Respiratory Medicine Symposium

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Respiratory medicine continues to face many challenges, not least the increasing burden of chronic respiratory disease. This wide ranging symposium covered recent developments in lung transplantation, lung cancer screening and treatment and the association between chronic obstructive pulmonary disease (COPD) and ischaemic heart disease. Along with state of the art research, practical advice was offered in the management of sarcoidosis and dysfunctional breathing.

SESSION ONE – CLINICAL CHALLENGES IN RESPIRATORY MEDICINE

The symposium was opened by Mr Willie McGhee (Project Manager, Oxygen Therapy Service, NSS Health Facilities, Scotland) who outlined the upcoming changes to national oxygen provision. A recent review of oxygen services reported that long-term oxygen therapy prescription was likely to increase and that in order to cost-effectively meet the demand, a unified oxygen service was required. Advances in oxygen delivery such as the homefill system, liquid oxygen and the use of conservers were discussed with emphasis on the safety aspects of domiciliary oxygen.

As the Freeman Hospital in Newcastle approach their 1,000th lung transplant, Professor Paul Corris (Professor of Thoracic Medicine, University of Newcastle) discussed the significant increase in post-transplant survival over the last 10 years. Post-transplant survival now stands at around 50% at ten years, with the greatest advances in the early post-operative period. Advances in *ex-vivo* lung perfusion (EVLP) allow pre-transplant assessment and optimisation of donor lungs that may otherwise have been discarded. Protective ventilation strategies in donor patients may increase the availability and condition of donor lungs. Bronchiolitis obliterans is a significant challenge following lung transplantation with 50% of patients having evidence of this at five years. Recent evidence suggests that azithromycin may modulate the course of this disease,[1] but the optimal time to start this remains unclear.

SESSION TWO – EARLY DETECTION OF LUNG CANCER

Dr David Baldwin (Consultant Respiratory Physician, Nottingham University Hospitals) gave a comprehensive overview of screening trials in the early detection of lung cancer. The National Lung Screening Trial (NSLT) recently reported a 20% decrease in mortality from lung cancer and a 6.7% reduction in all-cause mortality with screening by low dose CT.[2] The NSLT screening programme is however unlikely to be cost effective in the UK and resulted in large numbers of false-positives. The recently commenced UK Lung Cancer Screening (UKLS) trial hopes to determine, among other things, the mortality benefit in the UK of lung cancer screening, along with cost-effectiveness, potential harms and optimum screening frequency.

STANLEY DAVIDSON ENDOWED LECTURE

Lung cancer accounts for over a quarter of all cancer deaths in Scotland and the five-year survival remains poor at less than 10%. Non-small cell lung cancer (NSCLC) accounts for about 85% of lung cancers and Dr Marianne Nicolson (Consultant Oncologist, Aberdeen Royal Infirmary) reminded us that only around 15% are treated with surgical resection. It is clear that NSCLC is a heterogeneous mix of tumour subtypes and advances in molecular biology will allow us to predict which chemotherapeutic agents will be most effective, thus increasing survival and minimising toxicity. For example, mutations in epidermal growth factor receptor (EGFR) increase the susceptibility of tumours to tyrosine kinase inhibitors,[3] such as erlotinib, and better tumour phenotyping is therefore essential.

SESSION THREE – RESPIRATORY MEDICINE: SCIENCE INTO PRACTICE

Dr Kev Dhaliwal (Clinical Lecturer, University of Edinburgh) described the translational aspects of ongoing research into lung inflammation, infection and scarring. Using specifically designed molecular probes, the Edinburgh team has shown how advanced real-time

optical imaging techniques might be used to make clinical decisions in critically ill patients in an intensive care setting and in patients with other inflammatory lung diseases. Additionally the use of spontaneous models of disease in animals may allow faster and more accurate understanding of disease patterns with the potential for more rapid translation into humans. This work, funded by the Wellcome Trust and Medical Research Council (MRC), involves a multidisciplinary approach spanning chemistry, biology, clinical medicine and image analysis to tackle current bottlenecks in Respiratory Medicine.

Despite long being recognised as a non-caseating granulomatous disease the aetiology of sarcoidosis remains poorly understood. Dr Toby Maher (Consultant Respiratory Physician and Honorary Senior Lecturer, Royal Brompton Hospital and National Heart and Lung Institute, Imperial College London) reviewed the epidemiology and evidence that sarcoidosis is a multifactorial disease with environmental triggers, genetic susceptibility and subsequent host factors determining the course of the disease. Ninety-five per cent of patients will have pulmonary involvement, but the presentation and clinical course of the disease varies greatly. Knowing when to initiate treatment is difficult as at present there is no way to determine whether the disease will spontaneously remit or progressively deteriorate. The mainstay of treatment remains corticosteroids, with use of second-line agents such as methotrexate if disease control remains poor. A very small proportion of patients require third-line therapy, currently with infliximab.

SESSION FOUR – HOW I MANAGE...

Breathlessness is a common and important symptom with a wide differential diagnosis. There is a significant emotional element to the sensation of breathlessness and the perception of breathlessness varies greatly. Professor Mike Thomas (Professor of Primary Care Research, University of Southampton) described the features commonly seen in functional breathing disorders, including lack of response to standard treatment, hyperventilation and increased use of intercostal muscles. Diagnosis is difficult, especially as there is often co-existing respiratory disease. Breathing modification is usually proposed as the treatment for dysfunctional breathing and in asthmatics improves quality of life and reported symptoms.[4]

Chronic obstructive pulmonary disease and ischaemic heart disease (IHD) frequently co-exist and almost as many patients with COPD die from a cardiovascular cause as die from their respiratory disease. Professor David Newby (British Heart Foundation Professor of Cardiology, University of Edinburgh) reviewed the association between the two diseases and while there is an obvious common risk factor in smoking there are likely to be other mechanistic associations. Chronic obstructive pulmonary disease is an inflammatory condition and as such may exacerbate underlying cardiovascular disease. Evidence suggests that increased platelet activation and elastin degradation in patients with COPD as compared to matched smokers without COPD, may cause increased thrombus formation and arterial stiffness. Chest pain is a common feature of COPD exacerbation and up to 10% of these patients will have a troponin rise.[5] The importance of treating both COPD and IHD were emphasised, particularly the use of beta-blockers which improve survival in this group.

The burden of chronic respiratory disease is increasing and placing ever greater demands on our healthcare system. Telehealth has been proposed as a potential solution to this and Professor Brian McKinstry (Professor Primary Care e-Health, University of Edinburgh) reviewed the existing evidence for the use of this approach in COPD. Local experience shows that despite the requirement for daily self monitoring, patient satisfaction is high. Pilot data suggests an increase in prescribed medications, possibly reflecting previously under-treated disease. A large increase in telephone consultations was noted without a reduction in hospital stay. The results of the full study are awaited.

CONCLUSION

This is an exciting time in respiratory medicine with advances in basic and clinical science research translating into improvements in patient management. However, considerable challenges remain, not least in the treatment of lung cancer where long-term survival rates remain poor and in our understanding and management of sarcoidosis.

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