IVIG Induced Hemolytic Anemia

Nicholas J. Daering
Zachary Demertzis
Peter Luyeho

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Clinical Course

- On hospital day 8, Hgb noted to fall from 9.1 to 7.0 g/dl
- No signs of bleeding was noted, and patient had been tolerating physical therapy well
- Internal Medicine and Hematology were consulted
- Laboratory work-up was consistent with an IgG mediated hemolytic process with component of iron deficiency
- Reticulocyte studies showed hypoproliferation
- Pathology review of the peripheral blood showed no abnormal cells
- Patient received 2 units pRBC on hospital day 11 for Hgb 5.7 g/dl
- Patient started on Prednisone 80 mg daily for 3-month course

Hematologic Lab Values

<table>
<thead>
<tr>
<th>Parameter</th>
<th>CBC Count</th>
<th>DAT</th>
<th>DAT Anti-IgG</th>
<th>DAT Anti-Complement</th>
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</thead>
<tbody>
<tr>
<td>Red Blood Cells</td>
<td>4.06</td>
<td>+</td>
<td>POSITIVE</td>
<td>16%</td>
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<tr>
<td>Hemoglobin</td>
<td>7.2</td>
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Hemolytic transfusion reactions after IVIG: 2018

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IVIG Induced Hemolytic Anemia

Nicholas Daering, DO; Zachary Demertzis, DO; Peter Luyeho, MD

Henry Ford Health System, Detroit, Michigan

Abstract

Intravenous immunoglobulin (IVIG) is derived from donated plasma used to treat immune deficiency, autoimmune, and inflammatory disorders. Adverse effects occur in 5-15% of patients with hemolytic anemia being a delayed reaction. Risk factors for hemolysis are high-dose infusions (1-2g/kg/day or >100g/day), female sex, and non-O blood group. Our case involves a 69-year old male presenting with bilateral lower extremity weakness for 1 year, suffering from a fall, affecting his ability to ambulate with no bowel or urinary incontinence. MRI revealed spondylotic changes, and the patient admitted to hemolytic anemia. Direct antiglobulin antibody-IGG Coombs test was positive and anti-complement negative, consistent with immunohemolytic anemia. He was supported with blood transfusion and continued on high-dose Prednisone (1mg/kg/day) for 3 months. Antibodies present in IVIG product react with RBC antigens predominantly of the ABO blood group, causing intravascular hemolysis. Although IVIG induced hemolysis is typically mild and self-limiting, it can often go undetected and prescribers should be aware.

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Discussion

- Adverse effects with IVIG occur in 5-15% of patients with hemolytic anemia being a delayed reaction. Risk factors for hemolysis are high-dose infusions (1-2g/kg/day or >100g/day), female sex, and non-O blood group
- Antibodies present in IVIG product react with RBC antigens predominantly of the ABO blood group, causing intravascular hemolysis.
- Although IVIG induced hemolysis is typically mild and self-limiting, it can often go undetected and prescribers should be aware.
- Onset of hemolysis ranged from 12 hours to 10 days, and the mean decrease in hemoglobin was 3.2 g/dl.

Conclusion

- IVIG induced hemolytic anemia is an uncommon event and often clinically mild
- Providers should maintain a higher index of suspicion in patients with new anemia on IVIG therapy, especially in those receiving higher doses
- IVIG induced hemolytic anemia is managed supportive and has a good prognosis

References