

COPD audit in primary care

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Introduction:

Chronic Obstructive Pulmonary Disease (COPD) is a common cause of consultations in Primary Care and accounts for as many as 1 in 8 medical admissions.¹ Currently, nearly 600,000 patients in the UK suffer from COPD. The main cause of COPD is tobacco smoking.² Other risk factors being intense or chronic exposure to occupational dust or chemicals, and exposure to heating fuels.² Patients with COPD suffer from chronic symptoms such as breathlessness, cough on exertion and difficulty in carrying out day to day normal activities. The aims of this audit were to establish accurate diagnosis of COPD, to evaluate appropriate ongoing therapy e.g. to evaluate the impact of reduction in inhaled corticosteroids on symptoms or increase in usage of inhaled anticholinergics, and last but not least, to encourage patients to stop smoking, thereby promoting quality of care.

Methods

This study was undertaken at Wood Lane Surgery, Hornchurch. This is a two-doctor practice with a practice population of 4,700. The practice nurse has been trained to Diploma level at the National Asthma and Respiratory Training Centre (NARTC). The study proposed three audit cycles with interval of 6-12 months from August 1998. The Surgery initiated contacts to COPD/Asthma patients over the age of 40 years who had used preventative therapy in the preceding 12 months. The initial search of the practice population revealed 82 patients who were potentially suffering from COPD (43-86 years). The practice had the support of a Specialist Nurse from 'COPD Response'. All these patients were subjected to spirometry and reversibility tests for confirmation of their diagnosis with pre and post bronchodilator spirometry results. Those with ratio of Forced

Expiratory Volume in 1 second (FEV₁) to Forced Vital Capacity (FVC) below 70% confirmed the diagnosis.³ A post-bronchodilator increase in FEV₁ of less than 200mls is more suggestive of COPD than asthma. The diagnosis of Chronic Obstructive Pulmonary Disease (COPD) was confirmed in 47 patients. The age distribution of these 47 patients has been shown in Figure 1. A total of 74.4% of our patients (total 35) were in the age group from 50 to 79 years. Only seven patients (14.8%) were between the age of 50 to 59 years. Of these 47 patients, 27 were males (57.4%) and the remaining 20 were females (42.5%). The post-bronchodilator FEV₁, as a percentage of the predicted FEV₁, is used to classify the severity of COPD. (Mild:60-80% predicted FEV₁, moderate:40-59% and severe below 40%). Graph 2 represents severity of the disease as per number of patients. A quarter of our patients (25.5%) had mild disease while 53% of our patients (n=25) were suffering from moderate COPD. The remaining 21% (n=10) had severe COPD. All these patients were given the St George's Respiratory Impact Questionnaire (SGRIQ) (only the impact part) to complete. This helped to evaluate their symptom scores and quality of life. Smoking data was also collected from SGRIQ. This data was validated by carbon monoxide (CO) monitoring. The carbon monoxide monitor was unfortunately not available for the earlier audit cycles but was used during the 3rd audit in January 2001.

Current medications were reviewed in each audit cycle and modified accordingly to the guidelines of the British Thoracic Society (BTS). Follow-ups for these patients were arranged for subsequent audit cycles. During the study period of nearly three years, there was some change of COPD patients, some had left the practice area, some had died and new patients joined the practice.

Figure 1. Age distribution of COPD patients: January 1999

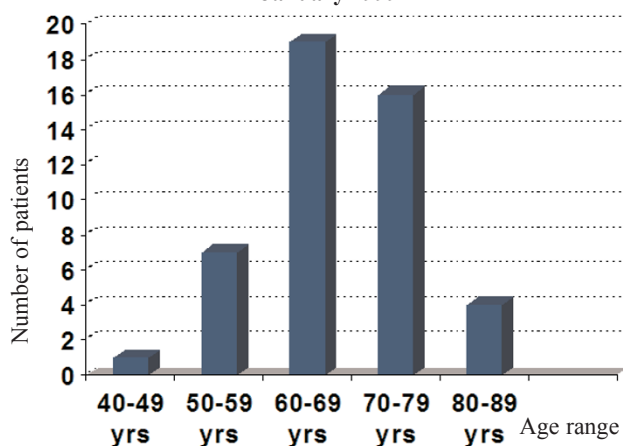
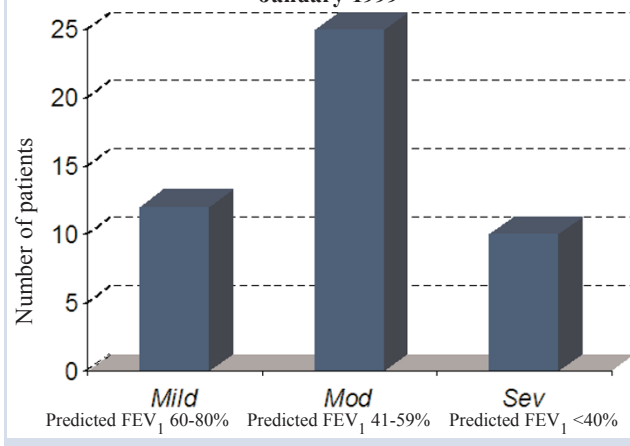


