Future of Rhinology

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Learner Objectives

- After this presentation you should:
  - 1) Gain an overview of novel treatments for cystic fibrosis patients with chronic rhinosinusitis
  - 2) Become familiarized with long-term outcomes for radiofrequency bipolar device Vivaer for treatment of nasal airway obstruction
  - 3) Understand an emerging technique for immunotherapy

Cystic fibrosis chronic rhinosinusitis and modulator therapies

- Cystic fibrosis (CF) genetic condition caused by abnormality in the cystic fibrosis transmembrane conductance regular (CFTR)
- CFTR modulators function by enhancing production and function of CFTR
- A novel combination highly-effective CFTR modulator elexacaftor/tezacaftor/ivacaftor (ELX/TEZ/IVA) was approved in October 2019 for patients ≥12 years old with at least one F508del mutation, which represents over 85% of all CF patients

Cystic fibrosis chronic rhinosinusitis and modulator therapies

- The literature around the benefits of highly effective modulator therapy on sinonasal health and quality of life is evolving at a rapid pace
- Emerging evidence: CFTR modulator therapy for the isolated indication of CF-CRS

Cystic fibrosis chronic rhinosinusitis and modulator therapies

- Prospective cohort study demonstrated a significant improvement in individuals with CF with the G551D genotype receiving ivacaftor as assessed by the SNOT-20 questionnaire (McCormick J. Int Forum Allergy Rhinol. 2019)
- Prospective cohort study demonstrated a significant improvement in CRS symptoms, as measured by the SNOT-22, in individuals with CF taking elexacaftor/tezacaftor/ivacaftor triple-modulator therapy (DiMango E Int Forum Allergy Rhinol. 2021)
- Multidisciplinary CF care teams, consideration of potential toxicity and costs with the potential benefit

Radiofrequency treatment for nasal valve collapse

- Temperature-controlled radiofrequency (TCRF) treatment
  - Treatment of the nasal valve with a Vivaer device (Aerin Medical), which maintains treatment temperature at 60°C
  - Extended 48-month follow-up study
    - Initial study a 26 month prospective non-randomized, single-arm multicenter study with nasal valve collapse as source of obstruction

