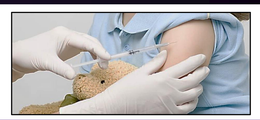
A Large Retrospective Analysis of Systemic Reactions Associated with Allergen Immunotherapy in 2019-2020

Omar Taha – M2 Student BSOM

Omar Taha
Brody School of Medicine
East Carolina University
Greenville, North Carolina 27858
Tahao18@students.ecu.edu



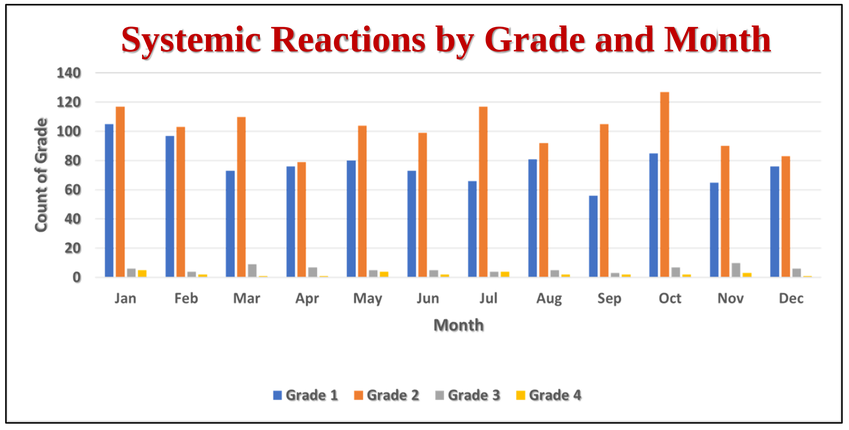
INTRODUCTION

Subcutaneous allergen immunotherapy (SCIT) is an allergy immunotherapy used to treat numerous allergic disorders, including allergic asthma, allergic rhinitis, allergic conjunctivitis, and stinging insect allergy/hypersensitivity[1,2,3]. Adverse reactions to SCIT range from local effects to systemic reactions (SR), including death. This work analyzes almost 4.2 million SCIT injections given at different Allergy Partners® locations, with 2325 SR, during 2019 and 2020. We aim to further quantify the rate of SR occurrences in recent years along with identifying possible risk factors involved for SCIT.