Figure 2. Severity of disease January 1999



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Results

The outcome of medication, quality of life questionnaire (SGRIQ) and smoking status of patients were compared in subsequent audit cycles. The total number of COPD patients reviewed was 37 in March 2000 and in January 2001. The reasons for this reduction were that some patients left the practice and others died during the audit cycles. Table 1 summarises the results of usage of B2 agonists on a regular basis and as per necessary (prn) basis, and use of anticholinergic drugs.

In January 1999 48% (n=23) of COPD patients were using B2 agonists on a regular basis and this increased to 97% (n=36) in March 2000 and 92% (n=34) in January 2001. A total of 21% (n=10) of patients were on inhaled anticholinergic in January 1999, which subsequently increased to 51% in January 2001 (n=19). Table 2 presents the pattern of inhaled corticosteroids over the period of three years. The percentage of patients on inhaled corticosteroids reduced from 70% (n=34) to 53% (n=21) in January 1999 to January 2001 respectively. There was a marginal increase from March 2000 (47%) as new patients with COPD joined the practice and these were already on inhaled corticosteroids. Table 2 also emphasises the comparative reduction of patients who were on high doses of inhaled corticosteroids (800mcg daily). Some 44% (n=15) of patients were on high doses of inhaled corticosteroids in January 1999 while only 8% (n=3) in January 2001.

The results of smoking cessation are represented in Figure 3. In January 1999, 50% of COPD patients were smoking (n=26) and this reduced to 24% (n=9) in January 2001. This data has been confirmed by carbon monoxide estimation (CO) in January 2001. 67% (n=20) of COPD patients showed traces of carbon monoxide between 0-3%, 13% of the patients declined the test. Figure 4 represents the analysis of impact part of quality of life questionnaires (SGRIQ). The percentage of patients feeling better increased from 35% (n=17) to 57% (n=21) from January 1999 to January 2001 respectively.

Table 1. Audit outcomes; medication

	1998	1999	2000	2001
% B2 agonist prn	53	25	0	0
% B2 agonist regularly	30	23	36	34
% anticholinergic	17	10	18	19
Number of patients	82	47	37	37

Table 2. Audit outcomes; Corticosteroid therapy

	1998	1999	2000	2001
% >800mcg inhaled corticosteroids	50	44	10	14
% <800mcg inhaled corticosteroids	50	56	90	86
Total patients on corticosteroids	50	34	19	21

Discussion

Airway obstruction in COPD is irreversible, bronchodilators are still the mainstay of symptomatic drug management. In addition to dilating airways, these drugs can alleviate breathlessness by reducing pulmonary hyperinflation.⁴ A systematic review of 13 short randomised placebo controlled studies found that regular use of a short-acting inhaled B2 agonist increased FEV₁ and post-bronchodilator peak expiratory flow (PFR)⁵ The British Thoracic Society's (BTS) guidelines suggest that regular usage of B2 agonists control the symptoms and thereby improve quality of life. The current audit has shown that the regular use of B2 agonists by COPD patients has increased from (48%) in January 1999 to (97%) in March 2000. As the new population of COPD patients who were on B2 agonist on an 'as required' basis (prn) joined the practice, this figure again has declined to 92% in January 2001. Regular use of inhaled anticholinergic drugs such as Ipratropium have increased from 2% to 57% during this audit period.

