ASTHMA

Risk factors for accident and emergency (A&E) attendance for asthma in inner city children

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Background: Inner city children make heavy use of accident and emergency (A&E) services for asthma. Developing strategies to reduce this requires a better understanding of the risk factors.
Methods: A case-control study was carried out of children with asthma living in south-east London: 1018 children who attended A&E for asthma over 1 year and 394 children who had not attended A&E for asthma over the previous year. The main risk factors were socioeconomic status, home environment, routine asthma management and parents' psychological responses to and beliefs about the treatment of asthma attacks.
Results: A&E attendance was more common in children living in poorer households. No associations were found with home environment or with measures of routine asthma care. Children who had attended outpatients were much more likely to attend A&E (odds ratio (OR) 13.17, 95% CI 7.13 to 24.33). Other risk factors included having a parent who reported feeling alone (OR 2.58, 95% CI 1.71 to 3.87) or panic or fear (OR 2.62. 95% CI 1.75 to 3.93) when the child's asthma was worse; and parental belief that the child would be seen more quickly in A&E than at the GP surgery (OR 2.48, 95% CI 1.62 to 3.79). Parental confidence in the GP's ability to treat asthma attacks reduced the risk of attending A&E (OR 0.30, 95% CI 0.17 to 0.54).
Conclusions: There is no evidence that passive smoking, damp homes or poor routine asthma care explains heavy inner city use of A&E in children with asthma. Reducing A&E use is unlikely to be achieved by improving these, but identifying appropriate settings for treating children with asthma attacks and communicating these effectively may do so.

Asthma is a common condition in British children,[1] causing disruption to education and family[2 3] and heavy health service use.[4] While there is a fairly even distribution of diagnosed asthma across the socioeconomic spectrum,[5] children from poorer families may be more severely affected than those from more affluent families. Frequent wheeze was more common in children with fathers of lower social class in national UK studies in the early 1990s.[6 7] Studies in the UK[8 9] and the USA[10–12] have found that children living in poorer areas were more likely to be admitted to hospital for asthma than those living in more affluent areas. Researchers have not yet been able to explain how poverty and asthma symptom severity and healthcare utilisation are linked. Poorer children receive less effective asthma management,[13] but they may also be more exposed to factors in their homes that may exacerbate asthma such as damp, tobacco smoke or allergens.[14–16] There is some evidence that psychological factors influence asthma morbidity, for example, parental depression, self-efficacy or social support.[3 17 18] Developing effective strategies to reduce health service utilisation requires a better understanding of the relative contribution of these factors.

Home to about three-quarters of a million people, the inner city London boroughs of Lambeth, Southwark and Lewisham have high unemployment rates, low educational attainment and low levels of owner occupation.[19] While most children are registered with general practitioners providing primary care free at the point of service, children with asthma make heavy use of accident and emergency (A&E) departments. We set out to explore how A&E attendance for asthma in children varied by socioeconomic status in this setting and examine the influence of home environment, asthma management, parents' social support, confidence to change medication, psychological responses to asthma attacks and beliefs about the ability of health professionals in different settings to treat them.

METHODS

A case-control study was carried out of children aged 3–14 years with diagnosed asthma living in Lambeth, Southwark or Lewisham and registered with any of the general practices in the boroughs. Children who had attended A&E for asthma over the course of 1 year were compared with those who had not attended A&E over the previous year.

We identified cases from children attending each of the four A&E departments in Lambeth, Southwark and Lewisham for asthma between 15 February 1999 and 14 February 2000. During weekly visits we examined computer records of attendances, selecting children with presenting complaints which included the strings "asth", "breath", "wheez" and "cough", or with diagnoses of asthma or upper respiratory tract infection. We then examined the paper records of these children, considering a child a case if they had been diagnosed with asthma on that attendance or a previous occasion, were registered with one of the 164 general practices, and the history or examination indicated difficulty in breathing, cough, or wheeze, unless the attending doctor explicitly made a different diagnosis. Children with an uncertain diagnosis of asthma were included initially but were later excluded if a parent indicated they did not believe their child had asthma.

At the end of the study period we assessed search sensitivity by examining the paper records of all children aged 3–14 years who attended the four departments over 1 week in September 1999.

