of treatment. No differences were found, and the use of xanthine for angina pectoris was discontinued. This methodology gradually became the gold standard for evaluating new drugs.



1. Moerman DE, Jonas WB. Deconstructing the placebo effect and finding the meaning response. *Ann Intern Med* 2002; **136**: 471-476.
2. Shapiro AK, Shapiro E. *The Powerful Placebo: From Ancient Priest to Modern Physician*. The Johns Hopkins University Press, 1997.
3. Gold H, Kwit NT, Otto H. The xanthines (theobromine and aminophylline) in the treatment of cardiac pain. *JAMA* 1937; **108**: 2173-2179.