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Commonly used patient-reported outcomes do not improve prediction of COPD exacerbations

Alexandra Strassmann, Anja Frei, Sarah Haile, Gerben ter Riet & Milo A Puhan

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Implementing preventive measures for patients with chronic obstructive pulmonary disease (COPD) who are at increased risk of exacerbation is vital to COPD management. While there are many established predictors of COPD exacerbation, including breathlessness, airflow obstruction, smoking and previous exacerbations, it is unclear how useful patient-reported outcomes (PROs) are in predicting COPD exacerbations. The aim of the multicentre four-and-a-half-year prospective cohort study, reported by Alexandra Strassmann (University of Zurich) and colleagues, was to investigate whether PROs covering various symptoms and limitations of patients with COPD are independent predictors of exacerbations, and to see if they improve on existing prediction models. The International Collaborative Effort on Chronic Obstructive Pulmonary Disease: Exacerbation Risk Index Cohorts study observed 408 patients with COPD, and PROs included the Feeling Thermometer, Chronic Respiratory Disease Questionnaire, Hospital Anxiety and Depression Scale, and LASA Physical Activity Questionnaire. The authors concluded that, while patient-reported breathlessness, fatigue, anxiety and physical activity are statistically and independently associated with COPD exacerbations, they do not improve the long-term prediction of COPD exacerbations to a clinically relevant extent when added to established predictors of exacerbations.

Effect of statins on COPD

Wen Zhang, Yi Zhang, Chuan-Wei Li, Paul Jones, Chen Wang & Ye Fan

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Therapy that improves the management of chronic obstructive pulmonary disease (COPD) is urgently needed. In a meta-analysis of 10 randomised controlled trials involving 1,471 patients, Wen Zhang from Xinqiao Hospital, Beijing, and his colleagues sought to determine the clinical efficacy of statin therapy in COPD. They observed that statin drugs improved exercise tolerance, pulmonary function and quality of life in patients with COPD. The authors also found that COPD patients with hyperlipidaemia, increased systemic inflammation or co-morbid cardiovascular disease (CVD) demonstrated more benefits from statin therapy than those without, and that there was no association between statin therapy and survival rates (although only a few trials in this analysis focused on that outcome). Findings support routine CVD assessment for COPD patients to identify those who have a cardiovascular indication for statin drug treatment, as it may confer benefits to the pulmonary system. They recommend running a large randomised controlled trial to test these hypotheses.

Effects of pulmonary rehabilitation on exacerbation number and severity in people with COPD

Elizabeth Moore, Roger Newson, Miland Joshi, et al.

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Acute exacerbations in chronic obstructive pulmonary disease (COPD) negatively affect health-related quality of life, and pulmonary rehabilitation (PR) is a key component of COPD management. Clear evidence of the benefits of PR on reducing hospital admissions is lacking, since there are no studies on the effect of PR in reducing hospital admissions or milder general practice (GP)-treated events, especially in patients with less severe COPD (who comprise most referrals for PR). In this cohort study, using primary care data from the UK Clinical Practice Research Datalink and Hospital Episode Statistics, Elizabeth Moore and colleagues compared the rates of hospitalised and GP-treated COPD acute exacerbations prior to and following PR. They found less than 10% of patients eligible for PR were referred, and that the number of acute exacerbations for patients referred for PR was no lower than for those who were not referred. PR had no detectable effect on exacerbation frequency. The authors proposed that the national COPD audit should monitor the content of rehabilitation more closely.

Comparison of a structured home-based rehabilitation programme with conventional supervised pulmonary rehabilitation: a randomised non-inferiority trial

Elizabeth J Horton, Katy E Mitchell, Vicki Johnson-Warrington, et al.

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Pulmonary rehabilitation (PR) is a high-value intervention for patients with chronic obstructive pulmonary disease (COPD) and international guidelines recommend a programme over six weeks involving a package of supervised exercise and education. However, uptake for centre-based, supervised PR is poor. Home-based PR programmes offer an alternative, but evidence is lacking for the benefits of a standardised, unsupervised PR programme with no home visits by a physiotherapist or intensive monitoring. This study, reported by Elizabeth Horton (Coventry University) and colleagues, set out to determine whether a structured, home-based, unsupervised PR programme of activity, coping and education for COPD could be considered non-inferior to centre-based PR. Two hundred and eighty-seven COPD patients referred to PR were randomised to either centre-based PR or a structured, unsupervised home-based programme for seven weeks, including a hospital visit with a healthcare professional trained in motivational interviewing, a self-management manual and two telephone calls. The standardised home-based programme provided improvement in breathlessness and exercise endurance capacity of a similar level to conventional supervised PR, but further evidence is needed to determine conclusively whether the health benefits of standardised home-based PR are non-inferior or equivalent to supervised centre-based PR.

