COLD AGGLUTININ INDUCED HEMOLYTIC ANEMIA IN A PATIENT WITH PULMONARY TUBERCULOSIS

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ARTICLE INFO
Received: 30th June 2015
Revised: 10th July 2015
Accepted: 2nd Sep 2015

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Keywords: Autoimmune hemolytic anemia, Tuberculosis, Cold agglutinin

INTRODUCTION

Autoimmune hemolytic anemia (AIHA) occurs when a patient produces pathologic antibodies that attach to and lead to the destruction of their RBCs with consequent anemia. AIHA can be classified as warm AIHA and cold AIHA according to the characteristic temperature activity of the antibodies [1]. Occasionally, a patient may have mixed cold and warm active antibodies. Primary (idiopathic) AIHA is less frequent than secondary AIHA [2]. Autoimmune antibodies, particularly cold-reactive antibodies, are sometimes produced following an infection or immune defects or lymphoproliferative disorders or drugs [3,4,5,6]. These secondary cases are often challenging since not only AIHA, but also the underlying disease must be diagnosed and treated. Association of autoimmune haemolytic anaemia with pulmonary tuberculosis has been seldom reported. Tuberculosis being a common disease, the association with hemolytic anemia should be recognized and treated judiciously.

CASE REPORT

A 25 year old female presented to our department with a history of fever associated with cough and fatigue. Physical examination revealed pallor and mild splenomegaly. Blood pressure, pulse rate and temperature were within normal limits. Bilateral crepitations could be heard on chest auscultation. Other findings on physical examination were unremarkable. There was a past history of receiving blood transfusion on four occasions. The laboratory investigations demonstrated severe anemia (Hemoglobin 4.5 g/dl; MCV 74.3fl MCH 18.4pg MCHC 24.7g/dl) with a normal white blood count and platelet count. The peripheral blood smear showed microcytic hypochromic RBCs with anisopoikilocytosis, elliptocytes, tear drop cells, target cells. The reticulocyte count was 5.82% and reticulocyte index was calculated to be 2.0. Serum LDH was raised (991 U/L). The Direct Coombs test was positive with anti-C3d specificity; anti-IgG was negative. The cold agglutinin titre was 1:256. The patient tested negative for anti nuclear antibodies and ds-DNA antibodies, HIV, Hepatitis B surface antigen and anti HCV antibodies. Sputum was positive for acid fast bacilli. Chest X-ray showed diffuse small nodular infiltrates over right lung fields. The HRCT thorax demonstrated fine nodular densities in right upper lobe, suggestive of tuberculosis. Abdominal ultrasonography revealed mild splenomegaly. A bone marrow biopsy performed on the patient revealed erythroid hyperplasia. There was no evidence of any malignancy. Diagnosis of cold autoantibody hemolytic anemia complicated by pulmonary tuberculosis was made. The patient was managed with blood transfusions and treated with anti-tubercular agents. The occurrence of AIHA in pulmonary tuberculosis is rare.

DISCUSSION

Autoimmune hemolytic anemia (AIHA) is a rare disease. In a recent population based study [7] the incidence was 0.8/100,000/year, but the prevalence is 17/100,000[8]. There are two main types of autoimmune hemolytic anemia: warm antibody and cold antibody induced hemolytic anemia.
CONCLUSION

Although rare, pulmonary tuberculosis may be associated with autoimmune hemolytic anemia. Tuberculosis should be considered as a differential diagnosis of the etiology of secondary AIHA because administration of steroids alone to treat AIHA in such untreated tuberculosis cases may be detrimental to the patient.

ACKNOWLEDGEMENT: none

Conflict of Interest: Nil

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4. Jeffries M, Hamadeh F, Aberle T, Glenn S, Kamen DL, Eaton WW, Rose NR, Kalaydjian A, Pedersen MG, Harada Y, Yamamoto H, Sato M, Kodaira M, Kono T. The significance of underlying infectious diseases (SLE) or infections (infectious mononucleosis, Mycoplasma pneumonia, advanced HIV infections), and rarely drugs. In some of the cases, the etiology remains obscured labeling them as primary or idiopathic. The key component to treatment remains avoidance of exposure to cold and management of underlying infectious or malignant process. In contrast to warm AIHA, cold AIHA does not respond well to steroids and/or splenectomy. Transfusion of red cells in AIHA can result in rapid in vivo destruction of transfused cells due to the presence of auto antibodies, hence it is of transient benefit, but may be required initially in managing severe anemia.

5. In tuberculosis, hematologic abnormalities like anemia are common. Possible mechanisms include nutritional deficiency, malabsorption syndrome, marrow suppression, and failure of iron utilization. However, the association of immune hemolytic anemia with tuberculosis is relatively rare. The majority of the cases reported in literature are disseminated or extra pulmonary tuberculosis.

In our patient with cold autoantibody induced hemolytic anemia, the work up for secondary causes of AIHA like lymphoproliferative disorders and SLE was negative, and tuberculosis was diagnosed on the basis of isolation of organism in sputum and clinical and radiological findings. The patient responded to anti tubercular treatment, steroids were not given.

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