Rituximab for the management of severe recurrent granulomatosis with polyangiitis

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Introduction:
Granulomatosis with polyangiitis (GPA) is a small-vessel, immune-mediated vasculitis associated with increased production of autoantibodies known as anti-neutrophil cytoplasmic antibodies (ANCA). Prior to the availability of immunosuppressive therapy, the mortality rate of ANCA-associated vasculitis (AAV) was nearly 100%.

Traditionally, the gold standard for induction and maintenance was cyclophosphamide in combination with high-dose corticosteroids. However, relapse rates on this regimen can be as high as 50% and chronic cyclophosphamide is associated with a significant risk of toxicity. This case describes the use of rituximab for induction and maintenance in a patient with severe, recurrent GPA.

Case:
24 yo male with history of GPA presenting with 2 weeks of:
- Hemoptysis
- Sore throat
- Mouth sores
- Fever

PMH:
- 2009 (age 18): P/w epistaxis, hemoptysis, pleuritic chest pain, and a 100-lb weight loss. Dx with GPA by lung biopsy. Tx with cyclophosphamide/prednisone induction therapy and maintained on MTX.
- 2013: Recurrence with renal involvement. Induction with rituximab followed by azathioprine/prednisone for maintenance.
- 2014-2015: Noncompliance with maintenance therapy

Hospital course:
VS: AF, 110, 125/76, RR 40, SpO2 95% on BiPAP CXR and CT chest are shown. Labs: WBC 17, Hgb 9, Cr 1.8 (baseline) Bronchoscopy: Diffuse alveolar hemorrhage
- Supported with BiPAP and HFNC
- Continued high dose steroids.
- Plasmapheresis initiated - 4 times over 6 days
- Rituximab started

Outpatient course:
- 4-6 weeks of high-dose prednisone
- Rituximab once a week for four doses then once every 6 months for maintenance

Discussion (cont.):
This patient also received plasmapheresis to temporarily reduce the burden of circulating autoantibodies until rituximab could take effect.
- Retrospective cohort studies of patients with diffuse alveolar hemorrhage 2/2 AAV who received plasmapheresis in addition to some kind of immunosuppressive therapy had excellent results – close to 100% resolution of alveolar hemorrhage.
- The upcoming PEXIVAS trial is an RCT investigating the role of plasmapheresis in AAV patients with DAH and glomerulonephritis.

Learning objectives:
1. Rituximab is an effective therapy for induction and maintenance for patients presenting with AAV, especially in those who have relapsed after treatment with cyclophosphamide.
2. Patients presenting with pulmonary hemorrhage due to AAV should be treated with plasmapheresis and high-dose steroids initially.

Citations: