An adolescent boy with acute kidney injury and fever: Questions

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Case presentation

A 17-year-old and otherwise healthy adolescent boy was admitted to our hospital with complaints of nausea, vomiting, headache, and fever lasting for 5 days. His first complaints started 1 week prior to admission when he began to suffer from generalized myalgia and abdominal and back pain. He lived in a rural area. His past and family histories were unremarkable. On presentation, he looked acutely ill, and physical examination revealed conjunctival hemorrhage, pharyngeal injection together with facial flushing, diffuse abdominal tenderness, and excoriated lesions on his feet and soles. His heart rate was 112/min, blood pressure 80/60 mmHg, respiratory rate 32/min, and temperature was

39 °C. Initial laboratory values were as follows: hemoglobin 12 g/dl, white blood cell count 9,000/mm³, platelets 10,000/mm³, C-reactive protein 233 mg/L, erythrocyte sedimentation rate 63 mm/h, serum creatinine (sCr) level 4.6 mg/dl, and blood urea nitrogen (BUN) 88 mg/dl. There was no hemolysis on blood smear examination. Prothrombin, partial thromboplastin time, and fibrinogen levels were normal. Aspartate aminotransferase (71 U/L), alanine aminotransferase (66 U/L), and lactic acid dehydrogenase (466 U/L) were elevated. Urinalysis showed microscopic hematuria, pyuria, hyposthenuria, and mild proteinuria. The initial chest radiograph was normal. There was increased echogenicity in the parenchyma of both kidneys on renal ultrasonography.

In the follow-up his fever subsided and then he developed epistaxis and petechiae on his soft palate and entire body, as well as hypotension (65/40 mmHg), bradycardia, and clinical shock. Urine output decreased to <0.5 ml/kg per hour. Leukocytosis with a left shift (27,000/mm³, 90 % neutrophil), hypoalbuminemia (2.5 g/dl), striking elevations in BUN/sCr levels (108/6.6 mg/dl), electrolyte imbalance, and metabolic acidosis developed. He was treated with supportive care (fluid and inotropic agents) and continuous venovenous hemofiltration with dialysis. On the 5th day of admission to the pediatric intensive care unit (PICU), his general condition was good, blood pressure returned to normal, urine output increased to 5 ml/kg per hour, sCr improved to 0.6 mg/dl, and platelet count increased to 358,000/mm³. The patient was discharged from PICU after 8 days.

The answers to these questions can be found at <http://dx.doi.org/10.1007/s00467-012-2360-0>.

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Questions

1. What is the differential diagnosis for this patient?
2. What is your diagnosis and what additional diagnostic tests would you perform?