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% predicited					
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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Contributors: HJ did a literature review, did all statistical analysis, and drafted the paper. RH had the idea for the study, helped with statistical analyses, and was responsible for drafing the paper. RH is guarantor.

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Competing interests: RH has been reimbursed by Bayer to attend two conferences and has also received a consultancy fee from Bayer which enabled him to attend a conference in Tashkent for planning research projects in Karakarlpakstan.

Ethical approval: None sought.

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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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Additional references w1-w5 appear on bmj.com

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

Relation between dependent variables and self reported chronic fatigue, criteria from the US Centers for Disease Control and Prevention (CDC) for chronic fatigue syndrome, and parental report of myalgic encephalomyelitis or chronic fatigue syndrome (multivariate analysis). Values are odds ratios (95% confidence intervals) unless otherwise indicated

	Self reported	CDC criteria	Parental report*
No (%) of respondents	24/4240	8/4240	4/10 438
Prevalence (95% CI)	0.57 (0.34 to 0.80)	0.19 (0.06 to 0.32)	0.038 (0.00 to 0.076)
Age†	1.5 (1.1 to 2.1)	1.9 (1.0 to 3.7)	1.2 (0.9 to 1.8)
	P<0.01	P=0.03	P=0.2
Female sex	1.4 (0.6 to 3.3)	0.8 (0.2 to 3.4)	0.9 (0.1 to 7.1)
	P=0.4	P=0.8	P=0.9
Mother's score on general health questionnaire†	1.0 (0.9 to 1.2)	1.2 (0.9 to 1.4)	1.3 (1.0 to 1.6)
	P=0.6	P=0.1	P=0.03
Any anxiety disorder	3.7 (1.2 to 12.0)	8.8 (1.8 to 43.5)	4.6 (0.4 to 48.3)
	P=0.03	P=0.008	P=0.2
Any depressive disorder	2.8 (0.6 to 12.2)	1.2 (0.1 to 12.3)	0.0 (0.0 to 2.86×10^{-33})
	P=0.1	P=0.9	P=0.8

*Includes one child aged 6.
†For continuous variables, odds ratios represent a one point shift on the scale.

life, and number and severity of symptoms. We used the development and wellbeing assessment to assess psychiatric disorder.[3]

Chronic fatigue was defined as severe fatigue of at least six months' duration, for which rest did not help and which led to functional impairment of the child. Chronic fatigue syndrome was defined according to the criteria of the US Centers for Disease Control and Prevention (CDC).[4]

We used logistic regression to examine associations in terms of odds ratios between independent and dependent variables. We conducted interviews with 10 438 of 12 529 eligible children. Failed interviews were due to either non-contact (n=317) or refusal (n=1774). The table shows risk factors for each of the three main outcomes. The risk factors for chronic fatigue and CDC criteria for chronic fatigue syndrome were older age and anxiety disorders. Parental report of myalgic encephalomyelitis or chronic fatigue syndrome was associated with maternal distress on the general health questionnaire. Female sex was not a risk factor for any outcomes.

Comment

Symptomatic fatigue in children is common, but chronic fatigue and chronic fatigue syndrome are relatively rare. The rates of the syndrome that we report are lower than those found in equivalent surveys in adults. Cases where children are labelled as having myalgic encephalomyelitis or chronic fatigue syndrome are even less common. Given the small numbers, the results obtained in the subsequent analysis cannot be precise. We found no concordance between parental labelling that a child had myalgic encephalomyelitis and operationally defined chronic fatigue syndrome. We found a strong association between psychiatric disorder and these outcomes, which is a consistent finding among adults with chronic fatigue syndrome. Maternal psychological distress was associated with parental report of myalgic encephalomyelitis or chronic fatigue syndrome, but given the cross sectional nature of the data it is impossible to determine the direction of causality.

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