

The rise of COPD in elderly women

Women are smoking in increasing numbers both in the developed and the developing world, thus placing themselves at risk for chronic obstructive pulmonary disease (COPD). COPD now affects 13 per cent of women over the age of 65 years. Despite its high mortality rate, women do not find the prospect of this condition of major concern. **Dr Richard Russell** reviews the vital statistics, diagnosis and management of COPD in the elderly woman.

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Chronic obstructive pulmonary disease (COPD) is on the increase. Globally, COPD will become the third highest mortality causing disease by 2020¹. COPD is a disease caused in the Western world by cigarette smoking. The latest data on the prevalence of COPD shows a progressive rise in COPD prevalence among adult women². Women are as likely as men to be admitted to hospital with COPD and over 91,000 such episodes in women occurred in 2004/5³. COPD kills 12,000 UK women a year and in 2005 overtook breast cancer to become the fourth biggest killer of women in the UK². The British Lung Foundation conducted a survey of 1,200 women and found that only one per cent consider COPD to be a major health worry. This is a major source of concern and highlights the need for public health and health profession-led education⁴.

What is COPD?

COPD is the term used to bring together several lung diseases that are progressive, irreversible and can be life threatening. The two main components of this diagnosis are bronchitis and emphysema. Bronchitis is the long term production of mucus in response to noxious stimuli such as smoking. Emphysema is the destruction of lung tissue such that airway walls become weakened and the area available to the patient's lungs for gas exchange is dramatically reduced.

What causes COPD?

COPD is caused in the vast majority of subjects by cigarette smoke. As more women smoke, so the incidence of COPD is increased. Compared with other countries the number of women smoking in the UK is high (26 per cent), whereas it is 17 per cent in Italy and 21 per cent in France⁴. Exposure can occur in a passive setting due to occupation. Women are at increased risk due to the likelihood of them working in the entertainment industry or as bar workers. World-wide, the use of carbon rich fuels in confined spaces leads to much COPD. Again, this risk is being taken in the main by women. There is also evidence that women's airways are more sensitive to smoke than men's and they may be more susceptible to the harmful effects of cigarette smoke^{5,6,7,8}.

How do patients present?

The primary complaint in COPD is that of breathlessness. This will begin in an insidious manner and progress. Subjects will slowly reduce their activity or put their problems down to their smoking or ageing or general loss of condition. The disease will often thus present in a late stage when patients are severely debilitated and little can be done to reverse the damage. The other cardinal symptom of COPD is cough with sputum production. This is due to the excess mucus production in this condition. Older women often

find this problem not only debilitating, but socially difficult. As the disease progresses, increasing breathlessness may cause social isolation which in turn will lead to depression and a further loss of functional ability. Some patients, because of delays in presentation and diagnosis, will present at the end stage of this disease in respiratory failure with an exacerbation of COPD.

What is an exacerbation?

The nature of the sudden worsening of functional capacity and increase in symptoms is poorly understood. Usually an individual will notice an increasing breathlessness and a decline in functional ability occurring over a day or two. There may be an increase in the volume or change in colour of their usual sputum⁹. Exacerbations are markers of more severe disease and identify individuals in danger of a rapid decline and premature death. Sixteen per cent of patients admitted to hospital with COPD will die on that admission and 40 per cent of those who survive will be dead in 18 months. Half of those admitted will have died or been readmitted within 90 days³. During an exacerbation 80 per cent of patients admitted to hospital have said they felt worse than death¹⁰. The 'downward spiral' of COPD accompanied by increasing frequency of exacerbations is commonly seen.

Women may be particularly at risk as they are more susceptible to loss of muscle mass and systemic features of worsening COPD (such as weight loss) than men. Exacerbations are treated with a combination of increased bronchodilator therapy, oral corticosteroids and antibiotics. An increase in social care may be required and hospital admission might be necessary. In hospital treatment with either invasive or non-invasive ventilation may be utilised if appropriate.

How is COPD diagnosed?

In any patient presenting to primary or secondary care with breathlessness, an accurate history must be obtained. Smoking history must be accurately recorded and the number of 'pack years' smoked as well as current status described. One pack year equals 20 cigarettes a day for one year. The history of the breathlessness will help make the diagnosis. COPD presents in a slowly progressive manner, which sometimes must be sought from patients as they consider increasing shortness of breath and cough with sputum production to be normal for

smokers. It is not.

