oxygen to room air (especially when the saturation is only minimally depressed), Woolf’s recommended 30-minute wait to achieve a new equilibrium is reassuringly close to the 25 minutes recommended by Sherter et al. In most clinical situations an additional arterial blood sample will be needed, either for assessment of the adequacy of ventilation or of supplemental oxygen therapy. A 25- or 30-minute delay after changing the inspired oxygen pressure does appear adequate, as least in the ambulatory patients who were tested by both Sherter et al and Woolf. Presumably the same limits apply to bedfast critically ill patients requiring extensive respiratory support, but this has not yet been determined.

David W. Cugell, M.D., F.C.C.P.
Department of Medicine
Northwestern University Medical School, Chicago

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3 Cugell DW: How long should you wait? Chest 67:253, 1975

To the Editor:

Many months ago, when I reviewed the manuscript of Howe et al, I was enthusiastic about the manuscript but concerned lest inexperienced physicians extrapolate these data and presume that even patients with obstructive airway disease need only be removed from oxygen breathing for a short period of time before obtaining arterial blood gas levels which would properly reflect values while breathing room air. There was ample clinical experience from our own laboratory to indicate the need for a prolonged period of breathing room air in this circumstance. I also recalled having read many years previously a published report of a systematic study of this problem and thought I could easily prevent misunderstanding by bringing the report to the authors’ attention and suggesting that they quote it. Unfortunately, despite a diligent search of the literature of the last 20 years, the report could not be found. We found only one paper which related to the problem, and it provided only limited treatment of the subject. The recent arrival of Dr. Woolf’s letter was an occasion for some excitement; a hurried trip to the library confirmed that his was the lost report!

The incident reminded me of the late Dr. J. C. B. Grant’s description of an important attribute of the ideal physician: “a memory which is wax to receive impressions and marble to retain them.” Alas, my memory was neither wax to impressions nor marble to retain, and the titles of Dr. Woolf’s report of 1959 and of the preceding report on methods published in 1956 did not provide us with a strong enough clue so that we could readily retrieve these studies from a search of the literature. We perhaps should have, but did not, recognize the 1959 report from the words, “diagnosis of emphysema” and “oximeter test.”

In this current era of enormously increased volume of periodical medical literature, this experience indicates, I believe, the need for great care on the part of authors in writing titles for their articles so that readers of all possible interests will be able to retrieve all of the information contained in them. It also indicates the need for serious consideration by medical editors for the publication of key index words, in addition to titles, to make the task of medical indexers easier and more effective.

The conclusion reached by Dr. Woolf that in the patient with chronic obstructive pulmonary disease, one should wait 30 minutes after changing from oxygen to room air breathing before drawing arterial blood samples which will represent the ambient air state is not very different from the recommendation by Sherter et al to wait “at least 25 minutes” under these conditions.

Gordon L. Snider, M.D., F.C.C.P.
Professor of Medicine
Boston University School of Medicine
and Chief, Pulmonary Section
Veterans Administration Hospital, Boston

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Diffuse Interstitial Fibrosing Pneumonitis
Scanning Electron Microscopic Study

To the Editor:

The scanning electron microscope was used to investigate the fine structure of diffuse interstitial fibrosing pneumonitis.
CASE REPORT

A 54-year-old man was already reported because adenoviral particles were observed with the transmission electron microscope in the nuclei of alveolar epithelial cells, infiltrated plasma cells, and alveolar macrophages. With regular histopathologic findings, the alveolar spaces were narrowed, with thickening of the alveolar walls due to extensive proliferation of collagen fibers and cell infiltration, and with organized intra-alveolar exudates. Proliferation of cuboidal alveolar epithelial cells was observed. In some areas, PAS-positive granular pneumocytes were desquamated. These findings were considered to be those of usual interstitial pneumonitis and partially of desquamative interstitial pneumonitis as described by Liebow et al.2

Scanning Electron Microscopic Preparation

Specimens were fixed in a 2.5-percent solution of buffered glutaraldehyde, followed by washing with phosphate buffer (pH 7.3), and were refixed with a 1-percent solution of osmium tetroxide. After dehydration with a series of ethanol and acetone, the specimens were applied to a critical-point dryer and then were coated doubly with carbon and gold.

With scanning electron microscopic examination, stone-wall-like proliferation of cuboidal alveolar epithelial cells (type-2 cells) was noted (Fig 1). On the surface of the cells, many micr villi were observed, which have already been seen with transmission electron microscopic examination.3 In some parts the surfaces of alveolar lining cells were covered with fibrinous materials and cells, and in other parts, ablation of a layer of alveolar lining cells was observed, which might accord with the desquamation of cells characteristic of the desquamative interstitial pneumonitis-like feature of this case (Fig 2).

DISCUSSION

Many ultrafine structural investigations by transmission electron microscopy on diffuse interstitial fibrosing pneumonitis have been reported; however, to our knowledge, there has been no previous report of this disease being investigated by scanning electron microscopy. The critical-point dryer improved the preservation of tissue for scanning electron microscopic examination, and this technique makes investigation of alveolar fine structure possible.4 The application of scanning electron microscopy to diffuse interstitial pneumonitis disclosed the expected appearances of this disease.

Takeshi Kawai, M.D., F.C.C.P., Department of Medicine and Tatsui Fujiwara, Electron Microscopy Laboratory Keio University School of Medicine, Tokyo

Reprint requests: Dr. Kawai, Keio University School of Medicine, Shinjuku, Tokyo 160, Japan

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