The place of inhaled corticosteroids in COPD is controversial. Several longer term randomised controlled trials have found that regular use of high doses of inhaled corticosteroids (Fluticasone 1000mcg daily and Budesonide 800mcg daily) have no effect on decline in lung function in the long term.^{6,7} However,

Figure 3. Audit Outcome: Smoking status

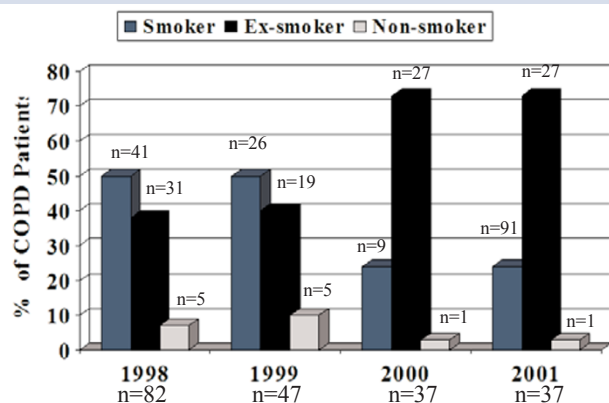
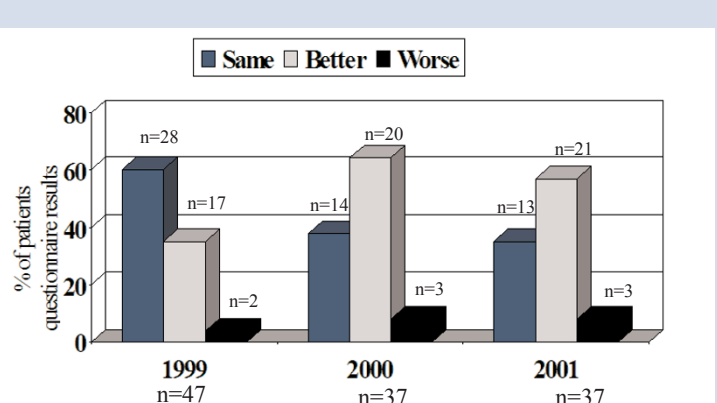


Figure 4. Audit Outcome: SGRQ (Impact) Assessment



the ISOLDE study found that large doses of inhaled corticosteroids (Fluticasone 1000mcg daily) have reduced median exacerbation rate in patients with severe COPD by 25%.⁸

The current audit has been able to show the reduction of total inhaled corticosteroids over the study period. The number of patients using inhaled corticosteroids declined from 70% in January 1999 to 53% in January 2001. Also patients taking more than 800mcg daily inhaled corticosteroids had reduced from 50% to just under 10% over the audit period of three years. However, inhaled corticosteroids were not withdrawn in patients with severe COPD.

Stopping smoking can reduce the rate of decline in lung function in most COPD patients who smoke and can increase the quality of life.⁹ Hence smoking cessation is an essential part of COPD management. The current study shows a considerable reduction in the percentage of smokers from 50% to 24% at the end of the audit period. This was confirmed by carbon monoxide (CO) monitoring in these patients. The CO monitoring results in January 2001 shows 67% of COPD patients had CO range of 0-3% indicating the cessation of smoking. 11% of patients showed the range of 3.1 to 5% indicating a considerable reduction in smoking. 5% (n=2) of our patients declined the test. The remaining 5% (n=2) showed negative results. Part of these changes are due to the constant change in our practice population. e.g. smokers and non-smokers joining and leaving the area or dying.

Quality of life of these COPD patients were monitored by assessing their SGRIQ (St George's Respiratory Impact Questionnaire). The current audit shows the increase of percentages of patients whose symptoms were better, rose from 35% (n=17) to 57% (n=21) at the end of the third audit cycle. The improvement in quality of life was demonstrated in spite of reduction in inhaled corticosteroids. However, reduction in smoking or stopping smoking altogether was a most important factor in improving the SGRIQ score. The current audit results again emphasise the important role of a specialist nurse advisor in the management of COPD. Nurse intervention establishes better communication with patients and also helps with assessments in spirometry, SGRIQ and appropriate medical intervention.

Conclusion

The future of the respiratory care depends upon multi-disciplinary team approach with shared protocols across primary and secondary care interface. Smoking cessation is the cornerstone of COPD management and this prevents the disease progression.

Accurate diagnosis and regular measurement of pulmonary functions of COPD patients helps to assess the appropriate management of these patients. Active involvement of specialist respiratory nurse in primary care will considerably improve the outcome of COPD management. The use of inhaled corticosteroids should be reserved for more severe COPD patients and who have frequent exacerbations. ■

Conflict of interest: None declared.

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