Case Report

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Autoimmune Hemolytic Anemia In Pediatric Age Group: A Case Report.

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Abstract

Autoimmune hemolytic anemia (AIHA) is a rare condition in which the immune system destroys red blood cells, leading to hemolysis and anemia. This case report describes a 6-year-old male presenting with fatigue, pallor, and jaundice. Laboratory investigations revealed hemolytic anemia with positive direct antiglobulin test (DAT) for IgG antibodies. The child was diagnosed with warm antibody AIHA and treated with corticosteroids and supportive care. Hemoglobin levels stabilized, and symptoms improved with treatment. This case highlights the importance of early recognition and management of AIHA in children to prevent complications and improve outcomes.

Keywords:- Autoimmune hemolytic anemia, Warm antibody AIHA, Paediatrics, Corticosteroid

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INTRODUCTION

Autoimmune hemolytic anemia (AIHA) is a rare but serious condition in which the immune system produces antibodies that target and destroy red blood cells (RBCs), leading to hemolysis and anemia. AIHA can be classified into warm antibody AIHA, cold antibody AIHA, and mixed type, based on the optimal temperature at which the antibodies react with RBCs. Warm antibody AIHA is more common and typically involves IgG antibodies, whereas cold antibody AIHA involves IgM antibodies that activate complement.[1]

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The incidence of AIHA in children is estimated to be 0.2 cases per 100,000 per year. The etiology can be idiopathic (primary) or secondary to infections, autoimmune diseases, malignancies, or certain medications. In children, secondary AIHA is often associated with viral infections or systemic lupus erythematosus (SLE).[2]

Clinically, AIHA presents with symptoms of anemia, such as fatigue, pallor, and jaundice, due to the increased breakdown of RBCs. Splenomegaly and hepatomegaly can occur due to the increased workload on these organs to clear the destroyed RBCs. Laboratory findings typically show anemia, reticulocytosis, elevated lactate dehydrogenase (LDH), increased indirect bilirubin, and decreased haptoglobin levels. The direct antiglobulin test (DAT or Coombs test) is positive, indicating the presence of antibodies on the surface of RBCs.[3]

An important diagnostic feature of AIHA is the presence of spherocytes on the peripheral blood smear, which are spherical RBCs resulting from partial phagocytosis by macrophages. The presence of hemolysis markers and a positive DAT are crucial for diagnosis.[4]

CASE REPORT

A 6-year-old male presented to the pediatric clinic with a 2-week history of fatigue, pallor, and jaundice. His parents noted that he had been less active than usual and had yellowish discoloration of the eyes and skin. There was no significant medical history, recent infections, or family history of hematologic disorders.

On physical examination, the child appeared pale and mildly icteric. He had a heart rate of 110 beats per minute, respiratory rate of 22 breaths per minute, and blood pressure of 90/60 mmHg. Examination revealed mild splenomegaly but no hepatomegaly or lymphadenopathy. There were no signs of petechiae or purpura.

Initial laboratory investigations revealed hemoglobin of 7.5 g/dL (normal: 11.5-15.5 g/dL), hematocrit of 22% (normal: 35-45%), and reticulocyte count of 6% (normal: 0.5-1.5%). Peripheral blood smear showed spherocytes and polychromasia. Lactate dehydrogenase (LDH) was elevated at 480 U/L (normal: 140-280 U/L), indirect bilirubin was 3.2 mg/dL (normal: 0.1-1.0 mg/dL), and haptoglobin was undetectable. The direct antiglobulin test (DAT) was strongly positive for IgG antibodies.

Given the clinical presentation and laboratory findings, a diagnosis of warm antibody AIHA was made. The child was admitted for further management and observation. Initial treatment included corticosteroids (prednisone) at 2 mg/kg/day. Supportive care with folic acid supplementation and transfusions of packed RBCs were provided to maintain adequate hemoglobin levels.

Over the next week, the child's hemoglobin levels stabilized, and his jaundice and fatigue improved. Steroid therapy was tapered gradually over several weeks based on clinical response and laboratory parameters. The child was closely monitored for potential side effects of corticosteroids and for any signs of relapse.

Lab Investigation	Result	Reference Range
Hemoglobin	7.5 g/dL	11.5-15.5 g/dL
Hematocrit	22%	35-45%
Reticulocyte count	6%	0.5-1.5%
Lactate dehydrogenase (LDH)	480 U/L	140-280 U/L
Indirect bilirubin	3.2 mg/dL	0.1-1.0 mg/dL
Haptoglobin	Undetectable	30-200 mg/dL
Direct Antiglobulin Test (DAT)	Positive for IgG	Negative

Table 1 : Lab investigations of the studied case.

DISCUSSION

Autoimmune hemolytic anemia (AIHA) in children is a rare and potentially life-threatening condition that requires prompt diagnosis and treatment. This case highlights the classic presentation of warm antibody AIHA with anemia, jaundice, splenomegaly, and laboratory evidence of hemolysis. The positive direct antiglobulin test (DAT) confirmed the autoimmune nature of the hemolysis.[5]

Several similar cases have been reported in the literature, demonstrating the variability in

presentation and the importance of tailored management. A study by Aladjidi et al. reviewed pediatric AIHA cases and found that corticosteroids are the mainstay of initial treatment, with most patients responding well to this therapy. However, relapses are common, and some patients may require additional immunosuppressive agents or splenectomy.[6]

Many studies have emphasized the role of supportive care, including folic acid supplementation and transfusions, in managing AIHA. They also discussed the potential complications of long-term corticosteroid use and the need for alternative therapies in refractory cases .[7]

Management of AIHA involves addressing the underlying cause, if identified, and controlling hemolysis with immunosuppressive therapy. Corticosteroids remain the first-line treatment, but other options such as intravenous immunoglobulin (IVIG), rituximab, and splenectomy may be considered in refractory cases or those with frequent relapses. Regular monitoring of hemoglobin levels, reticulocyte counts, and markers of hemolysis is essential to guide treatment adjustments and assess response.[8]

CONCLUSION

Autoimmune hemolytic anemia is a rare but serious condition in children that requires prompt recognition and treatment. This case illustrates the typical clinical and laboratory findings of warm antibody AIHA and underscores the importance of corticosteroids as the primary treatment. Early diagnosis and appropriate management are crucial to improving outcomes and preventing complications.

Conflict of interest
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