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Antibodies Gone Rogue: Autoimmunity Pairs With Antibiotic Allergy

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Title: Antibodies Gone Rogue: Autoimmunity Pairs With Antibiotic Allergy

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Background: Autoimmune autonomic ganglionopathy (AAG) is a rare and complex disorder marked by severe dysautonomia, profoundly affecting a patient's quality of life. Treatment typically involves immunoglobulin (IVIG) infusions, which play a critical role in managing symptoms and improving patient outcomes. Managing AAG alongside acute infections such as cystitis, especially in patients with complicated drug allergies and sensitivities, presents unique clinical challenges. This case is noteworthy due to the patient's rare combination of autoimmune autonomic ganglionopathy, chronic orthostatic hypotension, and a history of severe allergic reactions to antibiotics, complicating both infection management and treatment planning. The use of immunoglobulins in the context of acute cystitis with extended-spectrum beta-lactamase (ESBL) bacteria, combined with severe drug allergies, offers valuable insights for similar future cases.

Case Presentation: A 51-year-old female with a history of autoimmune dysautonomia presented with recurrent syncope, chronic orthostatic hypotension, congestive heart failure (CHF), hypothyroidism, post-traumatic stress disorder (PTSD), gastroesophageal reflux disease (GERD), and ESBL bacterial infections. She was diagnosed with a urinary tract infection (UTI) four days prior at an urgent care center, where she began ceftriaxone infusions. Although her symptoms of dysuria and fever initially improved, her urine culture subsequently tested positive for ESBL producing *E.coli*, necessitating referral for advanced care.

The patient has allergies to sulfa drugs and a history of anaphylaxis to imipenem. Given these sensitivities, an infectious disease consultation recommended transitioning from meropenem to a combination of ceftazidime and avibactam to treat her ESBL infection. A rash developed during meropenem administration, leading to its discontinuation. Benadryl was administered before ceftazidime/avibactam to prevent allergic reactions. The patient continued oral fosfomycin and received intravenous ceftazidime/avibactam (2.5 g in 100 ml) thrice daily for 14 days. Follow-up urine culture and analysis showed resolution of the cystitis, with negative results for protein, blood, nitrites, and leukocyte esterase.

In addition to treating the infection, the patient received immunoglobulin infusions over three days to manage her autoimmune autonomic ganglionopathy. Prior to these infusions, she was given an intravenous normal saline bolus and magnesium. Her condition of AAG, characterized by recurrent syncope, was closely monitored throughout her treatment.

Conclusions: This case illustrates the complexities of managing autoimmune autonomic ganglionopathy in conjunction with acute cystitis in a patient with significant drug allergies. The successful use of ceftazidime with avibactam after an adverse reaction to meropenem, combined with ongoing immunoglobulin therapy, emphasizes the importance of meticulous drug selection and patient monitoring. The resolution of ESBL-related cystitis and effective management of AAG symptoms underscore the need for personalized treatment plans and multidisciplinary care. This case offers important insights into managing patients with rare autoimmune conditions and severe drug allergies, potentially guiding future therapeutic strategies and improving clinical outcomes for similar patients.