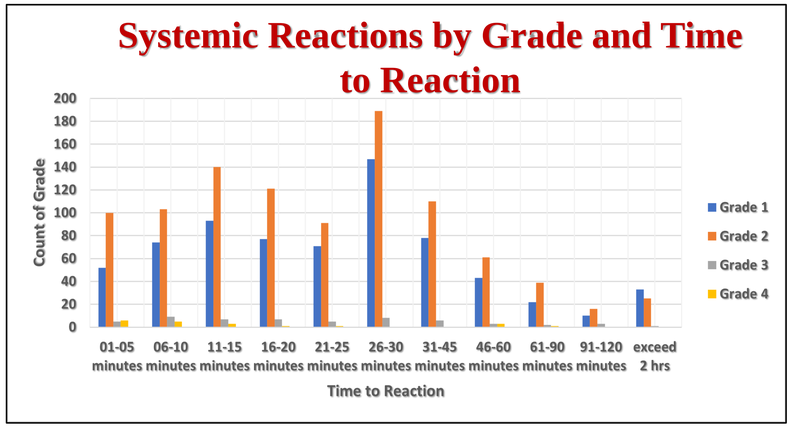
MATERIALS & METHODS

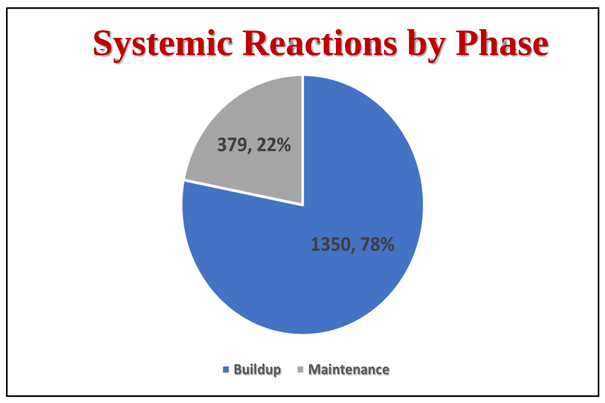
Providers at each Allergy Partners® were required to fill out a standardized EMR form to report SR. We used a Chi-square analysis to determine if the distribution of times until reaction, as well as grade, was the same across all groups of BMI, number of years on immunotherapy, phase, and schedule. We also described and quantified over 42 general variables, including the number of reactions requiring epinephrine, month of reaction, etc.

RESULTS



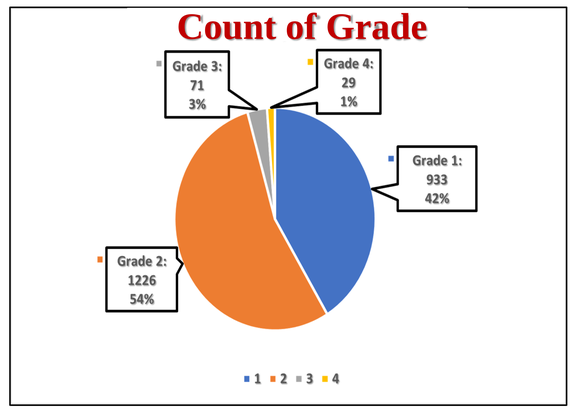
During the years of 2019 and 2020, there were 4,180,720 injections administered across all Allergy Partners® locations with an SR rate of 0.056% (n=2,325). Majority of reactions were grade 1 (n=933, 41.3%) and grade 2 (n=1,226, 54.3%). Only 3.1% of patients were characterized as grade 3 (n=71) and 1.3% as grade 4 (n=29). Almost half of all SR required epinephrine use (n=1,019, 43.8%) Over half of all SR occurred within 30 minutes after SCIT (n=1,315, 58.2%). Only 6.7% (n=152) occurred after one hour and only 2.6% (n=59) occurred after two hours. All variables had a significant influence on the time to reaction. Despite this, there was no clear pattern for any except schedule. Patients on a rapid/cluster schedule tended to have delayed reactions. In respect to grade/severity, no variables had a significant influence.





DISCUSSION

Over 50% of SR occurred within the first 30 minutes after SCIT, suggesting that current clinical guidelines for post SCIT monitoring are reasonable. Analyzed variables showed no clear pattern on time to reaction, except for schedule. There was also no significant effect on grade of reaction, suggesting clinicians seek other variables to predict the most severe reactions.



ACKNOWLEDGEMENTS

I would like to thank Dr. Brewer and Dr. Hannan of the Summer Scholars Research Program for giving me the opportunity to have this research training, teaching, and mentorship throughout the course and for the opportunity to present. Thank you to the Brody School of Medicine Medical Student Scholarship Forum for organizing this event.

REFERENCES

1. Cox L, Nelson H, Lockey R, Calabria C, Chacko T, Finegold I, Nelson M, Weber R, Bernstein DI, Blessing-Moore J, Khan DA, Lang DM, Nicklas RA, Oppenheimer J, Portnoy JM, Randolph C, Schuller DE, Spector SL, Tilles S, Wallace D. Allergen immunotherapy: a practice parameter third update.2. Epstein TG, Liss GM, Murphy-Berendts K, Bernstein DI. AAAAI/ACAAI surveillance study of subcutaneous immunotherapy, years 2008-2012: an update on fatal and nonfatal systemic allergic reactions.
3. Cox, L., Aaronson, D., Casale, T. B., Honsinger, R., & Weber, R. (2013). Allergy immunotherapy safety: location matters! The journal of allergy and clinical immunology.