

LETTERS TO THE EDITOR

Investigation of pulmonary disease in HIV infection

The titles of two of your recent reviews from the AIDS and the lung series (Nos 4 and 5, January 1990;45:57-65) refer to the investigations and diagnosis of pulmonary disease in patients infected with HIV; but both papers direct their attention to the problems of the late stage of infection only—namely, AIDS. This emphasis presumably reflects the clinical experience in London, where more advanced disease is prevalent; but your readers must not equate HIV infection with AIDS. There are many causes of pulmonary symptoms within the ever lengthening incubation period preceding AIDS, and the importance of these is not addressed adequately in these reviews.

At the regional infectious diseases unit in Edinburgh, where drug users comprise 78% of the 451 HIV infected individuals under review, there have been 180 admissions in the last four years for respiratory symptoms, and most of these have been in patients without AIDS. Forty nine per cent of these admissions were for microbiologically proved bacterial chest infections, 14% for suspected bacterial infection, and only 27% for *Pneumocystis carinii* pneumonia. Drug users were well recognised as having increased susceptibility to bacterial chest infections and tuberculosis even in the pre-HIV era, and against a background of HIV infection these have become predominant causes of respiratory pathology.^{1,2} In New York they are a significant cause of HIV associated mortality in drug users before the development of AIDS.³ Our data suggest that there is a similar phenomenon occurring in the UK in susceptible groups.

As part of our assessment of patients we find it useful to obtain serial CD4⁺ lymphocyte counts, which can serve as a marker for susceptibility to infection. In individuals with CD4⁺ counts above $0.2 \times 10^9/l$ we have obtained a negative predictive value of 95% for a diagnosis of pneumocystis pneumonia as a cause of respiratory symptoms (that is, there is a 95% chance that pneumocystis pneumonia is not the cause). This indicates the importance of other, more pathogenic organisms in the earlier stages of HIV infection. Appropriate analysis of sputum, which need not be induced if patients have a productive cough, can result in the diagnosis of many bacterial pathogens, including tuberculosis. These procedures are non-invasive and should not be forgotten. Chest radiographs may be normal in a greater proportion of patients than suggested in your review, with only half of our proved bacterial chest infections showing radiological changes.

As the HIV epidemic evolves, greater emphasis should be placed on diagnostic and interventional measures earlier in the natural history of HIV, and this will shift the bias away from the advanced disease seen in homosexuals and bisexuals to earlier disease

in the other groups of patients, who are becoming more numerous. Hence it is important to recognise the spectrum of respiratory problems that will occur so as to investigate and treat these appropriately. Philip Hopewell's review on prevention (December 1989;44:1038-44) achieves a more balanced perspective, perhaps because in the United States the infections occurring in drug users are more widely recognised, and we endorse his recommendations for the prevention of bacterial chest infections.

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- 1 Selwyn PA, Feingold AR, Hartel D, *et al.* Increased risk of bacterial pneumonia in HIV-infected drug users, without acquired immunodeficiency syndrome. *AIDS* 1988; 2:267-72.
- 2 Selwyn PA, Hartel D, Lewis VA, *et al.* A prospective study of the risk of tuberculosis among intravenous drug users with human immunodeficiency virus infection. *N Engl J Med* 1989;320:545-50.
- 3 Stoneburner RL, Des Jarlais DC, Benezra D, *et al.* A larger spectrum of severe HIV-1-related disease in intravenous drug users in New York City. *Science* 1988;242:916-9.

AUTHORS' REPLY (1) We thank Dr Flegg and others for their comments on our review article (January 1990;45:57-61) and for documenting their experience. We differ, however, on several issues. We do not find the CD4 count of particular value at the clinical level as it is a relatively insensitive marker for specific pulmonary infections and we have many patients who had pneumocystis pneumonia with relatively high CD4 counts and also patients who had only bacterial infection but relatively low CD4 counts. Undue diagnostic reliance on the CD4 count would be misplaced. In addition, though conventional sputum examination is routinely performed in most respiratory units in the United Kingdom, we have not found this useful in the context of HIV positive patients. Negative results for *Pneumocystis carinii* in conventional sputum samples have been followed by positive findings in induced sputum.

In the UK chest disease has not been a particular problem in HIV positive patients before the development of AIDS except for a small increased risk of pneumococcal infections. The exception, of course, is intravenous drug misusers, as stated by Dr Flegg and others, but here it is uncertain whether this is due to HIV or intravenous drug misuse, as the latter in its own right causes a high incidence of respiratory complications. Intravenous drug misuse is a greater problem in the United States, as reflected in Dr Hopewell's article on prophylaxis (December 1989;44:1038-44), which gains Dr Flegg's approval. Although things may change in the future, only 1876 of the 13 632 cases of HIV infection in the UK at the end of March 1990 had intravenous drug use as their exposure factor.¹ The pulmonary problems of this

group, though important, remain in the minority.

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1 Public Health Laboratory Service. *Communicable Disease Reports* 1990;No 16.

AUTHORS' REPLY (2) We welcome Dr Flegg's comments and agree with the need for greater emphasis to be placed on diagnostic and interventional measures earlier in the natural history of HIV infection. Our aim was to review invasive investigative measures in patients who had advanced HIV infection. Clearly when patients are spontaneously expectorating purulent sputum a bacterial pathogen may be identified. In our experience, however, failure to attempt sputum induction with hypertonic saline in this situation may mean that diagnosis of *Pneumocystis carinii* with a bacterial coinfection is missed. We would therefore recommend routine induction of sputum in HIV positive patients presenting with fever or dyspnoea, regardless of the chest radiographic appearances. In the future use of *Pneumocystis carinii* specific DNA probes² may mean that pneumocystis pneumonia can be diagnosed from spontaneous expectorated sputum. Until these probes are routinely available excessive reliance should not be placed on spontaneously expectorated sputum samples.

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- 1 Wakefield AE, Hopkin JM, Burns J, *et al.* Cloning of DNA from *Pneumocystis carinii*. *J Infect Dis* 1988;158:859-62.
- 2 Wakefield AE, Pixley FJ, Banerji S, *et al.* Detection of *Pneumocystis carinii* with DNA amplification. *Lancet* 1990;ii:451-3.

BOOK NOTICES

Classic Papers in Asthma. Volume 1. Edited by RAL Brewis. (Pp 208; £39.50.) London: Marston Book Services, 1990. ISBN 1-870026-16-0.

Alistair Brewis has brought together some of the landmark papers in the history of asthma. These classics are reproduced as facsimiles of the original papers and provide a fascinating insight into the way asthma has been perceived over the years. Dr Brewis provides a brief introductory history of asthma from Hippocrates to modern times, highlighting