Cellular profile of bronchoalveolar lavage fluid in pulmonary tuberculosis

EDITOR, — Bronchoalveolar lavage (BAL) has been used to study the immunopathogenesis of several respiratory diseases. The aim of our study was to determine the inflammation changes occurring at the site of a tuberculous lesion in the lung in children.

Eighteen children (mean (SD) age 5.1 (3.2) years, range 1.5 -12 years) attending the tuberculosis clinic at the Institute of Child Health and Hospital for Children, Madras who had signs and symptoms suggestive of pulmonary tuberculosis with a persistent radiographic abnormality had early morning gastric lavage and bronchoscopy and BAL done under local anaesthesia. The bronchoscope (3.5 mm Pentax) was wedged into the involved segment and BAL was performed by instilling 2 ml/kg sterile saline in three equal aliquots. There were no complications encountered and informed consent was obtained from the parents. The study was approved by the institutional ethics committee.

The total cell count showed wide variation between cases and the mean (SD) cell count (74 (45)×10⁶/100 ml) was not significantly different from reference values (80 (81)×10⁶/100 ml).¹ The percentage of macrophages was significantly reduced in those with tuberculosis compared with reference values (56 (25)% vs 81 (5)% p<0.01). The BAL fluid from cases of tuberculosis compared with reference values had a greater mean number of lymphocytes (22 (17)×10⁴/100 ml, p=0.02) and eosinophils (10 (17.5)×10⁴/100 ml, p=0.001). Bronchial epithelial cells accounted for 6 (4-5)% of total cells. Due to the obvious ethical limitation of enrolling controls, we have used the BAL data on healthy children of Ronchiari et al for comparison.¹

Several studies looking at BAL cellular profile in adults with pulmonary tuberculosis have demonstrated increased lymphocyte counts.²³ Nowakowski et al found that the CD4/CD8 lymphocyte ratio was decreased in BAL fluid but increased in blood in children with pulmonary tuberculosis. In this study, we have found a relative lymphocytosis and eosinophilia at the site of the lesion in children with pulmonary tuberculosis. There was a proportionate decrease in the percentage of alveolar macrophages in BAL fluid. More research into the local immunopathology of tuberculosis is required.

SOUMYA SWAMINATHAN
P. VENKATESAN
K. SANKARAN
R. PRABHAKAR
V K VIJAYAN
Tuberculosis Research Centre,
ICMR, Spur Tank Road,
Chetpet, Madras 600031,
India

S. SOMU
D. VIJAYASEKARAN
Institute of Child Health and Hospital for Children,
Egmore, Madras 600008, India