Asthma or COPD?

An investigation into the symptom patterns of asthma may highlight the need fo more rigorous diagnostic procedures in elderly patient

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ABSTRAC

Aim:
To investigate the symptom patterns of elderly patients registered a active asthmatics

Method
An observational study using a database of 393 practices fro throughout the United Kingdom. Participating practices provide health-service resource-use and symptom data for 30 randoml selected asthma patients. 8,244 adults, (16+ years), were stratifie into three age groups, 4315(52%) aged 16-44, 2339(28%) 45-64, an 1590(19%) 65+. Comparisons were made for management an outcome measures (attack incidence, symptoms, health servic resource use, drug therapies) between the groups

Results:
Patients over 64 years old experienced more morning and exercis symptoms(p<0.001) and had more hospital admissions(p<0.001) They received higher levels of medication(p<0.001), were mor compliant(p<0.001), but had poorer inhaler technique(p<0.001)

Conclusion:
Despite higher medication levels, 1,164(73%) patients over 64 year reported symptoms, 430(37%) of these, daily. For older patients where regular symptoms are present despite high medication levels investigation for diagnoses other than asthma should be routine.

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Introductio
There has been a sharp rise in consultation rates fo asthma symptoms in the last few decades despite th availability of more effective therapy and an increase public awareness and concern for the disease. Ove the same period consultations for COPD have bee consistently high, especially in those aged 65 year and over [3-6] Implementation of guidelines, publishe to standardise the diagnosis and management of bot diseases continues to be sub-standard with inconsisten use of appropriate treatments and poorly organise care programmes [6-8] The often gradual onset o COPD means that the disease may be at an advance stage before a patient seeks advice [7] Misdiagnosis an mismanagement can therefore lead to long-ter difficulties [8] The annual cost to the National Healt Service (NHS) of treating patients with asthma an chronic obstructive pulmonary disease (COPD) i estimated to be in excess of £1136m per annum [9] Respiratory disease thus places a considerable socia and economic burden on individual patients and on th NHS [10,11]

To reduce this burden it is essential that th appropriate management be provided at an early stage This must be guided by an accurate diagnosis [1] Elderly patients on the asthma register often hav multiple conditions, some diseases e.g. COPD can b overlooked if the health professionals do not take pro-active stance in identifying them. This pape discusses health care resource and symptom pattern between groups of patients diagnosed with asthma Utilising an existing data set it identifies differences i the pattern of disease between the differing adult ag groups and highlights the potential issue of conflictin disease.

Metho
A representative sample of general practices, stratifie and randomised by geographical region fro throughout the United Kingdom, were invited by mai to participate in an audit of their asthma management Three hundred and ninety three practices participate and supplied details of health service resource usag for 30 patients of all ages randomly selected from th practice asthma register using a supplied list o random numbers. This generated a data set on th management of 8,244 adult patients previousl diagnosed as asthmatic. The information recorde from the patients' medical notes for a retrospective 1 month period included the number of patient initiate general practice consultations; the number of routin asthma review consultations by the genera practitioner (GP) or practice nurse; admission t hospital and length of stay; Accident & Emergenc (A&E) and Outpatient attendance; and the number o asthma attacks, emergency nebulisations and shor courses of systemic steroids. The medicatio prescribed over the year was recorded and the highes possible British Asthma Guideline (BAG [4] treatmen step was then assigned to each patient

Each patient was invited to the surgery for a clinica assessment of his or her current respiratory status This was carried out by the practice nurse or th general practitioner, with the aid of the Taysid Asthma Assessment Stamp [12,13] and the informatio was recorded in the audit booklet. The stamp, using score from 0 to 3 (3 being most severe), recorded th presence of night-time, early morning, or exercis induced symptoms in the month before assessment the number of days off due to respiratory problems i the same period; a peak expiratory flow (PEF) readin at review; and future follow up. A subjectiv assessment of compliance with prescribed medicatio was made utilising the information gleaned fro medical records and questioning of the patient durin the clinical assessment. Inhaler technique wa assessed and categorised as satisfactory o unsatisfactory by the consulting clinician at the time o the assessment

The database was utilised to identify differing pattern of symptoms and health care management in patient in the 16-44, 45-64 and 65+ age brackets.

Comparisons were made for management and outcom measures between these three groups with the aim o determining whether alternative management option should be considered when treating elderly asthmatic

Statistical Methods

The occurrence of symptoms (night-time, morning exercise), management indicators (compliance, inhale technique) and medication level (BAG treatment step were compared across the three age groups by mean of a global χ-squared test for homogeneity in a two way contingency table. When there was evidence of statistically significant difference between the ag groups, ($p < 0.05$) in the global test, the 65 and ove age group was compared with each of the other ag groups by calculating the ratio of odds in favour of th occurrence of the factor for the two age groups together with a 95% confidence interval.

