Dear Doctor,

Greetings from Micro Labs. We are happy to bring you "Allergy Newsletter" which contains latest and interesting news in the field of Allergy.

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Looking forward to your valuable feedback

Best Regards,
Medical Team, Micro Labs Ltd

Relationship Between Allergic Rhinitis and Chronic Rhinosinusitis in Children with IgA Vasculitis

Introduction

Immunoglobulin A vasculitis (IgAV), also known as Henoch-Schonlein purpura, is the most prevalent type of vasculitis in children. It is marked by skin bleeding due to the leakage of red blood cells into the skin or mucous membranes, which may occur because of damage to small blood vessels.[1] 20% to 80% of cases have renal involvement and significantly impacts long-term prognosis. The incidence of IgAV was estimated to be 3 to 27 cases per 100,000 children globally, with a higher prevalence in males and among children aged 4 to 7 years. Mucosal infections, particularly of the respiratory and intestinal tracts, are known triggers.[2] Previous cases have found patients with IgAV, are often accompanied by allergic rhinitis (AR), and/or chronic rhinosinusitis (CRS), suggesting that AR and/or CRS can be the triggers of IgAV. There was no related data on the correlation between AR, CRS, and IgAV. So, this study aimed to evaluate the relationships between IgAV, AR, and CRS.

Methods

This retrospective study included children hospitalized with IgAV. Clinical data were assessed including gender, age, manifestations, and the presence of AR and CRS. The patients were categorized into four groups: simple AR, simple CRS, AR combined with CRS, and non-AR/CRS. Statistical analyses were conducted to evaluate differences between groups and identify factors associated with renal involvement.

Results

Out of 552 hospitalized children, 504 children with IgAV were included for final analysis (272 males, 232 females; average age 8.6 ± 3.5 years). Clinical manifestations included abdominal pain in 231 cases (45.8%), arthritis in 310 cases (61.5%), renal involvement in 244 cases (48.4%), and recurrent rash in 187 cases (37.1%). About 357 (70.8%) cases of IgAV combined with AR or CRS, including 51 cases with simple AR, 70 with simple CRS, and 236 with AR + CRS. There were 147 children with non-AR or non-CRS. Statistical comparisons indicated that the incidence of renal involvement and recurrent rash was significantly higher in the AR + CRS group compared to the non-AR/CSR group (Figure 1). Logistic regression analysis identified age, abdominal pain, recurrent rash, simple AR, and AR with CRS as risk factors for renal involvement.

