Not Your Common Cold: A Rare Complication

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INTRODUCTION

Hemophagocytic lymphohistiocytosis (HLH) is a life-threatening disorder characterized by uncontrolled activation of cytotoxic T lymphocytes and histiocytes resulting in cytokine storm and immune-mediated injury of multiple organ systems. We report a rare case of acute adenovirus infection in an immunocompetent male.

CASE DESCRIPTION

A 55-year-old male with a history of metabolic syndrome and bipolar disorder presented with fevers, shortness of breath and increasing somnolence. Initial evaluation revealed hypoxic respiratory failure and an acute kidney injury. A respiratory viral panel was positive for adenovirus.

H -Score	
Underlying immunosuppression	No
Maximal temperature	39.9 °C
Hepatomegaly	Yes
Splenomegaly	Yes
Lower hemoglobin level	8.9 g/dL
Lower leukocyte count	2.5 k/uL
Lower platelet count	79 k/uL
Higher ferritin level	15,613 ng/mL
Higher triglyceride level	516 mg/dL
Lower fibrinogen level	559 mg/dL
Higher ASAT level	3350 U/L
Hemophagocytosis features on bone marrow aspirate	Yes

Based on the HScore, our patient had a >99% probability of hemophagocytic syndrome.

Admission Course

- **Day 1**
- **Day 2** – Transferred to ICU
  - Shock
  - Transaminitis
  - Worsening renal failure
- **Day 8**
  - Intubated
  - Bone marrow biopsied
  - Initiated on dexamethasone and etoposide
- **Day 9**
  - HLH confirmed
  - Initiated on hemodialysis
- **Day 12** – Adenovirus level > 10 million cpy/mL
- **Day 13** – Initiated on cidofovir
- Died of respiratory failure

Bone marrow biopsy showed evidence of a normocellular marrow with few hemophagocytic histiocytes, without overt morphologic or immunophenotypic evidence of hematolymphoma neoplasm, consistent with a diagnosis of HLH.

DISCUSSION

Adenovirus infections are frequently associated with upper respiratory tract infections, and are often self-limiting. Fatal reports have rarely been described in immunocompetent patients. HLH, while often associated with viral infections, most commonly Epstein-Barr virus, as well as malignancies, autoimmune disease and familial conditions, has rarely been associated with adenovirus. To date, there has been only one documented case report of adenovirus induced HLH in an immunocompetent adult.

The HScore (as shown in the first column) can be used to estimate an individual's risk of having reactive hemophagocytic syndrome based on clinical and laboratory criteria, produced by an overactive but ineffective immune system. These constellation of findings can often be misconstrued as sepsis or an underlying malignancy.

CONCLUSION

A high index of suspicion is crucial as without prompt treatment HLH is often fatal. Treatment is aimed at treating the underlying disorder and suppressing the immune system with Etoposide and dexamethasone.

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