



Clinical Update

For Telephone Triage Nurses

July—August 2011

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- Amoxicillin Rash

Acetaminophen

Formulations: FDA Change (May 2011)
Going forward, drug manufacturers will only produce acetaminophen in one concentration: 160 mg per 5 ml.
Reason: having 3 concentrations has caused confusion and some poisonings.
However, parents will still be calling us with questions about dosing for the 80 mg per 0.8 ml product that they already have in the home. So for now, we won't be deleting infant drops from our dosage tables.

Delayed Skin Rashes in Children While Taking an Antibiotic

Amoxicillin and Augmentin are the most commonly used antibiotics in pediatrics. While taking them, 5 to 10% of children develop a skin rash. Parents are always worried about a drug allergy. Physicians don't always agree about how to manage these cases. For maculopapular rashes, we have always reassured the parents that the rash was non-allergic and would be transient.

We suggested that the antibiotic could safely be continued, based upon earlier research (Kerns 1973). If the rash sounded like hives, we suggested that the caller stop the antibiotic and have the child evaluated within 24 hours. Newer research (Caubet 2011) also supports this approach.

Ampicillin and Skin Rashes — Older Research (Kerns 1973)

- ◆ *Rash reported:* Widespread pink spots in a symmetrical pattern.
- ◆ The spots are small and flat (macules); less commonly slightly raised (papules)
- ◆ *Onset of rash:* day 5 to 7 from the start of the ampicillin (range of 1 to 16 days)
- ◆ *Location:* Always involves the trunk. Spreads to the face in 60% and the extremities in 70%
- ◆ Doesn't look like welts (hives) which are always raised. Also doesn't move around like hives (amoxicillin rash is a fixed rash)
- ◆ Rash is non-itchy or mildly itchy
- ◆ *Duration of rash:* 3 days average (range: 1-6 days)
- ◆ *Penicillin skin tests:* all negative
- ◆ *Later re-challenge with same drug:* 95% did not develop any rash



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Antibiotics and Skin Rashes — New Research (Caubet 2011)

- ◆ *Importance:* First prospective study on rashes that occur while taking an oral antibiotic.
- ◆ *Patients:* 88 children with a delayed-onset rash while receiving a beta-lactam antibiotic were studied (49% amoxicillin, 39% Augmentin and 12% cephalosporins)
- ◆ *Age:* 6 months to 15 years (average 3.5 years)
- ◆ *Type of rash:* 53% urticaria and 47% maculopapular
- ◆ *Onset of rash:* Average 4.9 days.
- ◆ *Duration:* Average 3.8 days
- ◆ *Suspected cause of rash:* 66% had a viral trigger based on positive PCR or serum antibody testing. Enteroviruses were most common.
- ◆ *Study design:* An Oral Challenge Test (OCT) was performed under strict physician supervision with resuscitation backup. The patient received a standard oral dose of the antibiotic that was associated with the rash. Patients were then observed for 2 hours.
- ◆ *OCT results:* 93% had no rash or other reaction. 6.8% developed a skin rash (8.5% if initial rash was hives and 4.8% if not hives). Mean time of onset of rash was 9 hours. No patient had an anaphylactic reaction.
- ◆ *Study's conclusion:* Most rashes that occur while receiving amoxicillin et al are benign and relate to a viral infection. An OCT with the same antibiotic caused no rash in 93% of these children. Antibiotic allergies are greatly over-diagnosed.

Recommendation: DO NOT STOP AMOXICILLIN for RASHES that are NOT HIVES

- ◆ Reason: Stopping the amoxicillin conveys directly or indirectly to the parents that their child is allergic to the penicillin family of antibiotics.
- ◆ This limits the antibiotics available to help this patient in the future.
- ◆ There are safeguards in the guideline to recognize hives, serum sickness reactions, anaphylaxis, infectious mono, progressive rash, etc. and refer that subset of patients to be seen.
- ◆ Surprisingly, even 91% of patients with hives while on antibiotics had a non-reproducible, non-allergic rash. (Caubet 2011)
- ◆ Summary: Children should never be diagnosed with an antibiotic allergy over the telephone. However, a non-allergic rash can often be recognized over the telephone. If in doubt, the child can be seen. For children who develop hives, an oral challenge test under medical supervision can clarify if a true allergy to the antibiotic exists.

Best regards to all,

Barton Schmitt MD

References:

- ◆ Caubet J, Kaiser L, Lemaitre B, et al. The role of penicillin in benign skin rashes in childhood: a prospective study based on drug re-challenge. *J Allergy Clin Immunol* 2011;127:218-222.
- ◆ Kerns D, Shira JE, Go S, Summers RJ, et al. Ampicillin rash in children. Relationship to penicillin allergy and infectious mononucleosis. *Am J Dis Child.* 973; 125:187-190.

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