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Title: Prevalence and Risk Factors for Pediatric Allergic Rhinitis in Korea
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Purpose: As a multifactorial disease, Allergic rhinitis (AR) has been investigated around the world to find both genetic and environmental risk factors. As a preventive modality of AR, the environmental factors have been extensively studied, but remained up for debate. All of these reports are based on Western countries, which are quite different than Asian countries in terms of cultures and environments.

Methods: A bi-seasonal, winter and summer, survey was conducted in 2 elementary schools in Korea. Survey questionnaire included medical and social histories of participants and their parents, quality of life, infant and early-childhood history, and current living styles. Skin prick tests and endoscopic examinations were conducted on all participants.

Results: Total 1,020 children were included and the prevalence of AR was 35.1%. The multivariate analysis of risk factors concluded 6 factors for AR: male gender (OR = 2.10; 95% CI = 1.32 to 3.33), older age (1.65; 1.03 to 2.65), previous history of allergic conjunctivitis (14.3; 4.99 – 40.7), asthma (2.73; 0.96 to 7.76) and pneumonia (0.39; 0.19 to 0.82) and an hour increase in daily playing time (0.90; 0.80 to 1.00). Additionally, nasal endoscopy showed that pale mucosa, mucosal swelling and watery discharge are closely related with AR.

Conclusions: This study confirmed the previously known risk factors of AR, male gender, previous history of atopic disease, and parental AR in Korean elementary children. The lack of pneumonia history and short playing time are newly found risk factors to the Korean pediatric AR.

The nasal nitric oxide response to external acoustic stimulation: Sampling dynamics
Dennis Shusterman, MD, MPH

Background: The paranasal sinuses serve as a reservoir of nitric oxide (NO), contributing to nasal baseline NO (nNO) levels. nNO has also been shown to increase transiently with humming, a response that may be blunted in severe rhinosinusitis. To use this response as a screening test for OMC obstruction, however, would require procedural standardization. Here we evaluated the effect of varying sampling rates on the nNO response to external acoustic stimulation.

Methods: A subset (9 of 12) of our original study population (consisting of non-smoking, non-asthmatic volunteers with or without nasal symptoms [as reported at AAAAI, 2014]) underwent exhaled NO sampling, followed by negative pressure nasal NO sampling at three different sampling rates (1, 2, and 3 LPM). At each sampling rate, make-up air to the system.

Results: For all subjects combined, baseline (quiet) nNO increased monotonically with decreasing sampling rate (p < 0.0001). Despite substantial inter-individual variation, subjects, as a group, showed a transient increase in nNO with acoustic stimulation at all three sampling rates (p < 0.05 at 1 and 2 LPM; p < 0.01 at 3 LPM). The paranasal sinuses serve as a reservoir of nitric oxide (NO), contributing to nasal baseline NO (nNO) levels. nNO has also been shown to increase transiently with humming, a response that may be blunted in severe rhinosinusitis. To use this response as a screening test for OMC obstruction, however, would require procedural standardization. Here we evaluated the effect of varying sampling rates on the nNO response to external acoustic stimulation.

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Conclusions: Sampling rate and acoustic stimulation independently influence sampled nNO levels. Higher sampling rates yield baseline nNO levels, but more stable NO values. If validated clinically, this procedure could potentially serve as a screening test for OMC obstruction in sinusitis, with externally applied acoustic energy offering superior standardization relative to humming.

Influence of seasonal exposure to grass pollen on local and peripheral blood IgE repertoires in patients with allergic rhinitis
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BACKGROUND: Previous studies of immunoglobulin gene sequences in patients with allergic diseases using low-throughput Sanger sequencing have limited the analytic depth for characterization of IgE repertoires.

OBJECTIVES: We used a high-throughput, next-generation sequencing approach to characterize immunoglobulin heavy-chain gene (IGH) repertoires in patients with seasonal allergic rhinitis (AR) with the aim of better understanding the underlying disease mechanisms.

METHODS: IGH sequences in matched peripheral blood and nasal biopsy specimens from nonallergic healthy control subjects (n = 3) and patients with grass pollen-related AR taken in season (n = 3) or out of season (n = 4) were amplified and pyrosequenced on the 454 GS FLX+. System.

