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Invasive Pneumococcal Diseases After Stem Cell Transplantation: Unmet need in Current vaccination

Department of Internal Medicine, College of Medicine, The Catholic University of Korea, Seoul, Korea

*Hyonsoo Joo, Sung-Yeon Cho, Dong-Gun Lee

Invasive pneumococcal disease (IPD), defined as isolation Streptococcus pneumoniae from a sterile site such as blood, cerebrospinal fluid, or pleural fluid, is still one of the important causes of morbidity and mortality after stem cell transplantation (SCT). The current guidelines recommend to initiate pneumococcal vaccination from 3 - 6 months after SCT with three doses of 13-valent pneumococcal conjugate vaccine (PCV13) in at least 1 month interval, followed by a dose of 23-valent pneumococcal polysaccharide vaccine or PCV13, depending on the chronic graft-versus-host disease (GVHD) status. However, we recently experienced 2 fatal IPD cases, developed despite post-SCT pneumococcal vaccination. A 62-year-old male with acute myeloid leukemia (AML) was transferred to the emergency department due to drowsymentality with fever, in an intubated state. He underwent allogeneic SCT 11 months ago, and received immunosuppressive agents due to chronic GVHD. After 9 months from SCT, he received 2 times of PCV13 in 2 months interval. After the initial evaluation, pneumonia was noted and blood culture revealed the presumptive growth of gram positive cocci (GPC), which was finally identified as S. pneumoniae. Although susceptible antibiotics were administered, he expired due to breakthrough carbapenem-resistant Acinetobacter baumannii bacteremia and intracranial hemorrhage 17 days after hospitalization. A 27-year-old female with chronic myeloid leukemia (CML) who underwent allogeneic SCT developed fever with shock. This patient had PCV13 four times after SCT since she had chronic GVHD with immunosuppressive agents. Despite early initiation of empirical antibiotics and proper management for septic shock, she was expired 33 hours later. S. pneumoniae was isolated from blood cultures. We performed multiplex PCR for S. pneumoniae serotyping of these two clinical isolates. These isolates were confirmed as non-vaccine type S. pneumoniae 15A and 10A, respectively. Clinicians should be aware that fatal IPD can be developed by non-vaccine type strain, even in patient who received scheduled pneumococcal vaccination after SCT. Therefore, we report these two fatal cases of IPD developed in SCT recipients.

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Fatal Clostridium difficile colitis without diarrhea related to fecal impaction

Department of Internal Medicine, Chonbuk National University Medical School, Jeonju, Korea

*Keon Cheol Lee, Chang-Seop Lee, Jeong-Hwan Hwang

The clinical presentation of Clostridium difficile infection (CDI) is variable and includes diarrhea, colitis without pseudomembrane, pseudomembranous colitis, and fulminant colitis. On rare occasions, diarrhea may be absent in severe CDI. We describe a case diagnosed with fatal CDI associated with fecal impaction without diarrhea. A 71-year-old woman was admitted to our emergency room (ER) with a 3-day history of abdominal pain and distention. Before admission to our ER, intravenous cefepime and levofloxacin were administered during 8 days because of pneumonia in other hospital. The pneumonia resolved, but she complained constipation and abdominal discomfort about 5 days after the beginning of antibiotics. On arrival to our ER, abdomen was soft and distended, with decreased bowel sound and tenderness over whole abdomen. Abdominal X-ray showed fecal impaction and ileus (Fig. 1A). Laboratory studies as follows: white blood cell, 56,500/mm^3; platelet count, 552,000/mm^3; albumin, 2.8 g/dL; blood urea nitrogen, 54 mg/dL; creatinine, 2.4 mg/dL; C-reactive protein, 210 mg/L; and procalcitonin, 17.3 ng/mL. Computed tomography (CT) without enhancement was performed, and the result revealed the diffuse wall thickening of large intestine as well as fecal material throughout colon suggestive of fecal impaction (Fig. 1B).Antibiotics were changed to intravenous vancomycin and meropenem. Levin tube was kept inserted and sigmoidoscopy for endoscopic decompression was conducted. There were no abnormal findings other than fecal material. On hospital day 5, no strain was yielded from initial and follow-up blood, urine and sputum cultures. Sigmoidoscopy was done to decompress abdominal distention again.Variable sized yellowish plaques with erythematous and edematous mucosa were observed accidentally, and pseudomembranous colitis was diagnosed (Fig. 2). We started oral vancomycin, intravenous metronidazole, and intravenous immunoglobulin immediately. On next day, however, the patient eventually expired.We recently encountered a fatal case of CDI presenting with fecal impaction in the absence of diarrhea and report this case herein. The clinicians should be aware that diarrhea may be absent in patients with severe CDI.