must not come in the way of effective and timely humanitarian access to populations rendered isolated by such conflicts.

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Detecting chronic obstructive pulmonary disease using peak flow rate: cross sectional survey

Hannah Jackson, Richard Hubbard

The British Thoracic Society recommends spirometry, not peak expiratory flow, for diagnosing patients as having chronic obstructive pulmonary disease.¹ Recording data from spirometry in patients' notes has been proposed as a marker of quality of care.² But general practitioners are more familiar with peak expiratory flow rate, and have questioned using more complex spirometry tests to identify chronic obstructive pulmonary disease.³ We analysed data from the third national health and nutrition survey (NHANES III) to investigate how useful peak expiratory flow rate is for detecting people with chronic obstructive pulmonary disease in the community.

Participants, methods, and results

We included only white people aged 50-90 years because chronic obstructive pulmonary disease is uncommon in younger people, and we had insufficient statistical power to study other ethnic groups. We excluded people with self reported asthma.

For the remaining 3874 participants, we extracted information on lung function, history of smoking, and respiratory symptoms. Using equations developed from NHANES III, we calculated percentage predicted lung function.⁴ We defined peak expiratory flow rates less than 80% of that predicted as abnormal, and people as having chronic obstructive pulmonary disease if we found evidence of airflow obstruction

(forced expiratory volume in one second less than 80% of that predicted and a forced expiratory volume to vital capacity ratio of less than 70%), ever smoking at least 100 cigarettes, and had one or more respiratory symptom. These patients were subdivided on the basis of their predicted forced expiratory volume in one second into those with mild (60%-80%), moderate (40%-59%), or severe (<40%) disease.

We calculated the specificity and sensitivity of an abnormal peak expiratory flow rate. Classic statistical methods were not applicable because of the complex survey design used in NHANES III (www.cdc.gov/nchs/data/nhanes/nhanes3/cdrom/nchs/manuals/nh3guide.pdf); we used specialised survey commands within STATA, weighting our data appropriately.

We identified 265 people with chronic obstructive pulmonary disease—a prevalence of 7.8%, after allowing for NHANES III's sampling method. Of these, 143 (54%) were men, and the overall mean age was 65 years. Among people with a diagnosis of chronic obstructive pulmonary disease, 235 had a peak expiratory flow rate of less than 80% of what we predicted. The sensitivity (adjusted for sampling methods) of an abnormal peak expiratory flow rate in detecting all people with chronic obstructive pulmonary disease was 91%, and for people with moderate or severe chronic obstructive pulmonary disease was 100% (table). The specificity of an abnormal peak expiratory flow rate was lower at 82%, although 62% of the false

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Diagnoses of chronic obstructed pulmonary disease and peak expiratory flow rate

Peak expiratory flow rate	None	Mild (60%-80%)	Moderate (40%-59%)	Severe (<40%)	Total
<80% predicted					
No of participants	679	126	76	33	235
Crude %	17.5	3.3	2.0	0.9	6.1
Adjusted* %	16.6	4.0	2.2	0.8	7.1
≥80% predicted or greater					
No of participants	2930	30	0	0	30
Crude %	75.6	0.8	—	—	0.8
Adjusted* %	75.6	0.7	—	—	0.7%

*Adjusted to allow for sampling in NHANES III. Crude values for peak expiratory flow rate <80%: sensitivity 89%, specificity 76%, positive predictive value 26%. Values for peak expiratory flow rate <80% predicted allowing for sampling procedure: sensitivity 91%, specificity 82%, positive predictive value 30%

positive cases were smokers and 47% had airflow obstruction on spirometry.

Comment

A peak expiratory flow rate of less than 80% will detect more than 90% of people with chronic obstructive pulmonary disease in the community, including all of those with moderate or severe disease—that is, patients most likely to benefit from treatment with bronchodilators. The specificity of the test was more limited and for this reason the false positive rate is appreciable. The high prevalence of smokers and subjects with airflow obstruction in the false positive group, however, suggests that a peak expiratory flow rate of less than 80% predicted may be picking up milder cases of chronic obstructive pulmonary disease that did not meet our stringent diagnostic criteria.

Our findings suggest that peak expiratory flow rate is good at detecting patients with chronic obstructive

pulmonary disease in the community. Spirometry measurements provide additional information, but are more complex and time consuming, and their benefit in primary care has not been quantified. The new general medical services contract should therefore concentrate more on interventions of proved benefit to patients with chronic obstructive pulmonary disease, such as smoking cessation,⁵ and less on the need for spirometry.

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Epidemiology of chronic fatigue syndrome and self reported myalgic encephalomyelitis in 5-15 year olds: cross sectional study

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Chronic fatigue syndrome is characterised by severe physical and mental fatigue associated with disability, which by definition markedly affects people's lives. At one end of the spectrum, newspaper headlines imply that chronic fatigue syndrome or myalgic encephalomyelitis in children is of epidemic proportions, whereas at the other end the existence of the disorder is refuted. Attempts have been made to assess the size of the problem in the community, general practice, schools, and secondary care.^{w1-w5} Methodological problems, however, such as selection biases and poor response rates make it difficult to draw conclusions from these studies. We are unaware of any population studies in the United Kingdom that examine the prevalence of and factors associated with chronic fatigue syndrome in children. We determined the prevalence of chronic fatigue, chronic fatigue syndrome, and reported myalgic encephalomyelitis in 5-15 year olds and examined demographic and psychiatric associations.

Methods and results

This study was part of a larger study, carried out in 1999 by the social survey division of the Office for National Statistics to find out the prevalence of mental disorders in children aged 5-15. A total of 14 250 families were contacted, 931 (6.5%) opted out, and 790 (5.5%) of addresses were ineligible. Families living in private households in England, Scotland, and Wales were sampled.¹

Altogether 10 438 of 12 529 mothers were asked whether the index child had myalgic encephalomyelitis or chronic fatigue syndrome and completed the 12 item general health questionnaire.² The sample for the interview study consisted of 4240 11-15 year old children identified from this sample, and they were asked whether they had been feeling more tired and worn out than usual. If they answered affirmatively the interviewer asked supplementary questions relating to duration, effect of fatigue on different aspects of their