Not Just Another Case of ARDS during the COVID-19 Pandemic

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LEARNING OBJECTIVES
• Recognize differential for pulmonary renal syndromes during COVID pandemic

CASE REPORT
38-year-old Hispanic male with past medical history of asthma presented to the emergency department in June 2020 with progressive shortness of breath over 2 weeks, accompanied with loss of taste and poor appetite.
• Tachypneic in respiratory distress saturating 85% on 5 liters O2 by nasal cannula with diffuse crackles on exam.
• Laboratory data: hemoglobin of 6.0 g/dl, serum creatinine of 30.7 mg/dl, BUN of 153, and hematuria on urinalysis. Negative for COVID-19 twice with RT PCR.
• Chest X-ray: bilateral airspace opacities
• Chest CT showed extensive bilateral upper and lower lobe airspace disease Hospital course:
  • Rapidly declined, ultimately requiring intubation and was noted to have bloody secretions in the endotracheal tube
  • Underwent bronchoscopy, bronchial wash had bloody return which did not clear, suggestive of alveolar hemorrhage
  • Rheumatologic work up: positive for p-ANCA and MPO antibodies
  • Received pulse steroids, renal replacement therapy and plasmapheresis; once stable started on Rituximab
  • Kidney Biopsy: Pauci-immune glomerulonephritis without granulomas consistent with microscopic polyangitis
  • with crescentic glomerulonephritis.
  • Respiratory status improved markedly and he was discharged from hospital in good condition.
  • Since discharge has not experienced hemoptysis; however still requires hemodialysis

DISCUSSION
• Even during COVID pandemic it is important to consider other causes for concurrent respiratory and renal failure.
• Differential diagnosis for diffuse alveolar hemorrhage (DAH) is broad and includes different pathophysiologic processes, including pulmonary capillaritis, bland hemorrhage, and diffuse alveolar damage.
• DAH with glomerulonephritis, (pulmonary-renal syndrome) narrows the differential diagnosis. Common etiologies of pulmonary-renal syndromes include microscopic polyangitis (MPA), granulomatosis with polyangiitis, eosinophilic granulomatosis with polyangiitis, Goodpasture syndrome, and systemic lupus erythematosus.
• MPA is an autoimmune medium-to-small vessel vasculitis grouped under the ANCA-associated-vasculitis.
  • Typically presents with fever, fatigue, weight loss, arthralgia, cough, dyspnea, active urinary sediment with or without renal failure, purpura, and neurologic dysfunction.
  • Diagnosis based on clinical presentation and biopsy showing necrotizing vasculitis without immunodeposits or granulomas. The presence of p-ANCA is suggestive.
  • Treatment consists of immunosuppression with pulse dose steroids and induction with rituximab or cyclophosphamide and in selected severely ill patients, plasmapheresis.

FIGURES 1 & 2
Figure 1. CXR with bilateral airspace opacities. Figure 2a-c. Chest CT showing extensive bilateral upper and lower love airspace disease

FIGURE 3
Figure 3: Histopathology from kidney biopsy: A. Arteriolar Hyalinosis B. Cellular Crescents C. Diffuse Crescentic Glomerulonephritis D. Low Power E. IgG Negative F. Segmental Glomerulosclerosis

REFERENCES