

Alternatives in Anaphylaxis: Cephalosporins and Side Chains

Approximately 10% of all patients in the United States report a penicillin allergy, but only 1% have a true penicillin allergy. Cephalosporins are often avoided in patients with penicillin allergies due to concerns for cross-reactivity resulting in the use of alternative antibiotics that are less effective, more toxic, broader spectrum, and more difficult to administer.¹ So, when it comes to using cephalosporins in penicillin allergic patients, is it a hard stop or full speed ahead?

What's the risk?

Penicillin allergy cross-reactivity rates with cephalosporins have been reported to be low (~2%) and are associated with beta-lactam side chain structure similarity.¹ Recently, a 2022 practice parameter on drug allergies was published with clear recommendations on the use of cephalosporins in patients with reported penicillin allergies. The recommendations are summarized in the figure below. These recommendations only apply to type 1 or IgE mediated reactions, and do NOT apply to patients with delayed hypersensitivity reactions such as severe cutaneous adverse reactions, serum sickness-like reactions, or organ-specific delayed reactions (e.g. interstitial nephritis, vasculitis, etc.).²

Figure 1. Cephalosporin use guidance in immediate penicillin hypersensitivity²

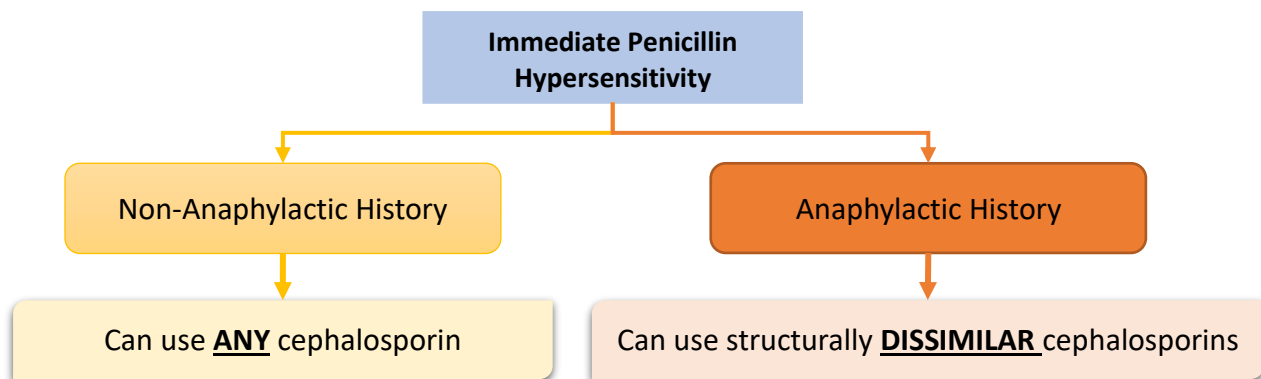


Table 1. Common penicillins & cephalosporins with similar side chains

Penicillin	Cephalosporins with similar side chains
Penicillin G ³	Cefoxitin, Cephaloridine
Amoxicillin ²	Cefadroxil, Cefprozil, Cefatrizine
Ampicillin ²	Cephalexin, Cefaclor, Cephadrine, Cephaloglycin

Cephalosporins commonly used in hospitals

Notably, cefazolin, ceftriaxone, and cefepime do not share side chains with any penicillin.²

Key Takeaway: Cefazolin, ceftriaxone, and cefepime can be administered normally to all patients with **immediate** penicillin hypersensitivity, **including anaphylaxis**. Any cephalosporin may be administered to a patient with a non-anaphylactic immediate penicillin hypersensitivity.

References:

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