Controls were identified during the summer of 1999 by a postal questionnaire survey of the parents of a 4% random sample of children aged 3–14 years living in any of the three boroughs and registered with any of the 164 general practices (n = 4778). The criteria for being a control were reporting asthma ever and at least one of the following: medication for asthma in the last 6 months; at least one attack of wheezing in the last 12 months; night-time coughing at least once a week in the last 12 months; other problems with asthma in the last 12 months. We excluded children who reported attending any A&E department for asthma in the previous 12 months or those whom we identified as cases during the course of the study year.

For cases, we collected risk factor data by questionnaire sent to parents soon after the A&E attendance. For children who attended more than once, we collected data after the first attendance. For controls, we sent the same questionnaire out during the autumn, winter and spring of 1999/2000.

The questionnaire asked about ethnic group, car ownership, housing tenure, overcrowding and unemployment. We categorised ethnic group as: white; black (Caribbean); black (African); black (other); other. Townsend deprivation scores of electoral ward of residence were obtained for each participant based on 1991 census data. The Townsend deprivation score is a standardised measure of average socioeconomic deprivation for the several thousand residents of each ward, encompassing the proportion of unemployed adults, the proportion of households overcrowded, the proportion of households without access to a car, and the proportion of owner-occupied homes; the higher the score, the greater the deprivation. All Lambeth, Southwark and Lewisham wards have scores above zero, which is the national average. The most deprived ward, with a score of 14, is among the most deprived in the UK.

The questionnaire asked about home environment, medications, having a peak flow meter or a written management plan and health service utilisation over the previous 12 months. We assessed asthma severity using the Usherwood questionnaire[20] and by asking how many days the child had missed school or been unable to carry out normal activities over the previous 6 months.

The questionnaire asked parents about their confidence to change asthma medication, social support and psychological responses to asthma attacks. It also measured beliefs about the ability of GPs to treat asthma quickly and effectively compared with A&E.

We invited all case and control children aged 5–12 years to have skin tests for reactions to house dust mite, cat, dog, grass, tree, *Cladosporium*, *Alternaria*, German cockroach and to provide a saliva sample for cotinine estimation. Positive skin tests were defined as those with a wheal diameter of $\geqslant$3 mm. We considered skin tests unreliable in children who tested positive to seven allergens plus the negative control or who tested negative to histamine and all other tests.

Ethical approval was obtained from the ethics committees of King's College Hospital, University Hospital Lewisham, and Guy's and St Thomas' Hospitals.

Analysis of data

Logistic regression was used to compare risk factors in cases and controls using Stata 7.0 (Stata Corporation, College Station, Texas, USA). For the analyses that sought to explain associations between A&E attendance and socioeconomic deprivation (ie, home environment, asthma management and psychosocial variables), we controlled for variables that we had believed, in advance of the analysis, may be confounders of the association: age, sex and ethnic group. We controlled for ethnic group in four categories (white, black, other and not known).

With a case:control ratio of 3:1, 80% power and a p value of 0.05, we calculated that we would need 642 cases and 214 controls to detect a significant difference in the prevalence of bedroom damp between a case prevalence of 30% and a control prevalence of 20%; and 347 cases and 119 controls to detect a significant difference in the prevalence of home tobacco smoke between a case prevalence of 45% and a control prevalence of 30%.

RESULTS

A total of 1018 children were identified who met the definition of a case who attended A&E over the study year. The search sensitivity was estimated to be 95%.

We received 2856 responses to the survey to identify controls (60%). Responders were similar in age and sex to non-responders, but lived in less deprived electoral wards (median Townsend deprivation score of ward of residence 7.4 vs 8.3, $p<0.05$). Responders had a similar ethnic distribution to the population of the three boroughs aged 0–15 in the 2001 census (survey vs census: white: 51% vs 47%; black 39% vs 43%; Asian: 5% vs 4%). Three hundred and ninety-four children met the definition of a control.

Completed risk factor questionnaires were received from 712 cases (70%) and 209 controls (53%). Responders were slightly younger than non-responders, with a maximum likely difference of about a year; there was no significant difference in Townsend deprivation score between cases and controls (table 1).

Younger age, but not sex, was associated with A&E attendance (table 2). Black children were more likely to attend A&E than white children (OR 1.54, 95% CI 1.18 to 2.00), although this was only true of black African and black Caribbean children, not children categorised as black (other).

Cases had more chronic effects on daily life and more frequent symptoms than controls (median number of days off school or unable to carry out normal activities over previous 6 months: controls vs cases: 0 vs 4, $p<0.001$; median Usherwood scores: disability (maximum 32): 2 vs 7, $p<0.001$, night-time (maximum 12): 3 vs 6, $p<0.001$; daytime (maximum 16): 4 vs 6, $p<0.001$).