RESULTS: A total of 97,610 IGH (including 8,135 IgE) sequences were analyzed. Use of immunoglobulin heavy-chain variable region gene families 1 (IGHV1) and 5 (IGHV5) was higher in IgE clonotypic repertoires compared with other antibody classes independent of atopic status. IgE repertoires measured inside the grass pollen season were more diverse and more mutated (particularly in the biopsy specimens) and had more evidence of antigen-driven selection compared with those taken outside of the pollen season or from healthy control subjects. Clonal relatedness was observed for IgE between the blood and nasal biopsy specimens. Furthermore in patients with AR, but not healthy control subjects, we found clonal relatedness between IgE and IgG classes.

CONCLUSION: This is the first report that exploits next-generation sequencing to determine local and peripheral blood IgE repertoires in patients with respiratory allergic disease. We demonstrate that natural pollen exposure was associated with changes in IgE repertoires that were suggestive of ongoing germinal center reactions. Furthermore, these changes were more often apparent in nasal biopsy specimens compared with peripheral blood and in patients with AR compared with healthy control subjects.
Clinical Features of Rhinosporidium Seeberi: A Rare Granulomatous Nasal Infection

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Background: Rhinosporidium Seeberi is a Gram-positive, asexual, spore-forming fungus that infects humans, creating granulomatous, polypoid nasal masses. It is a cosmopolitan zoonosis found in various parts of the world, including the Indian subcontinent, Africa, and the Pacific islands. The infection is more common in young adults, particularly in southern India and Sri Lanka. It presents as a single or multiple polypoid mass in the nasal cavity, which can cause nasal obstruction, epistaxis, and respiratory symptoms. The diagnosis is often challenging due to the lack of specific clinical features and the need for special staining techniques to identify the spores.

Methods: A retrospective review of medical records of patients with Rhinosporidium Seeberi infection in a tertiary care hospital in India was conducted. The inclusion criteria were patients diagnosed with Rhinosporidium Seeberi between 2010 and 2020.

Results: A total of 50 patients were identified, with a male-to-female ratio of 3:1. The average age at diagnosis was 25 years. The most common symptoms were nasal obstruction (80%), epistaxis (60%), and nasal discharge (40%). The nasal cavity was the most common site of infection (92%). The diagnosis was made using histopathological examination and specific staining techniques. The most common treatment was surgical excision, followed by topical and systemic antifungal therapy in some cases.

Conclusions: Rhinosporidium Seeberi infection is a rare condition with a characteristic presentation in the nasal cavity. Early diagnosis and treatment are crucial to prevent complications. The effective management of this infection requires a multidisciplinary approach involving surgery, antifungal therapy, and supportive care.

Comparative Study of Spread and Mattress Suture Technique in Rhinoplasty

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Introduction: Rhinoplasty is a common plastic surgery potentially with some complications such as postoperative deformities and breathing problems. A humpy nose is among the main reasons for rhinoplasty. Nasal valve (the narrowest part of the nasal airway) collapse may be occurs after nasal hump removal. Spread graft is essential in this more than 3mm nasal hump removal. The value of this graft is unknown in patients with nasal hump smaller than 3mm. Mattress suture is another technique for widening the nasal valve angle.

Methods: Clinical trial study of patients who underwent rhinoplasty with two different techniques and comparison of their postoperative deformity and nasal valve patency by subjective (questionnaire) and objective (clinical examination, rhinomanometry and photography) methods before and after rhinoplasty from 2013-2014 with one year follow up in otolaryngology department of Shahid Sadoughi hospital in Yazd.

Results: In this study, 50 patients were enrolled. In spread graft group, 19 men (76%) and 6 women (24%) and in mattress suture group 17 men (68%) and 8 women (32%) participated. Statistically, nasal obstruction had no significant difference before and after rhinoplasty and no significant difference was observed between surgical techniques (P>0.05). Mild inverted V deformity was seen in 2 patients in spreader graft group.

Conclusion: In this study the result of nasal valve patency of two techniques were similar. Because of several considerations in spreader graft technique such as secondary deformities (supratip bulging) and needing to septolasty in this technique even in patients without septal deviation that causes longer surgical duration, excessive blood loss, it is recommended to use mattress suture in patients with nasal hump smaller than 3mm.
RESULTS
At each location the average, earliest and latest start and end dates, cumulative
made for missing data.

METHODS
Grass pollen counts from 2004 through 2013 were contributed by 23 pollen-
counting locations across the United States. Pollen was collected via Burkhardi or Rotorod
instruments and raw counts were converted to pollen grain concentration per cubic meter.
Season start and end were defined retrospectively as the dates when 2.5% and 97.5%,
respectively, of the cumulative total grass pollen had been collected. No corrections were
made for missing data.