Results

The practices recruited to the study were drawn from sample representative of different parts of the UK i relation to size and urban and rural breakdown. Dat was received for 8,244 adult patients aged 16 year and over. To compare the management and outcome in the young, middle and elderly adult population th dataset was stratified into three age groups 4,315(52%) were aged from 16-44 years, 2,339(28% aged 45-64, and 1,590(19%) 65 years or over (se Table 1)

A total of 6,152(75%) patients were on BA treatment step 2 or above i.e. in receipt of prophylacti medication (Table 1), and 1,735(21%) patients ha experienced at least one acute episode during the yea of data collection. Comparison of non-attendees fo review showed no differences in age, gender and BA treatment step distribution than with those patient who attended. A total of 6,414(78%) patient responded to the invitation and attended for th clinical assessment connected to the audit which wa conducted by the practice nurse or the genera practitioner. An assessment of compliance wit medication indicated that 1,002(16%) patient assessed were poor 'compliers'

Across all age groups considerable numbers o patients (Table 1) experienced night-time, earl morning or exercise-induced symptoms. The global χ-squared test showed that there were difference between age groups in the ratio of occurrence o morning symptoms, exercise-induced symptoms hospital admission, BAG treatment step, compliance and inhaler technique (all $p<0.001$). A greate proportion of patient's aged 65 and over experience early morning and exercise-induced symptoms (Tabl 2), and were on a higher BAG treatment step (Tabl 3). Compared with the 16-44 age group, the odds o receiving some treatment (i.e. BAG step >= 1) is 2.7 times as great, and the odds of receiving stron treatment (i.e. BAG step >= 4) is 4.03 times as great Although these effects are not so great when th comparison is with the 45-64 age group, the odds th older patients were on higher doses of inhaled steroid (BAG step >= 4) are 1.44 times as great. Compare with the 16-44 age group, patients in the 65 and ove age group had a higher compliance rate (Table 2) but greater proportion with poor inhaler technique (Tabl 2). Although the difference in the latter was not larg it may highlight a problem which is clinicall significant

Table 1

Patient numbers (%) for health service utilisation, symptoms and treatmen step by age grou

	Age Group (years			
	16-44	45-64	65+	Total
Total number of patient	**4331**	**2333**	**1559**	**8224**
Acute episode	809 (19	538 (23	388 (24	1735 (21
Hospital admissio	91 (2	68 (3	65 (4	224 (3
A&E contac	125 (3	56 (2	28 (2	209 (3
OPD contac	139 (3	192 (8	137 (9	468 (6
Urgent consultatio	2226 (52	1385 (59	948 (60	5027 (61
Review consultatio	2553 (59	1635 (70	1113 (70	5301 (64
Number of patients assesse	**3052 (71**	**1977 (85**	**1385 (87**	**6414 (78**
Night symptoms	1111 (36	789 (40	497 (36	2397 (37
Morning symptom	1349 (44	985 (50	788 (57	3122 (49
Exercise symptom	1677 (55	1282 (65	1046 (76	4005 (62
Poor complianc	567 (19	270 (14	165 (12	1002 (16
Poor inhaler technique	231 (8	177 (9	154 (11	562 (9
BAG treatment ste				
0	440 (10	144 (6	63 (4	647 (8
1	938 (22	305 (13	202 (13	1445 (18
2	1874 (43	862 (37	585 (37	3321 (40
3	732 (17	588 (25	341 (21	1661 (20
4	278 (6	338 (14	287 (18	903 (11
5	53 (1	102 (4	112 (7	267 (3
Total	**4331**	**2333**	**1559**	**8224**

Table 2

Ratio of odds in favour of occurrence of each factor for the 65+ age group compared to the other age groups (95% CI in brackets

Facto	16-44		45-64	
Poor complianc	0.5	(0.46,0.74	0.8	(0.66,1.11
Poor inhaler techniqu	1.5	(1.16,1.99	1.2	(0.96,1.70
Morning symptom	1.6	(1.42,1.96	1.3	(1.12,1.58
Night-time symptom	0.9	(0.83,1.15	0.8	(0.71,1.01
Exercise symptom	2.5	(2.12,3.02	1.6	(1.38,2.03
A&	0.6	(0.36,1.01	0.7	(0.41,1.30
Hospital admissio	1.9	(1.32,2.96	1.4	(0.92,2.19

Table 3

Ratio of odds in favour of being on at least the given BAG step for the 65+ age group compared to other age groups (95% CI in brackets