The questionnaire measures of socioeconomic status were all associated with A&E attendance (table 3). The estimated risks were attenuated slightly by controlling for age, sex and ethnic group. We found no significant association between A&E attendance and Townsend deprivation score (table 3).

The estimated risks of A&E attendance for black children were not much changed by controlling for age, sex and the four

Table 1 Differences between responders and non-responders to the risk factor questionnaire

	Controls (n = 394)			Cases (n = 1018)		
	Responders (n = 209)	Non-responders (n = 185)	Difference (95% CI)	Responders (n = 712)	Non-responders (n = 306)	Difference (95% CI)
Median age	8.5	9.0	−0.3 (−1.0 to 0.4)*	6.3	7.1	−0.5 (−0.9 to −0.1)*
Median Townsend deprivation score of ward of residence	7.0	7.6	−0.2 (−0.8 to 0.2)*	7.6	7.6	0.1 (−0.2 to 0.4)*
Boys	138 (66%)	101 (55%)	11.4 (1.8 to 21.1)	445 (63%)	188 (61%)	1.1 (−5.4 to 7.6)

*Hodges-Lehmann median differences.[21]

Table 2 Demographic variables and A&E attendance

	Controls (%) (n = 394)	Cases (%) (n = 1018)	OR (95%CI)
Age (years)			
<5	60 (15.2)	344 (33.8)	1.00
5–6.9	80 (20.3)	209 (20.5)	0.46 (0.31 to 0.66)
7–9.9	103 (26.1)	227 (22.3)	0.38 (0.27 to 0.55)
>10	151 (38.3)	238 (23.4)	0.27 (0.20 to 0.39)
Sex			
Male	239 (60.7)	633 (62.2)	1.00
Female	155 (39.3)	385 (37.8)	0.94 (0.74 to 1.19)
Ethnic group			
White	208 (52.8)	285 (28.0)	1.00
Black African	51 (12.9)	120 (11.8)	1.72 (1.18 to 2.49)
Black Caribbean	43 (10.9)	108 (10.6)	1.83 (1.23 to 2.72)
Black other	55 (14.0)	86 (8.5)	1.14 (0.78 to 1.67)
Other	35 (8.9)	119 (11.7)	2.48 (1.64 to 3.77)
Data not available	2 (0.5)	300 (29.5)	

questionnaire measures of deprivation (black African: adjusted OR 1.72, 95% CI 1.12 to 2.64; black Caribbean: adjusted OR 1.68, 95% CI 1.05 to 2.69).

We found no significant differences in age, sex, ethnic group, Townsend deprivation score or asthma severity between children who did and did not attend clinic for skin testing. Of children with reliable skin test data, 35/62 controls (56%) and 185/267 cases (69%) had one or more positive skin tests (OR 1.74, 95% CI 0.99 to 3.06; OR adjusted for age and sex 1.79, 95% CI 1.02 to 3.16). Children of higher socioeconomic status were more likely to have at least one positive skin test than children of lower socioeconomic status within both the case group and the control group, although these differences were not statistically significant (data not shown).

We found no association between A&E attendance and living with smokers or salivary cotinine concentration (table 4), nor any association between A&E attendance and living with smokers when we restricted the analysis to children with at least one positive skin test (data not shown).

Most children lived in homes with central heating (96% cases and 98% controls). We found no associations between measures of damp in the child's bedroom and A&E attendance in the entire sample (table 4), nor in children with at least one positive skin test (data not shown). We found no associations between A&E attendance and pet ownership (data not shown).

Children with a written management plan and those taking inhaled steroids most days or every day were more likely to attend A&E than those who did not (table 5). Although children attending A&E were less likely to have a peak flow meter, this association disappeared after controlling for age and was not present when the analysis was restricted to children over 5 years (crude OR 0.87, 95% CI 0.56 to 1.37). Children were 13 times more likely to attend A&E if they had visited outpatients in the last 12 months. There was no association between general practice asthma check-ups and A&E attendance.

We found no significant associations between A&E attendance and confidence in changing medication or reported availability of someone to help when the child's asthma was worse (table 6). However, reporting feeling alone or experiencing panic or fear when their child's asthma got worse was associated with a 2–3-fold increase in risk of A&E attendance. Feeling confident that the GP knew how to treat asthma attacks reduced risk, and believing that the child would see a doctor more quickly in A&E increased risk of attendance. These effects were independent of age, sex and ethnic group.