Comparing the cancer potencies of emissions from vapourised nicotine products including e-cigarettes with those of tobacco smoke

William E Stephens

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Vapourised nicotine products, such as electronic cigarettes (e-cigarettes), are rapidly growing alternatives to tobacco, acting as a method of nicotine delivery without the combustion of tobacco. Despite this, understanding of their safety is still under debate. Dr William Stephens, from the University of St Andrews, conducted a quantitative analysis to compare the relative cancer potencies between a number of nicotine products, including tobacco smoke, e-cigarette vapours and heat-not-burn (HnB) devices. Most e-cigarette emissions studied demonstrated a mean lifetime cancer risk of <1% of tobacco smoke. However, some devices produced higher potencies, particularly under conditions of a higher voltage. When compared with nicotine inhalers, the relative risks for e-cigarettes and tobacco cigarettes were 11 and ~2700, respectively. HnB devices demonstrated lower cancer potencies than tobacco smoke by at least one order of magnitude, but higher than those found in most e-cigarettes. Dr Stephens concluded that, ensuring the e-cigarettes were used under optimal conditions (such as enabling lower device settings) the emissions produced are likely to have a lower carcinogenic potency than that found in tobacco smoke.

Physiotherapy breathing retraining for asthma: a randomised controlled trial

Anne Bruton, Amanda Lee, Lucy Yardley, et al.

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Many patients express interest in non-pharmacological self-management strategies such as breathing techniques. But although preliminary studies of breathing retraining have shown promising outcomes, such techniques are rarely used in practice. Anne Bruton (University of Southampton) and colleagues developed a self-guided breathing retraining intervention comprising a DVD and accompanying booklet (DVDB). Six hundred and fifty-five patients with asthma were randomised to receive standard care, the DVDB intervention or face-to-face breathing retraining. Benefit was assessed using the Asthma Quality of Life Questionnaire (AQLQ). At 12 months, mean AQLQ scores were significantly higher in the face-to-face and DVDB groups compared with standard care. Patient-reported benefits of the DVDB and face-to-face interventions included increased breathing control, reduced need for medication, increased relaxation, and greater quality of life. Furthermore, an economic assessment found both interventions superior to standard care by providing equivalent clinical benefits at a lower monetary cost. The authors concluded that such a self-help breathing retraining intervention can be delivered conveniently and cost-effectively. However, they warned that it is not disease-modifying, and patients should be counselled on the need to use it to support, not replace, pharmacotherapy.

Fractional exhaled nitric oxide as a predictor of response to inhaled corticosteroids in patients with non-specific respiratory symptoms and insignificant bronchodilator reversibility: a randomised controlled trial

David B Price, Roland Buhl, Adrian Chan, et al.

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Patients with non-specific respiratory symptoms, such as coughing and breathlessness, present a significant challenge in primary care. Inhaled corticosteroids (ICS) are often prescribed to manage these symptoms, but concern regarding overuse has triggered calls to exercise more caution when prescribing these drugs. In a double-blind randomised controlled trial, David Price (University of Aberdeen) and colleagues from across the UK and Singapore evaluated the possible association between baseline fractional exhaled nitric oxide (FeNO) and response to ICS. Enrolled patients were aged between 18-80 years with coughing, wheezing or breathlessness, no confirmed respiratory diagnosis, and less than 20% bronchodilator reversibility. After two weeks' assessment and four weeks' treatment with either ICS or placebo, a significant positive association was found. Patients with higher baseline FeNO levels were significantly more likely to be responsive to ICS treatment. The authors believe their findings support the use of FeNO measurement in primary care as a tool to reduce the unnecessary prescription of ICS to patients unlikely to benefit from such treatment.

Does antibiotic treatment duration affect the outcomes of exacerbations of asthma and COPD? A systematic review

Marie Stolbrink, Jack Amiry & John D Blakey

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Most asthma and COPD exacerbations are considered to be non-bacterial in origin, yet antibiotic prescription for exacerbations is a common clinical practice. However, few studies have investigated the optimal duration of antibiotic treatment. Marie Stolbrink and colleagues from Liverpool conducted a systematic review, following best-practice guidance from the Cochrane Collaboration, to gather evidence for antibiotic prescriptions of various lengths. No relevant studies were found in patients with asthma, but 10 studies in COPD patients were included in the review. They found no significant association between prescription length and clinical response, bacteriological eradication in sputum, spirometric change, inflammatory markers or time to new exacerbations – but prescriptions shorter than six days were associated with a lower rate of adverse events. Many of the existing studies were undertaken more than 10 years ago, when standards for stratifying COPD severity were not widely adopted. The authors therefore believe current evidence supports the use of shorter antibiotic courses for COPD exacerbations, but call for further research to determine whether this is true in the context of present-day COPD care and antibiotic resistance.



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