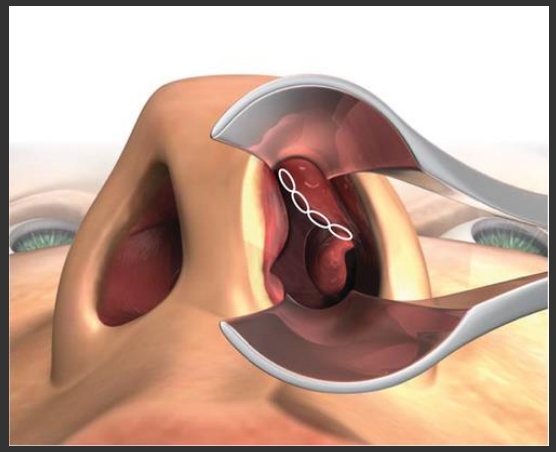
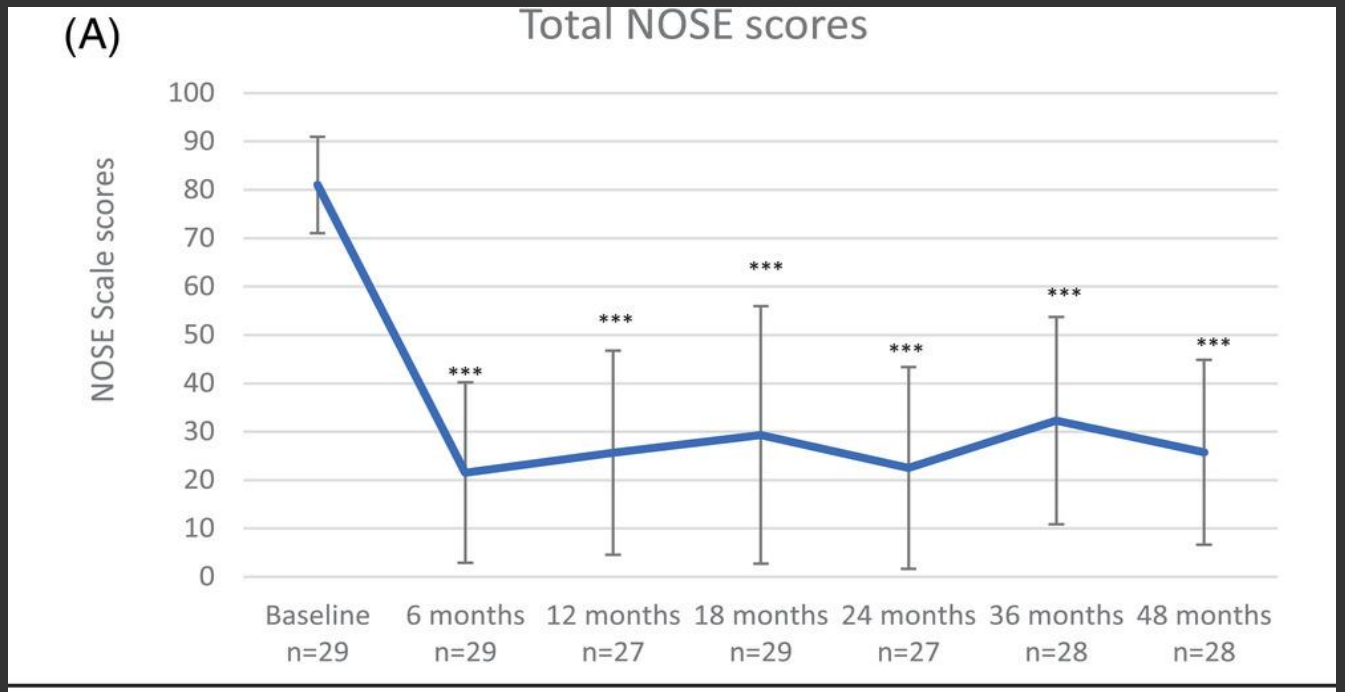
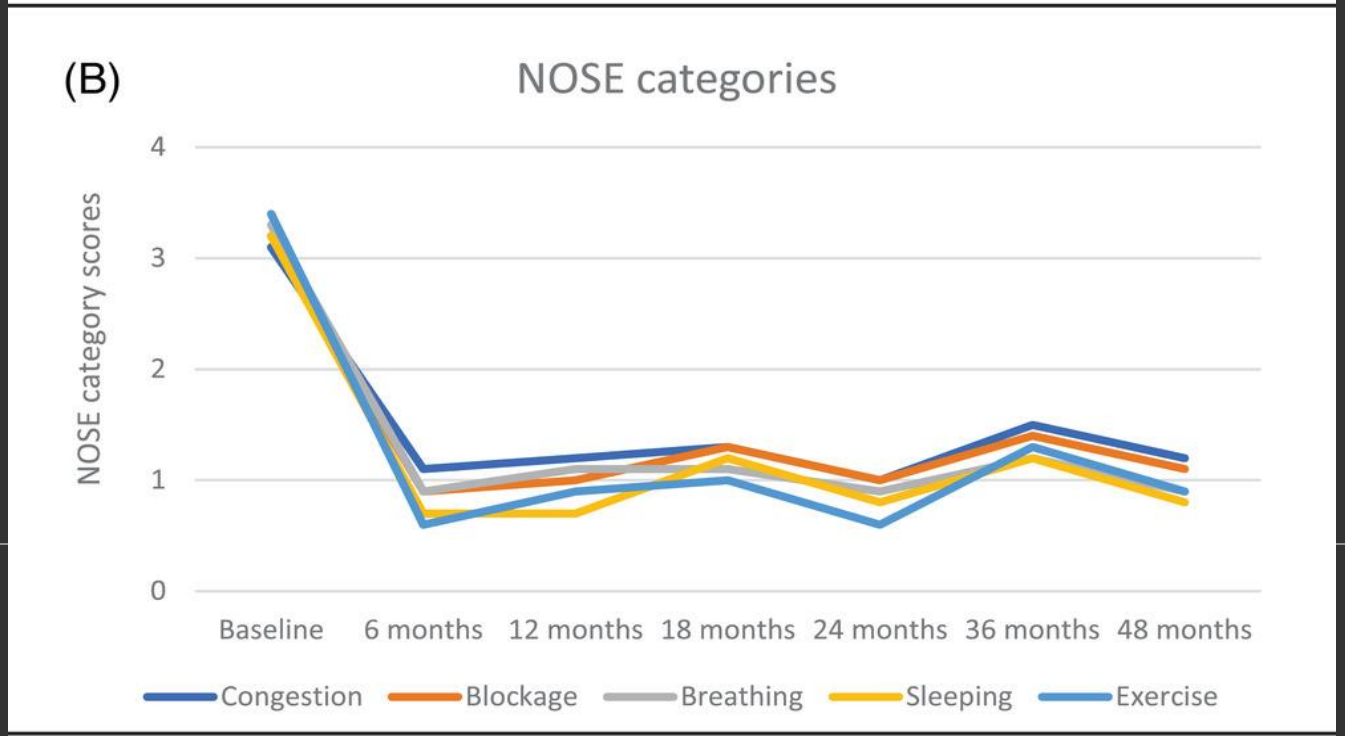


