

Session 3557
Interesting Cases II – Sunday, March 15, 2020

Case Report #1

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Case Title

Anaphylaxis to Azithromycin in a 4-year-old Female with Negative Skin Prick and Intradermal Skin Testing

Summary

A 4-year-old female developed pruritis and urticarial rash five days after starting her second treatment course of oral azithromycin. Upon evaluation in the allergy clinic, she had negative skin prick and intradermal testing for azithromycin. During 2-step graded oral challenge to azithromycin, she developed anaphylactic reaction requiring treatment with IM epinephrine. Her case illustrates that skin prick and intradermal skin testing may not predict immediate-type hypersensitivity and/or anaphylaxis to azithromycin.

Patient Presentation

A four-year-old female with a history of asthma and recurrent otitis media presented to allergy clinic with suspected azithromycin allergy. She had first received a five-day course of oral azithromycin (10 mg/kg/day on day 1, 5 mg/kg/day on days 2-5) for pneumonia which was her second course within one month. Five days after starting azithromycin, she developed diffuse pruritic urticarial rash without associated angioedema, respiratory, gastrointestinal, or systemic symptoms. Azithromycin was stopped, and she received oral prednisone of 1 mg/kg/day and second-generation antihistamine. The urticarial rash resolved spontaneously in three days.

The patient presented to the allergy clinic six months after the initial reaction for the evaluation of suspected azithromycin allergy. She had no history of other medication reactions or allergies. She had no history of anaphylaxis.

Diagnosis

As the patient had negative skin prick and intradermal testing with no history of anaphylaxis, she then underwent a two-step graded oral challenge to azithromycin (40 mg/ml) in allergy clinic on the same day as testing. She received the initial dose (50 mg, 2.7 mg/kg). She initially reported mild pruritis of the forearms but had no objective findings on physical exam. As the pruritis resolved within 30 minutes of the initial dose, it was decided to proceed with the second step. She received a second dose of 450 mg (24.3 mg/kg). She had no symptoms initially, but 45 minutes after the second dose, she reported feeling nauseated then vomited once. Three minutes later, she then developed facial pallor, diffuse pruritus and two urticarial patches (on the cheek and back of the neck).

Testing

The patient underwent skin prick testing and intradermal skin testing for azithromycin (stock concentration 2 mg/mL). Skin prick testing for azithromycin 0.01 mg/ml was negative (wheal/flare 0mm/0mm) at 20 minutes, with appropriately positive histamine control and negative saline control. Intradermal testing was also negative at 15 minutes for azithromycin 0.001 mg/ml (0.5 ml) and then 0.01 mg/ml (0.5ml), with negative saline control.

Treatment

Epinephrine 0.15 mg IM was administered immediately for acute anaphylaxis. Heart rate, blood pressure, and oxygen saturation were stable.

Patient Outcomes

Nausea, urticaria, and pruritis resolved within 5 minutes after epinephrine. She was monitored in the emergency room for 4 hours without further symptoms.

The patient was diagnosed with hypersensitivity to azithromycin. She was advised to avoid azithromycin strictly.

Lessons Learned

Our patient developed anaphylaxis upon the oral challenge to azithromycin in the setting of negative skin prick and intradermal testing. Allergic reactions to macrolide antibiotics are relatively rare. In one study, only 0.4-3% of children prescribed macrolides for sinopulmonary infections had reported macrolide allergy (3). Anaphylaxis to Azithromycin has been reported only in three children (no adults), all of whom had positive skin prick and intradermal testing (2). Skin testing to prove hypersensitivity to macrolides has not been validated, and the literature has confusing results about it (1).

Though our patient had no history of anaphylactic symptoms to prior azithromycin exposure, she nonetheless developed systemic symptoms requiring epinephrine, during her oral challenge. In our institution; we routinely perform graded challenge and drug provocation test (DPT) in the clinic for patients with negative history for systemic or anaphylactic symptoms on their prior allergen exposure. Patients with a history of anaphylaxis are stratified to a unit with a higher level of care for such challenges. Our case illustrates the limitations of such a strategy.