L58 Unmet Food Allergy Needs in Underrepresented Communities

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RATIONALE: Food allergies are often termed an "invisible disease," yet the challenges they present can be overwhelming, particularly among minoritized communities.

METHODS: To address these challenges, we hosted focus groups for Black/African American (B/AA) and Hispanic/Latino (H/L) communities from October to November 2023. Our goal was to uncover the unique unmet needs of these groups, focusing on culturally relevant educational resources.

RESULTS: Twelve patients and caregivers participated in the focus groups. Most participants were female (83%). Through semi-structured interviews, we conducted a thematic analysis of the transcripts, identifying interconnected themes specific to each community. Four common themes emerged: the need for food allergy education, understanding anaphylaxis responses, appropriate use of epinephrine, and the mental health impact of living with food allergies. Distinct themes surfaced for the B/AA community, including navigating food allergies in hair salons/barbershops, the importance of cultural competence, and the need for a specific food allergies dictionary. For the H/L community, themes revolved around the necessity of Spanish labels, managing food allergies during family gatherings, and making product substitutions in generational homes. Both communities emphasized the importance of educational materials delivered in written formats and via TikTok™, highlighting their preferred methods for accessing health information in English and Spanish. The insights gathered informed the co-creation of patient-facing webinars, TikTok™ campaigns, web content, and bilingual educational resources.

CONCLUSIONS: This initiative aims to empower patients and caregivers in both communities, addressing their specific educational needs and fostering a better understanding of food allergies.

L59 Mepolizumab Improves Patient-Reported Outcomes and Reduces Treatment Burden in Patients With Chronic Rhinosinusitis With Nasal Polyps: A Real-World Chart Review Study

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RATIONALE: Despite established clinical trial efficacy, real-world data on mepolizumab effectiveness in chronic rhinosinusitis with nasal polyps (CRSwNP) are limited. Here we evaluated mepolizumab on patient outcomes in real-world US patients.

METHODS: A retrospective chart review using a pre-/post-study design. Otolaryngologists or allergists/immunologists abstracted charts for adult patients with CRSwNP treated with mepolizumab (100mg) between 7/29/2021–4/30/2023 per label, with ≥12 months of medical records and ≥1 Sino-Nasal Outcome Test-22 (SNOT-22) patient-reported assessment before and after index (mepolizumab initiation date).

RESULTS: 64 physicians (38 allergists/immunologists; 26 otolaryngologists) provided data for 150 eligible patients (mean age: 44 years; 43% [65/150] female; 76%[114/150] white; median follow-up 20.6 months). Common comorbidities included allergic rhinitis (55%[83/150]) and asthma (51%[77/150], 87%[67/77] mild/moderate, 13%[10/77] severe). Approximately 15% (22/150) of patients discontinued mepolizumab, mainly due to symptom control/improvement with mepolizumab (77% [17/22]). Mean SNOT-22 score significantly improved post-mepolizumab, 61 pre- versus 28 overall post-mepolizumab (mean difference: -32 [95% CI:-35,-29],p<0.001). Furthermore, 89% of patients had a clinically significant improvement in SNOT-22 score post-mepolizumab (defined as a mean difference ≥−8.95 using lowest score post-mepolizumab). Oral corticosteroid (OCS) use significantly improved post-mepolizumab; 0.6 OCS treatments per patient per year (PPPY) pre- versus 0.3 post-mepolizumab (rate ratio 0.46 [95% CI:0.30-0.72],p<0.001); median OCS bursts significantly reduced (1 pre- vs 0 post-mepolizumab,p<0.001,[N=51]), and mean cumulative OCS dose (mg prednisone equivalent) significantly reduced/year (766 mg pre- vs 256 mg post-mepolizumab,p<0.001). Rate of surgical interventions PPPY descriptively improved (0.2 pre- vs 0.1 post-mepolizumab).

CONCLUSIONS: In real-world patients with CRSwNP, mepolizumab substantially improved SNOT-22 scores and treatment burden.

L60 Development of Pan-H5 Vaccines Against Avian Influenza Developed Using Computational Biology to Mitigate Future Pandemics

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RATIONALE: Preventing and mitigating future avian influenza (bird-flu) pandemics is a high public health priority. In 2024, human infections with diverse H5Nx clades were reported in the US and around the world, suggesting that a single whole inactivated vaccine (WIV) may not provide adequate protection. To address this, we utilized computational biology with rigorous high throughput testing to develop Pan-H5 vaccine antigens (DIOSynVax) delivered by mRNA and compared the breadth of immunogenicity to the current WIV H5N1 stockpiled vaccine strains.

METHODS: Mice were immunized with DIOSynVax pan-H5Nx mRNA on day 0 and day 21. For comparison controls, mice were also immunized with a H5 clade 1 WIV, and WIV clade 2.3.4.4b, individually and in combination on day 0. Serum neutralizing titers were monitored using pseudo type neutralization (pMN), enzyme-linked lectin assay (pELLA), and hemagglutination inhibition (HAI).

RESULTS: Broad and potent serum neutralization titers (IC50 ~10^3-10^4) were observed in mice vaccinated with DIOSynVax pan-H5Nx mRNA, demonstrating significant H5 interclade breadth. This vaccine also provided coverage against clades 2.3.4.4a, 2.3.4.4b, 2.3.4.4c, and 2.3.4.4h, which was not seen with WIV clade 1 or WIV clade 2.3.4.4b. Furthermore, DIOSynVax panH5Nx mRNA vaccine elicited neuraminidase inhibition titters against N1 from various species, surpassing the results from WIV clade 1 containing an N1 component.

CONCLUSIONS: DIOSynVax pan-H5Nx vaccine induced enhanced protective immune responses across a broad spectrum of H5 clades, compared to current WIV H5 stockpiled vaccines. DIOSynVax pan-H5Nx, developed through computational biology, should be considered an approach to protect from future avian influenza pandemics.