FIGURE 1 Silvers et al. .Int Forum Allergy Rhinol, 2021





- 49 pt initial study → 39 f/u through 24 months → 29 pt at 4 yrs
- NOSE scores 81 → 21 6 months and 26 at 4 years (68% change p <0.001)
- Limitations
  - No control of medication usage
  - Patient attrition

FIGURE 1.Int Forum Allergy Rhinol, 2022

MEDICAL COLLEGE OF WISCONSIN

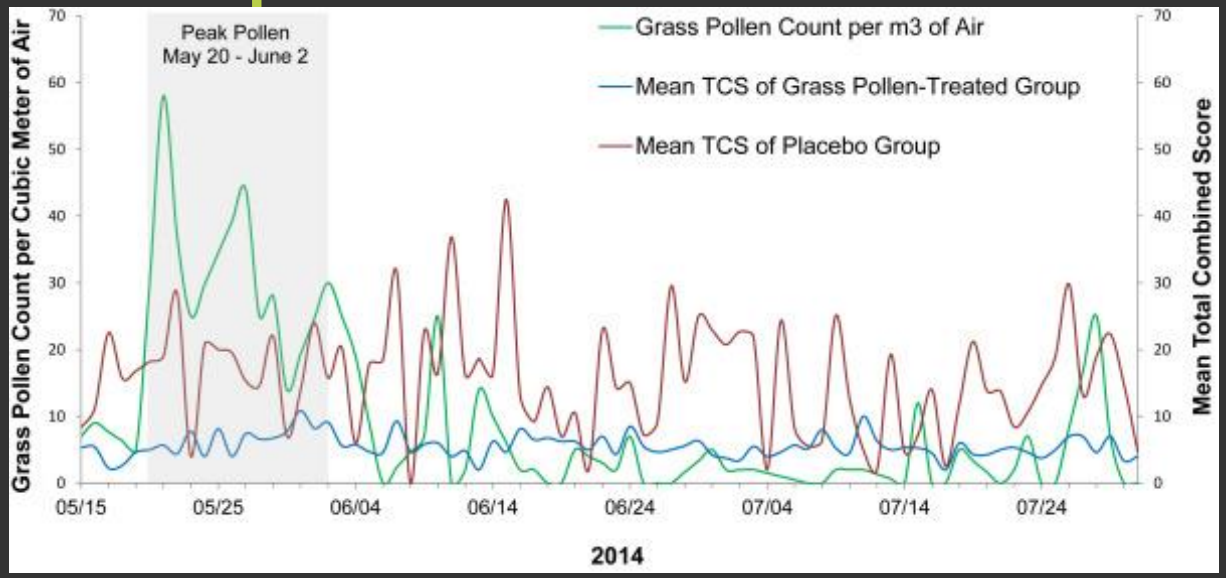
Novel specific immunotherapy

- FDA-approved subcutaneous immunotherapy (SCIT) and single antigen sublingual therapy
- Intralymphatic immunotherapy (ILIT)
  - Studies in European adults
  - Safer, less painful, decrease treatment time from 3-5 years to weeks
  - Allergen extract is injected into a lymph node using ultrasound guidance
  - Therapy is complete in 3 injections spaced 4 weeks apart