The key test for COPD is spirometry. This test can be carried out in most GP's surgeries and measures an individual's lung function. The patient simply blows into a spirometer which measures exhaled flow and volume. This gives a measure of lung capacity and obstruction to air flow. It is simple to do and demonstrates an obstructive pattern in COPD patients. It allows us, in combination with the symptoms, to classify a patient; this then helps guide us to the best treatments for them. Other useful tests include a chest x-ray, full blood count and electrocardiogram. These will demonstrate the effects of COPD on the heart and demonstrate complications that can be treated before they lead to further debilitation.

How is COPD treated?

In 2005, the National Institute for Health and Clinical Excellence (NICE) guidelines for COPD were produced¹¹. These replaced the last British Thoracic Society (BTS) guidelines. Working closely with the BTS through the COPD Consortium, NICE have produced a clear, concise, evidence-based set of recommendations for the management of COPD. The GOLD (Global Initiative for Obstructive Lung Disease) guidelines are a set of web-based international guidelines, updated regularly and broadly similar to the British guidance^{12,13}. The guidance is broken down into eight issues that affect patients:

- > smoking;
- > breathlessness and exercise limitation;
- > frequent exacerbations;
- > respiratory failure;
- > cor pulmonale;
- > abnormal body mass index (BMI);
- > chronic productive cough;
- > anxiety and depression.

There are now specific recommendations for the management of COPD among the elderly female population where particular attention must be paid to drug therapy. There is good evidence the elderly find taking inhaled medication difficult. This can be for a variety of reasons. Cognitive ability is closely related to the ability to use many inhaler devices. Using the metered dose inhaler (MDI) is a complex multistep process, difficult to use even with only mild impairment (Mini Mental Test Score (MMS) <8)^{14,15,16}. Other devices, although easier, still fail to be used correctly when MMS<7.

Complicated regimens using multiple drugs more often than twice a day also contribute to treatment failure. The aim of therapy is to relieve symptoms and prevent exacerbations. There is increasing evidence this approach then leads to decreased mortality, although there is still a lack of evidence that disease progression is reduced. COPD is classified as moderate or severe when FEV1 (forced expiratory volume in one second) is <50 per cent predicted, this is the level at which inhaled corticosteroids confer benefit.

Smoking cessation is relevant for all patients with COPD and does reduce further lung damage. In the elderly a commonly asked question is: 'Is stopping smoking at my age worth it?' I am clear on this point with patients and give them the evidence they need to make up their own minds. Smoking cessation decreases sputum production, a very desirable outcome for many of our elderly female patients. Quitting reduces rate of loss of lung function, but it does not improve function on its own. Over time the risks of developing other smoking-related diseases (cancer, ischaemic heart disease and peripheral vascular disease) are reduced. Moreover, there are familial tendencies for the development of COPD. Many studies have demonstrated that COPD has genetic determinants, although no clear single gene responsible has been identified. Susceptibility to COPD and poor lung function have been also shown to run in families^{17,18}. It gives a very positive and clear message to other smokers in the extended family to quit if the family matriarch quits because of potentially serious disease. This clear and consistently given message can be very powerful in helping relatives to quit.

Pulmonary rehabilitation is the most effective intervention for COPD patients. Research has shown that not only does it improve symptoms and exercise capacity, but it also reduces hospital admission rates¹⁹. Moreover, because of this efficacy for every patient successfully undergoing a rehab course money is saved²⁰. Courses consist of regular (usually twice a week) sessions for between six and 10 weeks. The components of the courses include physical training, disease-based education, dietary advice, a medication review and the introduction of self management. Courses can be tailored to meet the needs of each group. It is thus reasonable to consider running a course especially for elderly women. This would have the advantage of the patients not feeling intimidated and would help them develop positive peer group interactions.

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Conclusions

COPD is a problem that as clinicians we cannot ignore. It is increasing in the female population, and as women continue to smoke COPD, will become one of the major health threats to our elderly female community. Effective treatments are becoming available, although they require time to work and a consistent approach from clinicians. Non-pharmacological approaches are very efficacious and should be given priority when resources are allocated as they are not only improving patient symptoms, they are cost effective as well. Central and local government must continue to increase tax on cigarettes and fund smoking cessation services. Of paramount importance are the messages that society gives to young women. They must be encouraged not to start smoking and then the epidemic of COPD we are seeing in our older women will slowly die away.

Conflict of interest: none declared.

Key points

- COPD is a major cause of morbidity, mortality and is responsible for a high level of health resource utilisation.
- The abrupt worsening of symptoms — ‘the exacerbation’ — leads to hospital admissions and has a high mortality rate.
- There are now effective pharmacological treatments that reduce exacerbation rates and improve quality of life.
- Pulmonary rehabilitation is a cost effective therapy that can dramatically improve quality of life and prevent exacerbations.
- Smoking cessation (and stopping people from starting to smoke) is vital to eradicate COPD from the world.