missed in five of 14 (36 percent) patients 40 seconds after exercise. We agree that alternatives to indwelling arterial lines could be used in certain situations depending upon the patient, the technical skills and resources available, the accuracy required, and the clinical question being asked. However, the potential for significant error from arterial punctures obtained as early as 20-40 seconds after exercise should be considered in the proper design of protocols and clinical interpretations of studies assessing blood gas changes during exercise.

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REFERENCE

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The Roentgenographic Staging of Sarcoidosis

Historic and Contemporary Perspectives

To the Editor: We would like to congratulate Dr. DeRemee for his analytic review of radiologic staging in sarcoidosis (Chest 1983; 83:128-33).

There seems to exist a significant difference in the sequential radiologic trend observed by him and other Western authors such as Scadding who think that a substantial amount of stage 3 disease may arise *de novo*. In our series of 90 cases of sarcoidosis from all over India (part of which has already been published, stage 0 was seen in one (1 percent), stage 1 in 34 (37 percent), stage 2 in 26 (29 percent) and stage 3 in 29 (32 percent) cases.

The notable features in our series are: 1) lower incidence of stage 1 disease as opposed to 50 percent or more of stage 1 disease in Western series; 2) none of our cases was asymptomatic; 3) spontaneous resolution (especially with stage 1 disease and sometimes with stage 2), so often described in the Western series, was not observed in any of our patients; 4) unilateral hilar lymphadenopathy was observed in 45 percent (15 of 34 closely followed-up cases in a single patient, which is a rare phenomenon in the West (where not more than 3-5 percent develop this abnormality); 5) in all cases, a sequential progression may not occur. In one of our cases, stage 1 disease in 1972 regressed to stage 0. She relapsed in 1974 and 1981 respectively with stage 2 disease. Each time the patient has reverted to stage 0 with treatment.

In an overview, it appears that sarcoidosis in India, as opposed to the West, presents in the later stages with probable sequential radiologic progression in most cases with more pronounced parenchymal involvement and restricted glandular involvement. This may be due to delay in diagnosis resulting from lack of MMR survey, prevalence of tuberculosis and lack of awareness of the existence of this syndrome.

We would further like to draw the author's attention for comment toward the staging of unusual presentations not included in his paper, such as cavitation, pleural effusion, bullae formation, pneumothorax, etc., which may be grouped under an additional stage 4.

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Improvement in Ventilation and Perfusion

To the Editor: In their work on the improvement in ventilation and perfusion through administration of almitrine, which uses the method of Wagner and West, Melot et al (Chest 1983; 83:528-33) have shown the important improvement which may be expected with such treatment. However, their conclusions seem to go beyond their thoughts.

REFERENCES

2 Gupta SK, Chatterjee S, Roy M. Clinical profile of sarcoidosis in India. Lung India 1982; 1:5-10

To the Editor: I thank Drs Gupta and Chatterjee for their interesting comments on sarcoidosis in India. Regarding the numbered points in their letter, 1 through 3 could be explained by late discovery due to the less frequent use of chest roentgenography. The high incidence of unilateral hilar adenopathy is interesting and suggests to me the possibility of infectious provocative agents, such as mycobacteria. I am unable to explain the course of the patient mentioned under point 5, but she must represent the unusual exception.

Any system of coding could be used to designate the stages of sarcoidosis as long as most people understand and agree as to what they mean. For at least 20 years, it has been conventional in the English language literature to use stages 1, 2, and 3. Any change from this would require very sound scientific reasons and to affect this change in the literature and in the thinking of physicians would be very difficult because of the established habit. That is not to say that bad habits should not be changed, but in this case the habit of traditional roentgenographic staging is based on very sound information. I would have no objection to the use of stage 4, as long as most investigators will agree as to what is meant by this term. However, it seems to me simpler to determine whether or not the parenchyma is involved roentgenographically rather than to attempt a more elaborate characterization of said involvement. Refining the roentgenographic definitions beyond relatively easily identified features seems to be an unnecessary study in complexity. As I pointed out in my review, roentgenographic staging is helpful, but it is imperfect. However, where roentgenographic staging leaves off, assessment of functional impairment and inflammatory activity begin, in order to fulfill the reason for a staging system, namely to aid the clinician in the care of his patients.

Perhaps with time we will find the roentgenographic staging to be obsolete. I suspect, however, that its obsolescence would hinge on the discontinuance of the use of chest roentgenography in the discovery and management of patients with sarcoidosis. This is highly unlikely. What I attempted to do is to show that the plain chest roentgenogram still gives us valuable information about sarcoidosis patients. Even though it is an imperfect tool, it should not be displaced, but supplemented by a quantification of pulmonary function impairment and indices of inflammatory activity.

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