DISCUSSION

Our study found that poorer children living in inner London were more likely to attend an A&E department for asthma than more affluent children, and that black African and Caribbean children were more likely to attend A&E for asthma than white children. We found no evidence that exposure to tobacco smoke, home dampness or poor quality of care were responsible for A&E attendance. It is unlikely, therefore, that these factors in the home environment or quality of routine care explain socioeconomic or ethnic differences in A&E attendance.

Having attended outpatients in the previous year was a strong and robust risk factor for A&E attendance. Feeling alone or experiencing panic or fear when the child's asthma was worse, lacking confidence in the GP's ability to treat asthma attacks, and believing that the child would be seen more quickly in A&E than by a GP were also associated with increased risk of A&E attendance. These findings suggest that

Table 3 Socioeconomic variables and A&E attendance

	Controls (%)	Cases (%)	OR (95% CI)	OR adjusted for age, sex and ethnic group (95% CI)
Living in overcrowded accommodation	43/204 (21.1)	231/682 (33.9)	1.92 (1.32 to 2.78)	1.69 (1.15 to 2.49)
Living in rented accommodation	126/204 (61.8)	506/685 (73.9)	1.75 (1.26 to 2.43)	1.59 (1.23 to 2.24)
Household does not have access to a car	53/205 (25.9)	247/699 (35.3)	1.57 (1.11 to 2.22)	1.52 (1.06 to 2.19)
No-one in household in paid employment	62/207 (30.0)	277/696 (39.8)	1.57 (1.12 to 2.20)	1.36 (0.96 to 1.92)
Quartile of Townsend deprivation score of ward of residence				
1st (least deprived)	109/393 (27.7)	229/1017 (22.5)	1.00	1.00
2nd	103/393 (26.2)	274/1017 (26.9)	1.27 (0.92 to 1.75)	1.17 (0.82 to 1.67)
3rd	90/393 (22.9)	246/1017 (24.2)	1.30 (0.93 to 1.81)	1.28 (0.88 to 1.84)
4th (most deprived)	91/393 (23.2)	268/1017 (26.4)	1.40 (1.01 to 1.95)*	1.40 (0.97 to 2.01)

*p for trend = 0.06.

Table 4 Home environment and A&E attendance

	Controls (%)	Cases (%)	OR (95% CI)	OR adjusted for age, sex and ethnic group (95% CI)
Bedroom dampness				
Damp patches	28/208 (13.5)	99/690 (14.3)	1.08 (0.69 to 1.69)	0.86 (0.54 to 1.38)
Visible mould	16/192 (8.3)	74/659 (11.2)	1.39 (0.79 to 2.45)	1.11 (0.62 to 2.01)
Often condensation on windows	26/153 (17.0)	111/542 (20.5)	1.28 (0.77 to 2.14)	0.98 (0.65 to 1.48)
Environmental tobacco smoke				
Any smokers living in home	87/192 (45.3)	280/630 (44.4)	0.97 (0.70 to 1.34)	1.12 (0.80 to 1.58)
Salivary cotinine (ng/ml)				
$<$0.32	16/66 (24.2)	77/276 (27.9)	1.00	1.00
0.32–0.63	23/66 (34.8)	60/276 (21.7)	0.54 (0.26 to 1.12)	0.52 (0.25 to 1.10)
0.64–1.75	11/66 (16.7)	70/276 (25.4)	1.32 (0.57 to 3.04)	1.49 (0.63 to 3.53)
$>$1.75	16/66 (24.2)	69/276(25.0)	0.90 (0.42 to 1.93)*	1.10 (0.49 to 2.48)

*p for trend = 0.69.

parents' psychological state and beliefs may be more important in determining whether or not a child is taken to A&E with an asthma attack.

Our study was large and power was high for most analyses. We believe that our control group was reasonably representative of children with current asthma living in south-east inner London. While responders to the survey to identify controls were less deprived than non-responders, the difference was very small. Furthermore, the ethnic distribution of the responders to the survey was very similar to that of Lambeth, Southwark and Lewisham children in the 2001 census.

The strategy to identify cases was sensitive, so we are confident that the cases in our study were representative of children attending A&E for the treatment of asthma. We found no evidence that the responders differed from the non-responders in any way that would have influenced our results so as to change our conclusions.

