Determining the Utility of Penicillin Allergy Skin Testing in Promoting Antibiotic Stewardship in Elective Surgery Patients With a Documented Beta-Lactam Allergy

Natalie Johnson, Pharm.D. 1, Katie Burenheide, MS, Pharm.D., BCPS, FCCM1, Jo Ann Harris, M.D.2
1Pharmacy Department, 2Pediatric Infectious Disease Division, Stormont-Vail HealthCare, Topeka Kansas

INTRODUCTION

- Perioperative antibiotic selection is a critical aspect of infection prevention for patients undergoing surgical procedures.
- Guidelines are in place to aid in the selection of appropriate agents for each type of procedure, based on the most likely pathogen.1
- Current guidelines advocate for the use of a cephalosporin antibiotic as a first line agent for most surgical procedures.2
- In the event that a patient has a true allergy to a first line agent, an alternative agent such as vancomycin or clindamycin are recommended.1
- While approximately 10% of the population reports having a penicillin allergy, it is estimated that only about 0.01% of the population has a true penicillin allergy.2
- Penicillin allergy skin testing may be a useful screening tool to support antibiotic stewardship initiatives as a means to limit unnecessary vancomycin and clindamycin use in the perioperative setting.
- Approximately 97%-99% of patients who have a negative penicillin skin test can tolerate penicillin without an immediate type hypersensitivity.2,3

OBJECTIVES

Primary
- To determine the impact of penicillin allergy skin testing on perioperative vancomycin use.
- To determine the influence of penicillin allergy skin testing on clindamycin usage in the perioperative setting.

Secondary
- To determine the impact of penicillin allergy skin testing on perioperative clindamycin use.

RESULTS AND DISCUSSION

Phase 1: Study Design
- Retrospective medical record evaluation using vancomycin and clindamycin to assess appropriateness of use.
- Patients were identified through a computer generated report from the EPIC electronic medical record system.
- Study Population: Elective surgery patients who received vancomycin or clindamycin perioperatively
- Study Period: 5/1/2013 - 6/30/2013
- Study Location: Stormont-Vail Hospital, Topeka, KS
- A manual chart review was performed and the following data were collected: gender, age, beta-lactam allergy history, previous antibiotic use, history of MRSA infection. 0
- Descriptive statistics were utilized to assess results of Phase 1 of this study.
- The results of this evaluation will be utilized as a benchmark for the prospective data collection in Phase 2.

Primary Objective

- Overuse of vancomycin is a contributing factor to the development of resistant organisms; it is imperative that we curtail the use of such agents through antibiotic stewardship measures.

Table 1. Breakdown of Patient Population

| Inclusion Criteria | Number of Patients
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Minimum age &gt; 18</td>
<td>146</td>
</tr>
<tr>
<td>Not pregnant</td>
<td>144</td>
</tr>
<tr>
<td>Undergoing a scheduled elective surgical procedure (non-emergent)</td>
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Exclusion Criteria

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Inclusion and Exclusion Criteria

Inclusion:
- Patients ≥ 18 years of age
- Not pregnant
- Undergoing a scheduled elective surgical procedure (non-emergent)

Exclusion:
- Patients did not meet inclusion criteria

LIMITATIONS

Phase 1
- Retrospective design and single center population.
- Inability to assess length of time since an anaphylactic reaction to beta-lactam antibiotic occurred, potentially understating the utility in patients where a severe reaction occurred greater than 5 years prior.
- Inability to standardize beta-lactam allergy reporting in the electronic patient record.
- This study was unable to assess prior antibiotic use outside of the Stormont-Vail electronic medical records.

CONCLUSIONS

- Penicillin allergy skin testing may prove to be a viable option in supporting guideline adherence and antibiotic stewardship efforts in the reduction of perioperative vancomycin and clindamycin use.
- The true impact of penicillin allergy skin testing in this population will be prospectively evaluated in Phase 2.

FUTURE PLANS

Phase 2
- Penicillin allergy skin testing will begin in December of 2013 at Stormont-Vail Hospital in elective surgery patients.
- Data will be collected prospectively to assess the true impact of penicillin allergy skin testing on the use of second line prophylactic antibiotic use in the perioperative setting.
- Pending results of Phase 2 in the outlined population, the use of penicillin allergy skin testing in other populations at Stormont-Vail Hospital will be explored.

DISCLOSURE

- Nothing to disclose in the subject matter of this presentation.
- The true impact of penicillin allergy skin testing in this population will be prospectively evaluated in Phase 2.