RESULTS
At each location the average, earliest and latest start and end dates, cumulative
pollen concentration, and peak concentration were determined from the data. As expected, a
wide range was noted in season duration, and beginning and end dates among locations. At
individual locations the start of the grass pollen seasons varied from year to year with up to a
6-week range at some locations. Average grass pollen season varied from 52 days (Detroit,
MI) to 232 days (Georgetown, TX).

CONCLUSION
This analysis of recent patterns of grass pollen seasons across the continental
United States has revealed distinct differences in the profiles of local pollen seasons. For
allergy specialists, these data may provide assistance in determining a window of time when
pre-seasonal SLIT may be initiated.

Funding: Study was sponsored by Greer Laboratories

Quantification of the Distribution of Azelastine HCl/Fluticasone Propionate Nasal Spray in an
Anatomical Model of the Human Nasal Cavity

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INTRODUCTION
In vitro evaluations using an anatomical model of the human nasal cavity
quantified the distribution of azelastine HCl (AZ) and fluticasone propionate (FP) in a single
nasal spray (Dymista) compared to sequential sprays of marketed azelastine (Astenil) and
either Flonase or generic fluticasone.

METHODS
The cast was divided into four sections from anterior to posterior of the cast. A single
spray of AZ/FP (0.137 mL [137 mcg of azelastine/50 mcg of fluticasone propionate]) or
sequential single sprays of azelastine (0.137 mL) followed by generic fluticasone propionate
or Flonase nasal spray (0.100 mL) were manually actuated into the model. A vacuum (15
mL/min) was applied during actuation to simulate nasal inhalation. Following extraction from
the nasal cast, HPLC was used to quantify drug deposition on the different sections of the
cast. Each experiment was repeated three times.

RESULTS
A single spray of AZ/FP showed a uniform distribution of close to 100% of applied
drug within the nose/nasal valve and turbinate (first 2 sections of the cast); the average %
AZ was 61.4% in section 1 and 38.6% in section 2 and the average % FP was 65.4% and
34.6% in sections 1 and 2, respectively. In comparison, single sprays of the individual agents
showed uneven distribution of AZ and FP and a substantial amount of dripping from
sequential administration.

CONCLUSIONS
Application of AZ/FP in a single spray provided more uniform distribution and
greater retention in the nasal cavity than sequential sprays of the individual components,
potentially allowing for better local absorption of medication.

Funding: Study was sponsored by Meda Pharmaceuticals

Efficacy of Azelastine HCl and Fluticasone Propionate in a Single Nasal Spray (Dymista)
in the Treatment of Ocular Symptoms of Seasonal Allergic Rhinitis

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INTRODUCTION
The efficacy of azelastine HCl (AZ) and fluticasone propionate (FP) in a
single nasal spray (Dymista [AZ/FP]) for treating nasal symptoms of seasonal allergic rhinitis
(SAR) has been demonstrated in four well-controlled clinical trials of 2 weeks duration.1,2,3 A
post-hoc analysis from these studies compared the efficacy of AZ/FP to monotherapy with AZ
and FP and to placebo for the treatment of ocular symptoms of SAR.

METHODS
A total of 3996 patients 12 years and older with moderate-to-severe SAR were
included in the analyses. Patients were randomized to AZ/FP, AZ, FP or placebo nasal spray
administered 1 spray/nostril twice daily (total daily doses: AZ=548 mcg; FP=200 mcg). Ocular
symptoms (itchy eyes, watery eyes, eye redness) were scored twice daily on a 4-point scale
(0=none symptoms; 1=mild, 2=moderate, 3=severe). Treatment group comparisons of change
from baseline in rTOSS were made by analysis of covariance (ANCOVA). Time to response
(defined as a ≥50% change from baseline) was evaluated by log-rank test.

RESULTS
Patients treated with AZ/FP had significantly greater improvement from baseline in
rTOSS compared to AZ (P<0.048), FP (P<0.0001), and placebo (P<0.0001). Patients treated with
AZ/FP achieved a 50% reduction in rTOSS significantly sooner than patients treated with FP
(P<0.02) or placebo (P<0.001). The difference approached significance versus AZ (P<0.08).
When patients with baseline rTOSS ≥8 were analyzed (n=3341), significant differences were
seen compared to AZ (P<0.04), FP (P<0.01), and placebo (P<0.001).

CONCLUSIONS
In this population of patients with moderate-to-severe SAR, AZ/FP improved
ocular symptoms to a greater extent than AZ or FP alone.

Funding: Study was sponsored by Meda Pharmaceuticals