We collected data on exposure to indoor factors after the children attended A&E and we cannot rule out that parents reduced their child's exposure to tobacco smoke or damp after the attendance. However, in most cases we collected these data very soon after the attendance, allowing little time to make such changes.

We might have expected parents of children who attended A&E to under-report tobacco smoke exposure, leading to weaker associations with A&E attendance. While the number of children with cotinine measures was fairly small, the absence of any association of this objective marker of tobacco smoke exposure with attendance supports our findings based on reported exposure.

A limitation of our study was lack of exposure data on allergens, in particular house dust mite exposure. The observation that atopy was associated with attending A&E, with borderline statistical significance, might suggest that allergic reactions may be triggers for asthma attacks leading to A&E attendance. However, other work suggests that allergic reactions are probably not a common trigger: around 80% of asthma exacerbations are likely to be related to viral infections,[22] although it is possible that these may be more frequent or severe in children with atopy.[23] It is unlikely that differences in allergen exposure explain the pattern we observed of socioeconomic differences in A&E attendance: children of higher socioeconomic status were more likely to be atopic, confirming previous reports.[24]

Other studies have found associations between indoor allergen exposure and healthcare utilisation for asthma in inner city children,[25 26] in particular cockroach allergen, but not house dust mite allergen. However, the pattern of allergens and sensitivities in the USA, where these studies were carried out, is different from that in the UK; cockroach allergen sensitivity was found to be rare in East London (C Luczynska, personal communication) and in our study (data not shown). A study in Manchester, UK found no significant difference in exposure to house dust mite, cat and dog allergens in children with asthma who had been admitted to hospital and those who had not.[23]

We found no evidence that poor asthma management contributed to A&E attendance: children taking regular inhaled steroids, with a peak flow meter or a written management plan were more likely to attend A&E. Having attended outpatients in the previous year was a strong and robust risk factor for A&E attendance. While this may be partly explained by more severe chronic symptoms in children with frequent exacerbations leading to a greater need for specialist care, it may be that parents of these children classify them as "hospital patients" and believe A&E to be the most appropriate first port of call for care of an asthma attack in all circumstances, a belief that may be reinforced by health professionals. They may never attempt to call their GP for advice when asthma symptoms are worse. We did not examine whether the associations between asthma management and A&E attendance were explained by differences in asthma severity as defined by frequency of symptoms over the previous 3 months and number of days off school in the previous 6 months because these are likely to lie on the causal pathway. However, it may be argued that chronic

Table 5 Asthma management and A&E attendance

	Controls (%)	Cases (%)	OR (95% CI)	OR adjusted for age, sex and ethnic group (95% CI)
Written management plan	16/152 (10.5)	96/529 (18.1)	1.88 (1.07 to 3.31)	1.96 (1.10 to 3.50)
Peak flow meter	53/117 (45.3)	169/466 (34.3)	0.63 (0.42 to 0.95)	1.08 (0.69 to 1.68)
Taking inhaled steroids most days or every day	63/179 (35.2)	360/623 (57.8)	2.52 (1.78 to 3.56)	2.88 (2.00 to 4.14)
At least one general practice asthma check-up in last 12 months	53/152 (34.9)	220/532 (41.4)	1.31 (0.90 to 1.92)	1.27 (0.86 to 1.88)
Visited outpatients in last 12 months	12/152 (7.9)	280/528 (53.3)	13.17 (7.13 to 24.33)	11.74 (6.30 to 21.88)

Table 6 Psychosocial variables and A&E attendance

		Controls (%)	Cases (%)	OR (95% CI)	OR adjusted for age, sex and ethnic group (95% CI)
How confident are you about changing your child's asthma medication when his or her asthma gets worse?	Not very or not at all	27/148 (18.2)	119/508 (23.4)	1.38 (0.82 to 2.33)	1.22 (0.63 to 1.50)
When my child's asthma gets worse....					
There is usually a friend or family member to turn to for help	Agree	102/130 (78.5)	382/504 (75.8)	0.86 (0.54 to 1.37)	0.91 (0.67 to 1.49)
I sometimes feel very alone	Agree	43/126 (34.1)	291/509 (57.1)	2.58 (1.71 to 3.87)	2.25 (1.48 to 3.43)
I sometimes experience panic or fear	Agree	76/131 (58.0)	402/513 (78.4)	2.62 (1.75 to 3.93)	2.37 (1.56 to 3.62)
I feel confident that my GP knows how to treat asthma attacks	Agree	112/127 (88.2)	302/436 (69.3)	0.30 (0.17 to 0.54)	0.34 (0.19 to 0.61)
My child will see a doctor more quickly in casualty than GP	Agree	50/108 (46.3)	314/461 (68.1)	2.48 (1.62 to 3.79)	2.59 (1.66 to 4.04)

symptoms and exacerbations are different expressions of asthma, with different sets of risk factors.[27]

