Ribavirin-Associated Hemoglobinuria with Treatment of Hepatitis C Virus Infection

Sir—I am writing in response to the article by Dietrich and Spivak [1] entitled “Hematologic Disorders Associated with Hepatitis C Virus Infection and Their Management.” Recently, I treated a patient with a hematologic adverse event—hemoglobinuria—that was caused by ribavirin therapy administered for hepatitis C virus (HCV) infection. Because Dietrich and Spivak [1] did not mention this adverse effect in their review article, I wish to describe such a case.

The patient was a 49-year-old Hispanic woman infected with HCV genotype I, with chronic hepatitis and cirrhosis revealed by analysis of a liver biopsy specimen and underlying well-controlled HIV infection (a CD4 cell count of 550 cells/μL and an undetectable HIV load). She initiated treatment with ribavirin, 400 mg in the morning and 600 mg in the evening, and pegylated IFN, 120 μg/week. She was also receiving ongoing treatment with zidovudine, tenofovir, abacavir, and efavirenz for HIV infection. After 1 week of ribavirin-IFN therapy, she presented to the clinic for routine follow-up with dark-colored urine. Results of laboratory tests revealed a hemoglobin level of 8.9 g/dL, a reticulocyte count of 16.9%, a haptoglobin level of <5.8 mg/dL, and a lactate dehydrogenase level of 480 IU/L, and urine dipstick revealed moderate blood with no RBCs on microscopic urinalysis.

The patient was admitted to the hospital with a diagnosis of hemoglobinuria. Antiretroviral therapy and treatment for HCV infection was withheld. Six weeks later, while receiving erythropoietin, 40,000 U/week, she resumed treatment for HCV infection with IFN and ribavirin, 200 mg b.i.d., which was later increased to 400 mg b.i.d. During this period, the patient initiated an antiretroviral regimen that lacked zidovudine, but she was later able to resume zidovudine therapy. The patient tolerated the treatment, maintaining a hemoglobin level of 12.6 g/dL, and has just completed 12 weeks of treatment at the time of writing.

I suspect this adverse effect is rare, because there is only 1 previous report of 2 cases of ribavirin-associated hemoglobinuria, which occurred in HCV-infected patients without HIV coinfection [2]. In addition, the ribavirin package insert [3] does not mention this adverse effect. Nevertheless, clinicians using ribavirin to treat HCV infection should be aware of this uncommon but severe adverse effect.

Catherine Diamond
University of California at Irvine

References

Central Diabetes Insipidus Complicating West Nile Encephalitis

Sir—West Nile virus infections emerged in the United States in 1999. In this, the fifth year of the expanding epidemic, new manifestations of the illness continue to be reported. We report the case of a woman with West Nile encephalitis who developed central diabetes insipidus (CDI), a complication not previously reported in flavivirus infection.

A 71-year-old woman with a history of diabetes and hypertension was admitted to our hospital in September 2003 with headache, fever, and chills that had lasted for 1 week, accompanied by anorexia, nausea, and vomiting. On hospital day 2, she became lethargic and somnolent. Laboratory analysis of a CSF sample revealed a WBC count of 30 cells/μL, with 67% neutrophils and 31% lymphocytes; an RBC count of 10 cells/μL; a glucose concentration of 79 mg/dL; and a protein concentration of 109 mg/dL. Testing of the CSF sample for West Nile virus antibodies revealed an IgG titer of 32 and an IgM titer of 2. On hospital day 5, the patient experienced a generalized seizure, and phenytoin therapy was begun. An electroencephalogram showed generalized slowing, and findings of a contrast MRI with spectroscopy were unremarkable. On hospital day 13, the patient complained of extreme thirst. During the first 3 weeks of hospitalization, she had waxing and waning mental status, ranging from extreme somnolence to agitation associated with paranoid auditory and visual hallucinations.

On hospital day 23, she produced 9 L of urine in 24 h, and the serum sodium level had increased from 132 mmol/L at admission to 150 mmol/L. The measured serum osmolality was 304 mOsm/kg H2O, and urine osmolality was 201 mOsm/kg H2O. Vasopressin was administered, resulting in decreased urine output and a normal serum sodium concentration. Shortly after the initiation of vasopressin therapy, the patient’s level of consciousness and cognition improved, and she was discharged to a nursing home on hospital day 42. At the time of discharge, she was still mildly confused and had residual visual hallucinations; however, she was ambulatory and was much less agitated.

