

An Ampicillin Affliction

Story from the Front Lines:

A man in his 30s with no past medical history presented to urgent care with several days of fever and sore throat. Streptococcus and influenza testing were negative, but he was started on clindamycin with concern for early peritonsillar abscess. His fevers persisted, so he presented to an academic primary care clinic, where CT neck was ordered to evaluate for presence of this abscess. Initial read of the CT was positive for peritonsillar abscess, so he was sent to the emergency department (ED) for ENT evaluation and possible I&D. On attending radiologist overread, there was no presence of an abscess. The patient received a single dose of ampicillin-sulbactam IV in the ED and was discharged home.

Five days later, the patient returned to internal medicine clinic with persistent fevers and a new rash. The rash was maculopapular, pruritic, non-blanching, and involved the patient's torso, thighs, and face. Monospot testing was positive, and he was diagnosed with infectious mononucleosis. His LFT's were elevated to the 1000's and total bilirubin was greater than 4. While his liver function abnormalities began to trend down, his white count unfortunately continued to trend up to 29 while his rash became more confluent and bothersome.

Teachable Moment

This patient unnecessarily received IV antibiotics for viral pharyngitis while he was in the ED. The development of a rash following ampicillin administration in patients with infectious mononucleosis was first described in 1967 by B.M. Patel, a pediatrics resident at Boston Children's Hospital. His retrospective study was conducted on 38 patients with infectious mononucleosis; 100% of the patients that received ampicillin developed a maculopapular rash 5-8 days after the drug was started, while only 14% of patients receiving other penicillins and 9% of patients receiving no antibiotics developed a rash.¹ While the rash in this patient was not proven to be a result of the ampicillin, the time course and description of the rash are consistent with an ampicillin-associated rash, which is now a well-established phenomenon.

In 1981, Dr. Centor of the Medical College of Virginia noted that sore throat and odynophagia were very common presenting symptoms for adult patients to primary care and the ED. He also described the difficult nature of distinguishing a bacterial infection with Group A beta streptococcus versus viral pharyngitis. He created a model encompassing both positive culture for Group A beta streptococcus and positive guess for strep by resident, which included four components: tonsillar exudates, swollen anterior cervical lymph nodes, absence of cough, and history of fever. Patients with all four positive components had a 56% probability of positive culture; three components, 32%; 2 components, 15%; 1 component, 6.5%; and 0 components, 2.5%. Dr. Centor's model was later stratified for age and validated in several different studies.² It is now known as the Centor Score and is widely used in primary care and emergency department settings to identify patients that have a low probability of Group A beta streptococcal infection and reduce unnecessary antibiotic use.

Antibiotics continue to be one of the most commonly prescribed class of medications in the US, despite recent declining trends in percentage of antibiotic prescriptions following clinic visits. Studies have shown that respiratory conditions, most commonly acute respiratory tract infections, account for the majority of antibiotic prescriptions, including many for which antibiotics are rarely indicated. Respiratory tract infections have also been associated with high rates of broad-spectrum antibiotics, contributing to antibiotic resistance while rarely offering benefit for patients.³ It is important to remember that antibiotics are not benign medications, and their adverse effects contribute to many emergency department visits annually, for events that range from mild (rash, diarrhea) to more severe (life-threatening conditions such as Stevens-Johnson syndrome, C. difficile infection).⁴ Continued efforts with antibiotic stewardship are needed to reduce unnecessary antibiotic usage for common conditions, including acute upper respiratory tract infections, and also to narrow antibiotic therapy when clinically indicated.³

References

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