1786. Safety, Efficacy, and Clinical Impact of Penicillin Allergy Skin Testing in Immunocompromised Cancer Patients at a Comprehensive Cancer Center

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Background. Patients reporting penicillin (PCN) allergies often receive alternative antibiotic therapy associated with significant health and economic disadvantages. The use of penicillin allergy skin testing (PST) to rule out PCN allergies is safe and effective in immunocompetent patients, yet data in immunocompromised patients are limited.

Methods. A quality improvement process using PST to clarify PCN allergies and guide antibiotic therapy was implemented at MD Anderson Cancer Center (April–October 2017). Patients admitted to Leukemia and Genitourinary Medical Oncology (GUMO) services with a history of Type 1 reactions to PCN were eligible.

Results. A total of 218 consecutive patients with reported PCN allergies were screened; 100 met inclusion criteria, were consented, and underwent PST (67 Leukemia, 33 GUMO). Sixty-one percent of tested patients reported cutaneous reactions, and 79% reported reactions >20 years ago. The most common reported allergy was to penicillin V/G (64%). Forty-eight percent were on steroids and 49% were on immunosuppresive therapy at the time of PST. For leukemia patients the median absolute neutrophil count was 0.78 (0–64.88 K/μL) and absolute lymphocyte count was 0.81 (0–116.71 K/μL). Ninety-five percent patients tested negative for PCN allergy and 4% were positive (three Leukemia, one GUMO). One test was indeterminate (negative histamine control). After PST, 25 of 67 (37%) patients receiving antibiotic therapy were changed to PCN-based antibiotics (PBA) (Figure 1). During the follow-up period (median: 177; range: 3–316 days), 65 patients who tested negative were readmitted (total 185 readmissions) and PBAs were prescribed in 58 of those readmissions (Figure 2). The most common indications for PBAs included neutropenic fever, pneumonia, and bacteremia. No patients given PBAs after negative PST experienced allergic reactions.

Conclusion. PST is safe and effective to rule out PCN allergies in immunocompromised patients, with 95% of patients testing negative for PCN allergy, suggesting that patient-reported allergy is unreliable. The rate of negative tests is comparable to data in immunocompetent patients. The use of PST in cancer patients allows for optimization of antimicrobial therapy and stewardship, which is vital in this patient population at increased risk for infections and infectious complications.

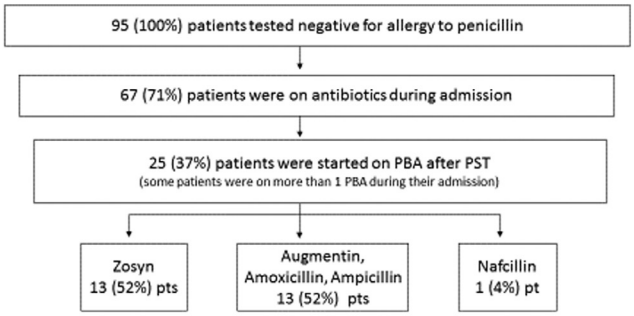

FIG. 1 PST admission: Antibiotic changes after PST. Abbreviations: PBA, penicillin-based antibiotics; PST, penicillin skin testing.

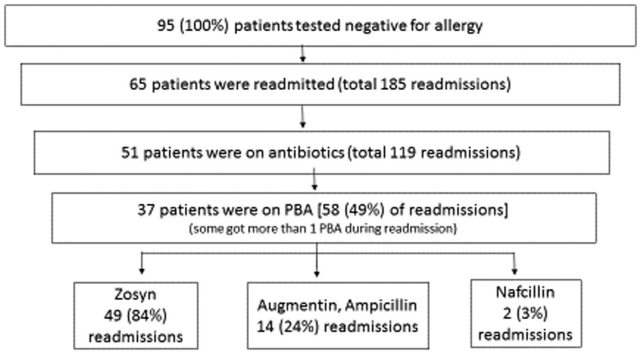

FIG. 2 PST readmissions: PBA prescribed on readmissions.

Disclosures. **M. Taremi**, ALK-Abello: Educational grant recipient, Educational grant.

1787. The Safety and Efficacy of an Oral Penicillin Rechallenge Program in Cancer Patients: A Pilot Multicenter Study

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Background. Patient-reported antibiotic allergies (so-called antibiotic allergy labels [AALs]) are found in one in four cancer patients and significantly impact patient outcomes. Whilst 85% of AALs can be removed by skin testing, the role of simple point-of-care oral penicillin rechallenge in this cohort remains unknown. We report on a novel penicillin rechallenge program in cancer patients.

Methods. An oral penicillin rechallenge program was implemented at Austin Health (Melb, Aus) and Peter MacCallum Cancer Centre (Melb, Aus) on May 31, 2017. Patients were prospectively identified by Infectious Diseases and antimicrobial stewardship (AMS) services at both sites and reviewed by the conjoint Antibiotic Allergy Service for suitability as per the criteria outlined in Figure 1. Patients underwent supervised challenge with oral penicillin VK 250 mg or amoxicillin 250 mg, dependent on reported index allergy, and observed for 2-hours post. Patients were followed for up to 12 months post for adverse events and antibiotic usage.

Results. Twenty-nine patients underwent penicillin oral challenge between May 31, 2017 to April 30, 2018, 15 with cancer. Of those with cancer, 8 (53%) were male, median age 56 years (IQR 44, 67), 15 (100%) avoiding penicillin, and 7 (47%) penicillins and cephalosporins. The penicillin–amoxicillin AAL phenotypes were "rash" in 73% (11/15) and "unknown" in 27% (4/15). Patients were challenged with penicillin VK or amoxicillin, based on their reported penicillin allergy with no positive challenges or adverse events noted in those with (n = 15) and without (n = 14) cancer. In the follow-up period, 88% (14/16) patients that were prescribed antibiotics received a narrow-spectrum β-lactam.

Conclusion. A pilot penicillin oral rechallenge program was safe in cancer patients. This program serves as a future model for active "de-labelling" in carefully selected cancer patients, without formal allergy services, aiding AMS programs.

Figure 1. Selection algorithm for oral penicillin rechallenge program.

Disclosures. **All authors:** No reported disclosures.

1788. Cost-Effectiveness of Penicillin Skin Testing Among Patients With Methicillin-Sensitive *Staphylococcus aureus* Bacteremia and Reported Penicillin Allergy

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Session: 217. Antimicrobial Stewardship: Impact of Allergy
Saturday, October 6, 2018: 12:30 PM

Background. Methicillin sensitive *Staphylococcus aureus* (MSSA) bacteremia is a highly lethal infection; first-line therapy with a β-lactam, commonly cefazolin, provides a significant mortality benefit over the second-line therapy, vancomycin, which is often used in patients reporting β-lactam allergy.

Methods. We designed a simulation model of inpatients aged 55–75 years with MSSA bacteremia and a self-reported history of β-lactam allergy. The model adopted a US health-system perspective, a lifetime horizon, and a willingness-to-pay threshold of $100,000 per quality-adjusted life year (QALY). We compared routine care (vancomycin), history screening (questionnaire assessing anaphylaxis history), and bedside penicillin skin testing. Incremental cost-effectiveness ratio (ICER) was measured using 2017 US dollars per QALY. Baseline co-morbid states (diabetes, malignancy, and end-stage renal disease [ESRD] requiring dialysis) were also modeled. Future costs and benefits were discounted at 3% per year.