Journal Club

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2/08/2010
Allergy/Immunology

The Articles


Article 1

Diagnostic testing in suspected fluoroquinolone hypersensitivity.

Background

- Fluoroquinolones are widely used orally and parenterally for treatment of pneumonia, urinary tract infections and skin/soft tissue infections.
- Immediate and delayed hypersensitivity reactions to fluoroquinolones have been recognized relatively frequently in drug reaction reports.
- Skin prick and intradermal tests have been considered unreliable and only limited data exists for patch testing.

Study Objective

- Analyze the results of diagnostic testing in cases of clinically suspected fluoroquinolone induced immediate or delayed hypersensitivity.
- Evaluate the reliability of a diagnostic procedure including skin and oral challenge tests for definite identification of fluoroquinolone hypersensitivity.

Methods

- Patients referred to the allergy clinic from 2000-2008 with suggestive history of fluoroquinolone(FQ)-induced hypersensitivity reaction were retrospectively identified.
- Patients were categorized as immediate hypersensitivity or delayed hypersensitivity.
- Immediate hypersensitivity were graded according the anaphylaxis grading system as developed by Brown SG1.
- Patients treated with other medications (other antibiotics, NSAIDS) in addition to FQ were excluded.

Methods

• 94 (93%) patients were treated with oral FQ and 7 were treated with IV FQ prior to the hypersensitivity reaction.

• 25 (24.8%) were considered atopic (history of positive SPT to aeroallergens, atopic dermatitis, rhinitis, or asthma).

Methods

• A definite prior exposure to a FQ was identified in 41 patients.

• Basophil Activation Test (BAT) was performed in 4 patients that had anaphylaxis after oral challenge.

Results

| Table A. Doses for oral challenge tests with fluoroquinolones |
|-------------------|-------------------|-------------------|-------------------|
| Fluoroquinolone   | First             | Second            | Third             | Fourth            |
|                   | 0.05 mg           | 0.10 mg           | 0.25 mg           | 0.50 mg           |
| Ciprofloxacin     |                   |                   |                   |                   |
| Ofloxacin         |                   |                   |                   |                   |
| Levofloxacin      |                   |                   |                   |                   |
| Moxifloxacin      |                   |                   |                   |                   |

*Oral challenge performed >6 weeks after each patient’s hypersensitivity reaction.
Results

- Overall, 71 of 79 patients were determined not to have FQ hypersensitivity - 90%
- 8/79 were FQ hypersensitive – 10%
- 6/79 had immediate hypersensitivity to FQ – 7.6%
- 2/79 had delayed hypersensitivity to FQ – 2.5%

Summary/Analysis

- FQ hypersensitivity patients diagnosed by a physician based upon history were skin tested and patch tested then challenged orally leading to a high number of truly negatives and only a very few positive skin/patch tests.
- History alone is a poor indicator of FQ hypersensitivity
- Temporal relationship between possible urticaria or exanthem from a viral infection (ex. URI) and treatment with FQ can lead to overt/misdiagnosis of hypersensitivity
- There may have been other medications given that were not documented such as NSAIDS that could have caused a rash.
- Skin tests have to carefully interpreted and can yield unreliable results
- Oral challenge is the only definitive way to diagnose or exclude FQ hypersensitivity

Strengths

- All skin tests and patch tested patients were followed with an oral challenge prospectively
- All patients with concomitant use of other medications (Abx, NSAIDS) were excluded
- A negative skin test or patch test result can be useful
- No conflicts of interest and no outside funding

Weaknesses

- Patients identified retrospectively
- Very few patients were actually positive on skin tests and oral challenge. None were positive by patch testing
- Little explanation of how and why the intradermal testing was abandoned
- Patch testing performed in different manner (removed after 24 hours rather than 48 hours)
- Oral challenge performed on a linear increase rather than logarithmic
- Poorly written with poor organization
Confusing

- All pts with FDE and DRESS were excluded from oral challenge yet they were patch tested
- The methods states that all delayed hypersensitivity reaction pts would have patch testing and then skin prick test beside each Finn-chamber but no further elaboration and one assumes that it must have been negative
- Why was oral challenge performed in that manner?
- Poor or no explanation of why tryptase and BAT was mentioned or used in article

Questions

Conclusion

- Skin testing alone is not sufficient to identify fluoroquinolone hypersensitivity and on a risk-benefit assessment an oral challenge test may be offered.