High Adenosine Deaminase Activity Level in Pleural Effusion

To the Editor:

The diagnostic value of adenosine-deaminase (ADA) level in pleural fluid has been recently emphasized. An increase in ADA level has been observed in pleural effusions due to tuberculosis, rheumatoid arthritis and empyema. When ADA values are higher than 50 U/L, several authors agree that no false positive has been observed and this data can be sufficient to diagnose tuberculosis or rheumatoid pleural effusion. Nevertheless, it has been suggested that ADA value could be elevated in lymphoproliferative disorders.

We report a patient with a pleural effusion due to a convoluted lymphocyte type lymphoma with a very high ADA level in pleural fluid. 

Case Report

The patient was a young male, 15-years-old, without any pathologic antecedent. Twenty days before his arrival at hospital he complained of dyspnea and right pleuritic pain. On physical examination the patient was apyretic, with malaire, no peripheral lymph node enlargement, and specific physical findings of right pleural effusion were observed. Chest x-ray film showed an important right pleural effusion. On thorax CT scan, mediastinal lymph node enlargement was observed. Blood cell count and biochemistry were normal. Pleural fluid was an exudate, with 12,800 red blood cells/mm, 8,000 white blood cells/mm (90 percent were lymphocytes). Protein level was 41 g/L and glucose, 23 mg/L. Ziel-Neelsen and gram stains and fungi and mycobacterial cultures were all negative. ADA level (colorimetric method of Galanti and Giusti) was 770 U/L. The lymphocyte subsets study showed 27 percent T-cells, 12 percent B-cells and 61 percent immature unclassifiable cells.

Pleural biopsy was performed and a convoluted lymphocyte-type lymphoma diagnosed. Treatment with cyclofosfamide, adriamycin, vincristine and prednisone was started. The patient's condition improved and the pleural effusion disappeared.

Discussion

ADA is an enzyme of purine catabolism which catalyzes the pathway from adenosine to inosine and is widely distributed in the body. Its main physiologic activity is localized in lymphoid tissue; its level is ten times higher in T-lymphocytes than in B-lymphocytes; and it is very important in T-lymphocyte differentiation.

It seems that the production of ADA in pleura is endocarvatory and ADA activity is determined by local activation of cellular immunity. In pleural effusions, ADA activity is related to the maturity of T-lymphocytes and not with the total lymphocyte count.

The origin of convoluted lymphocyte type lymphoma is in T-lymphocytes and this fact could explain the high ADA level found in the pleural fluid of our patient. According to our knowledge such a high level of ADA has not recently been described. This fact could probably be related with the high rate of proliferation observed in this type of lymphoma.

The convoluted cell lymphocyte lymphoma appears in young patients and its clinical picture can start with an exudative pleural effusion and can mismatch a tuberculous pleuritis. An increase in ADA activity, with levels higher than 120 has been described in lymphoproliferative diseases. It is for this reason that, in patients with pleural effusion with lymphocytes cells and high ADA level, a lymphoproliferative disease can not be rejected. In order to achieve a correct diagnosis, a pathologic study of a pleural specimen is needed.

R. Perez Vidal, M. D.; X. Ardn, M. D.; and J. Broquetas, M. D., Hospital Ntra. Sra. del Mar, Universidad Autonoma de Barcelona, Barcelona, Spain

REFERENCES


Vectorcardiography in Acute MI

To the Editor:

I read with interest of the paper of Dr. Eisenstein et al. We believe that the use of a T angle of 60° or more in the horizontal plane in a vectorcardiographic study (VCG) can not evaluate patients with acute posterior myocardial infarction because the acute loop, T loop, and ST vector change continuously during the acute stage. The T loop during the very early stage can take a linear shape, which was documented in a previous study. Our limited experience led us to believe that a combination of 1) an abnormal ST injury vector pointing in a left posterior direction, and/or 2) abnormal anterior...