CDI is caused by disruption of the hypothalamic posterior-pituitary axis and may occur following surgery, tumors, trauma, hemorrhage, infarction, inflammation, or infiltration. Several CNS infections can cause CDI, including tuberculosi, syphilis, bacterial meningitis [1], cryptococcal meningitis [2], toxoplasmosis [3], herpes simplex virus infection [4] and cytomegalovirus infection [5] in HIV-infected patients. Coxackie virus B1 encephalitis resulted in CDI in a child [6]. However, there have been no previous reports of CDI complicating flavivirus infections. To our knowledge, the case we
The recent review by Pappas et al. of infection with Cryptococcus neoformans is the first instance of CDI associated with West Nile Virus encephalitis.

Sofia Sherman-Weber and Peter Axelrod
Section of Infectious Diseases, Temple University School of Medicine, Philadelphia, Pennsylvania

References

Universal Precautions Studios Presents: ID Creature Features

The recent review by Pappas et al. of infectious diseases as depicted in the movies was fascinating, but it is obvious that Hollywood is in urgent need of some fresh ideas for such cinema. The colorful language of our specialty and the variety of deadly or disgusting real-life pathogens could make for cinematic thrillers of almost any genre. I offer some examples with suggested titles.

The soft-tissue virulence of “flesh-eating” group A streptococci is truly frightening to anyone who has witnessed the full-blown toxic syndrome. When they do get around to making the movie, it might be titled “Eschar Wars—Flesh-Eating Strep Unchained!” Another scary skin flick might be “Creeping Eruption—It Will Make Your Skin Crawl!”

Worms could be cast as repulsive beasts of the cinema. “To Helmuth and Back!” might be the title of a movie about battling and surviving Strongyloides hyperinfection. The gastrointestinal tract would be a favored location for the wormy thriller “From the Depths of the Bowels Comes—Attack of the 30-Foot Tapeworm!” Even the lowly pinworm would make you squirm in your seat—in fact, it will do it for you! The eyeworm and tongueworm are creepy crawlers that could make the victim’s life a living helminth.

The “Crypt Trilogy” could be 3 films. The first, “The Crypt Abscess,” might feature a foolhardy venture into the foul lard of the dreaded vancomycin-eating Enterococcus. Not many movie-goers would have the guts to experience Number 2: “Cryptosporidium: Loose in Milwaukee!” The final film would be “Crypto: Curse of the Mummy’s Yeast Infection,” the amazing true story of archaeologists stricken with cryptococci released during the unwrapping of ancient mummies.

In the film “Deep Space Infection,” plucky astronauts would disinfect satellite abscesses and dodge asteroid bodies. Unpeakable horrors also lurk in our inner body spaces, as might be seen in “Ozena—Enter the Nare if You Dare!” Another film could be “Out of the Jaws of the Hounds from Hell Comes—The Dyogenic Fermenter!” seeking hapless, spleenless victims.

The blockbuster thriller “Thoracic Park” would feature ferocious Pneumococci, as well as galloping consumption by TB Rex and its berserk cousin, the Battey Bacillus.

For the casting of spy or crime thrillers, the field of infectious diseases offers both felons and special agents, such as the Eaton and Norwalk agents. One film could be “The Yellow Peril,” in which a viral agent code-named “B” joins forces with a shadowy coconspirator, the Delta agent, to cause an international outbreak of fulminant hepatitis. One possible crime thriller might be called “Murder Most Foul,” in which a mad microbiologist creates ineradicable, multiple-drug-resistant anaerobes that he injects into unwilling experimental subjects.

The ongoing war against emerging pathogens, such as the severe acute respiratory syndrome coronavirus, is a real-time documentary of an unfinished saga starring public health workers, infectious diseases specialists, microbiologists, and researchers. Most of us are bit players in the trenches, but we all have a role in contributing to a happy ending.

Ludwig A. Lettau
Lowcountry Infectious Diseases, Charleston, South Carolina

Reprints or correspondence: Dr. Ludwig A. Lettau, Lowcountry Infectious Diseases, 1938 Charlie Hall Blvd., Charleston, SC 29414 (lettau@comcast.net).

Clinical Infectious Diseases 2004;38:1043
© 2004 by the Infectious Diseases Society of America. All rights reserved. 1058-4838/2004/3807-0027$15.00

Apparent Failure of Moxifloxacin to Prevent Ciprofloxacin- and Levofloxacin-Susceptible Pseudomonas aeruginosa Bacteremia in Neutropenic Patients Undergoing Peripheral Blood Stem Cell Transplantation

SrR—Fluoroquinolones are frequently used for antibacterial prophylaxis during the neutropenic period associated with peripheral blood stem cell transplantation because of their excellent oral bioavailability and activity against most gram-negative bacteria [1].

From 1 January 1998 through 31 May 2003, a total of 1183 hematopoietic stem cell transplantation procedures were performed at our institution (Mayo Clinic; Rochester, MN). Antibacterial prophylaxis was started 1 day before transplantation and continued until neutrophil engraftment (absolute neutrophil count, >500...