	65+	16-44		45-64	
BAG Ste	Numbe of patients (%	Numbe of patient (%	Odds rati (95% CI	Numbe of patients (%	Odds rati (95% CI
1 or abov	1752 (96	3875 (90	2.7 (1.96,3.86	2319 (94	1.5 (1.09,2.32
2 or abov	1532 (83	2937 (68	2.3 (1.95,2.82	1089 (81	1.1 (0.96,1.46
3 or abov	904 (47	1306 (25	2.6 (2.29,3.10	802 (44	1.1 (0.95,1.30
4 or	499 (25	383 (8	4.0 (3.30,4.92	404 (19	1.4 (1.19,1.75
5	121 (7	53 (1	6.0 (4.02,9.23	120 (4	1.6 (1.18,2.35

Discussion

This study reviewed the health service resource use and symptom profiles of patients labelled "asthmatic" to determine whether there were differences in disease pattern between age categories. It found that patients 65 years and over experienced symptoms more regularly than other age categories despite higher levels of medication and better medication compliance. Changes in symptom pattern with age may indicate co-existent or alternative disease. Patients expect and deserve the most appropriate treatment for their condition. This study puts forward the view that health professionals need to be more pro-active in investigating for differential diagnoses in elderly asthmatic patients

The general practices participating in this study represented a cross section of the general practice population being from both rural and urban areas and varying in size from single handed to 10 partner practices. The method of data collection relied on recording of information in patients' notes; the recording booklet used a tick box format. Based on experience in previous studies, this was considered the easiest and most efficient way to record the information. The use of retrospective data allied with clinical assessment of present symptoms reflects the process of history, diagnosis and prognosis with treatment that all clinicians practice when dealing with patients

The resultant database was large and represented patients of all ages and both sexes over the whole spectrum of disease severity. The results indicate a change in the pattern of asthma symptoms as patients get older. Although nocturnal symptoms, which are not a feature of COPD, were similar in all age groups more patients 65+ experienced early morning and exercise-induced symptoms despite the fact that they received higher levels of medication and had a better record of medication compliance. Such patients, particularly if they have a smoking history, should be targeted for diagnostic assessment.

Ineffectual inhaler technique by patients who have been diagnosed with COPD has been previously recorded [4]. The higher level of patients in this study aged 65+ considered to have a poor inhaler technique highlights the importance of review and reassessment of medication delivery system to suit the changing needs of the patient. The decision to divide the cohort into three age bands 16-44, 45-64 and 65+ reflects the fact that one of the major respiratory disorders, and hence a potential alternative diagnosis to asthma in elderly patients, is COPD. The British Thoracic Society Guidelines for the management of COPD highlights the difference in health service use between the 45-64 and the 65-74 years age groups, general practice consultation rates doubling from 4% to 9% increasing with age [5]. The omission of children from the study acknowledges the unique problems that exist with childhood asthma [5].

There are limitations to interpreting data from national correspondence surveys' as we cannot demonstrate causation only find associations. The GPs who contributed data voluntarily enrolled into the project and may be construed as introducing a recruitment bias in favour of GPs interested in asthma. The method of data collection relied on accurate recording of information in patient's notes. Those who work in general practice will be aware of the variation in the amount of information recorded. Responders were asked to record the type of drug agent used and the number of prescriptions over the year of data collection for each patient. Difficulties were reported by some practices in accurately recording this information, which may potentially have led to under reporting of medication use. The observational nature of the study meant that only a proxy measure for level of asthma medication could be calculated. By looking at total prescriptions over the year and then assigning the highest there would be an over estimate of each patient's step. This information was also based on prescribed data rather than actual patient use. However, the nature of the data collection meant that prescribed drugs could only be reported on a intention to treat basis.

The evaluation of compliance was determined by specific questioning of the patient at the time of assessment as well as knowledge of medication prescribed in the previous 12 month period. The partially subjective nature of this evaluation is open to inaccuracy.

Peak expiratory flow (PEF) was not reported in this paper because although PEF was recorded during the clinical assessment there was no comparison with best or predicted and therefore the information was of limited use in this study. This information, if available, would have been valuable in informing the debate.

The absence of good quality smoking data for this cohort of patients has limited the study. Many of the co-morbidities experienced in older patients are associated with smoking. Linking symptom pattern and management options with smoking history would have added again to the debate

The data received by the research unit was anonymised and as a result makes it impossible to revisit the study group to test the hypothesis of alternative diagnosis

Conclusion

Despite higher medication levels almost 75% of the patients 65 years or over reported symptoms, over a third on a daily basis. Although this is not a definitive study on the management of elderly patients with asthma it is an opportunity to highlight the potential obstacles to good management. This study suggests that the differences in the older age groups compared with the younger may indicate the presence of other disease processes and general practice must be alert to the possibility that a better management regime could be offered to patients. Assessment for alternative diagnoses of patients on the asthma register who are

on high levels of treatment but continue to have symptoms should become standard practice. Not only will patients benefit but it will allow those who are organising respiratory care in general practice to focus their efforts and utilise resources in a more appropriate way. ■

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