Our study suggests that parents' beliefs on the relative merits of A&E and their GPs may be important in determining whether a child attends A&E for asthma. Interpreting these findings is not straightforward; cases may have been more likely to report that they thought A&E was more appropriate than their GP as a way of demonstrating attitudes consistent with observed behaviour.[28]

Our study also suggests that parents' psychological responses to asthma attacks are important in determining whether a child is taken to A&E, although it is possible that our associations arose because the parents of cases were more likely to remember their feelings at the time of the recent attack. However, in support of our findings, other research has found that parental psychological state influences healthcare utilisation for children with asthma (eg, self-efficacy[17] and depression[18]).

We observed that children of black African and Caribbean ethnic origin were more likely to attend A&E for asthma than white children. This is consistent with another study in the West Midlands, UK which found that asthma hospitalisation rates for asthma were higher for non-white than white children;[29] African American children have been found to have higher asthma hospitalisation rates than white children in the USA.[30 31] None of the variables we examined could explain this phenomenon; it seems likely that other cultural or environmental factors are responsible. We cannot rule out a genetic influence on the expression of asthma, but our study does not provide evidence in support of this because of the likely genetic heterogeneity within the groups (both white and black).

Our study suggests that children attending A&E for asthma have more chronic asthma symptoms than children with asthma who do not, and are of lower socioeconomic status. Neither damp homes, tobacco smoke exposure nor poor quality of routine asthma care can explain this. Other factors that we did not measure, such as other environmental factors, nutrition or ineffective management of worsening symptoms or medication delivery, may be responsible for determining exacerbations. It is possible that the pattern of exposures responsible for chronic asthma symptoms differs from that which determines exacerbations.[27]

The main implication of our findings is that, while there is little doubt that reducing tobacco smoke exposure, reducing home dampness and improving asthma care will improve asthma morbidity in children, these interventions are unlikely to reduce their heavy inner city A&E use. To reduce A&E attendance for asthma in children, health service planners should take a broader approach, considering what is the most appropriate setting for treating asthma attacks for children of different levels of attack severity, ensuring that services are accessible and address parents' concerns, and that the different parts of the health service communicate appropriate care pathways effectively and consistently to parents.

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LUNG ALERT

Ambulatory continuous positive airway pressure without polysomnography in patients with a high probability of obstructive sleep apnoea

▲ Mulgrew AT, Fox N, Ayas NT, *et al*. Diagnosis and initial management of obstructive sleep apnea without polysomnography. A randomized validation study. *Ann Int Med* 2007;**146**:157–6.

Obstructive sleep apnoea (OSA) is a common condition, diagnosed by polysomnography. However, polysomnography is costly and its availability often limited, leading to a delay in diagnosis and initiation of treatment in OSA.

This randomised, controlled study compared the use of polysomnography for the diagnosis of OSA with the use of ambulatory continuous positive airway pressure (CPAP) titration as treatment initiation in a group of patients with a high probability of moderate to severe OSA. Sixty-eight patients with a high probability of OSA were randomised to either polysomnography or ambulatory CPAP. High probability was determined by the Epworth Sleepiness Score (ESS), Sleep Apnoea Clinical Score and overnight home oximetry. The primary endpoint measure was Apnoea Hypopnoea Index (AHI) after 3 months on CPAP treatment. The secondary endpoint measures were ESS, Sleep Apnoea Quality of Life Index (SAQLI) questionnaire and compliance with CPAP.

There was no significant difference in AHI between the two groups at 3 months. With the exception of one patient in the ambulatory CPAP group (subsequently diagnosed with Cheyne-Stokes respiration on polysomnography), all patients had improvements in AHI, ESS and SAQLI. Compliance with CPAP in the ambulatory CPAP group was better, perhaps due to lower starting CPAP, earlier onset of treatment and more frequent clinic attendances.

Ambulatory CPAP may be a practical alternative in this high-risk patient group and reduce the need for polysomnography. Information regarding the cost–benefit of this approach would be helpful.

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