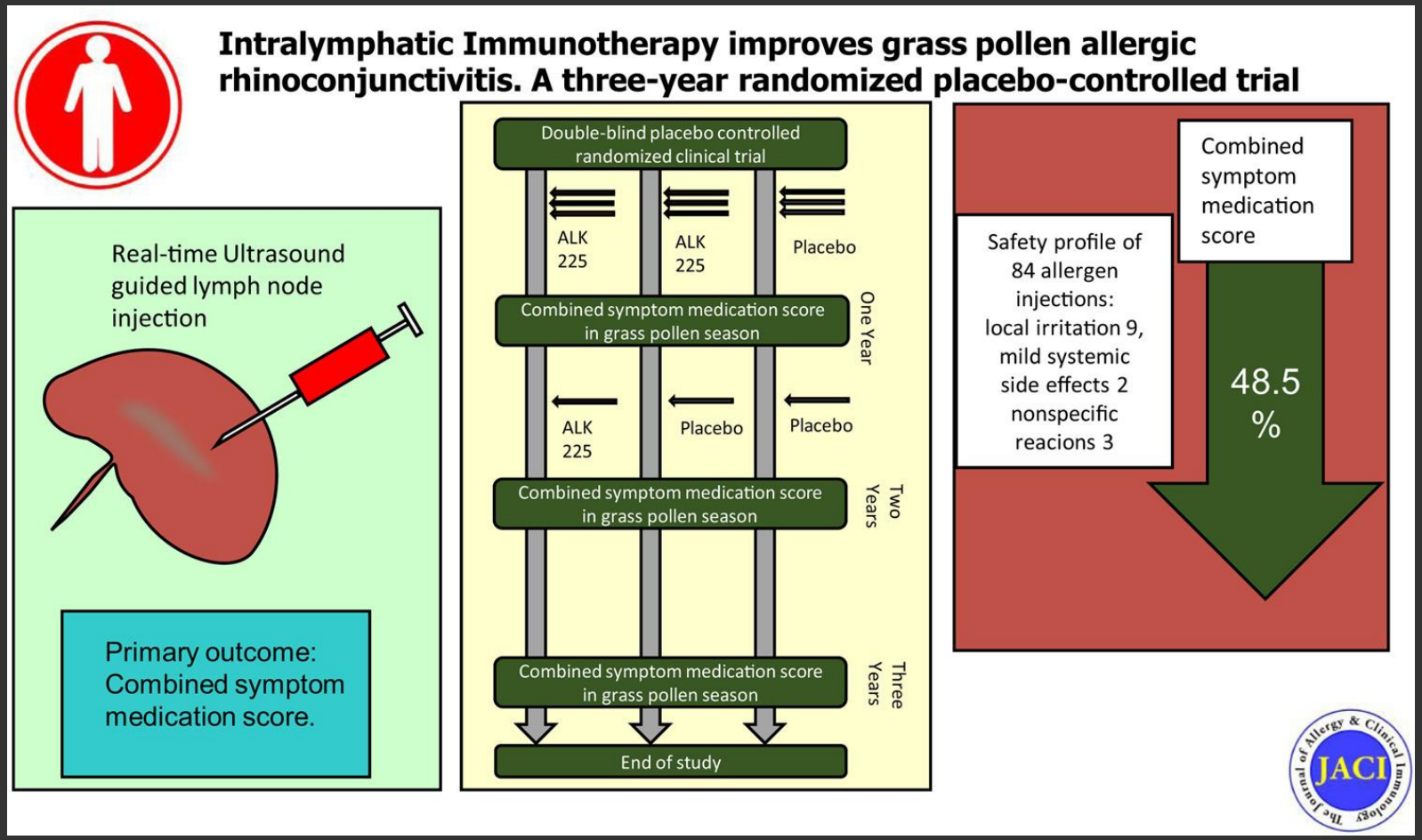
Novel specific immunotherapy

- Clinical trial to determine safety and efficacy of allergy immunotherapy for ILIT for grass pollen (Patterson. Annals of Allergy, Asthma, & Immunology. 2016.)
  - Randomized, double-blind
  - 15 patients, ages 15 to 24 years with allergic rhinoconjunctivitis and grass pollen sensitivity
  - Escalated-dose inguinal lymph node injections (500 PNU/mL 0.1, 0.2, 0.5 mL) in interventional radiology, 4 week intervals

Novel specific immunotherapy



- Outcomes:
  - Safety: local reactions were rare, no use of epinephrine
  - Efficacy: Symptom and medication scores lower in patients receiving ILIT



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