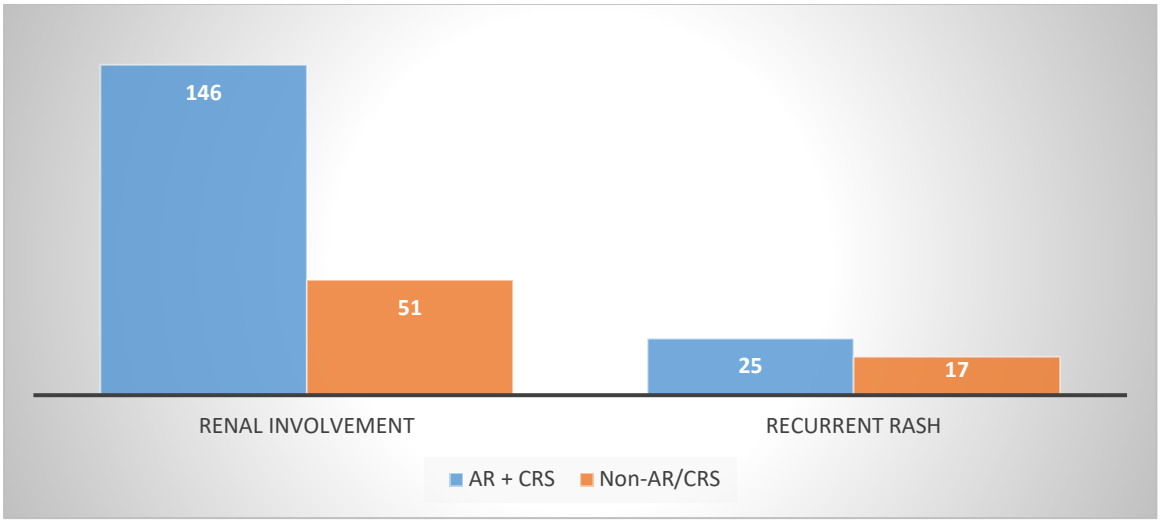

Figure 1. Comparison of IgAV between AR+CRS group and Non-AR/CRS group

Discussion

This study highlighted a significant association between AR, CRS, and IgAV, suggesting that both may act as triggers for this condition. Studies have reported that 90% of patients with IgAV develop symptoms of upper respiratory tract infection within 3 weeks before onset. The high prevalence of AR and CRS among children with IgAV indicates a potential link, with AR possibly increasing the risk of renal involvement and recurrent rashes.[2] The findings align with previous studies showing a connection between IgAV and AR and/or CRS, suggesting that AR and/or CRS may be the triggers of IgAV.[3] Furthermore, interventions targeting chronic infections may reduce renal complications and recurrence rates. Limitations include the absence of comparative trials to confirm these associations.[2]

Conclusion

Chronic rhinitis, particularly AR and CRS, may play a significant role in the pathogenesis of IgAV. The presence of these conditions appears to increase the risk of renal involvement and recurrent skin symptoms in affected children.

Allergic rhinitis may be a risk factor for renal involvement and recurrent rash in patients with Immunoglobulin A vasculitis.

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Effect of Circulating Interleukin-27 on the risk of Chronic Periodontitis and Allergic Rhinitis

Introduction

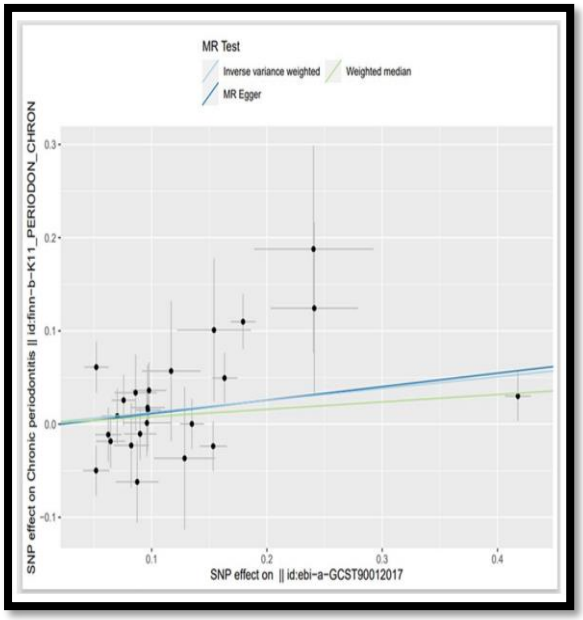
Interleukin-27 (IL-27) is a heterodimeric cytokine belonging to the IL-12 family. It was produced predominantly by dendritic cells, monocytes, and macrophages which influence immune responses by promoting the proliferation of CD4+ T cells and differentiating Th1 and Tr1 cells while inhibiting Th2, Th17, and Treg cells.[1] Chronic periodontitis (CP), an inflammatory condition characterized by gum bleeding, periodontal pocket formation, and alveolar bone loss, affects 45-50% of adults globally, with prevalence increasing significantly in older populations. Allergic rhinitis (AR) is another common condition triggered by allergens and mediated by specific IgE, causing symptoms like sneezing and nasal congestion. The relationship between IL-27 levels and both CP and AR is unclear, with some studies suggesting IL-27 promotes alveolar bone resorption in periodontitis, while others report reduced plasma IL-27 levels in CP patients.[2] So, this study aimed to analyse the causal effects of IL-27 on CP and AR using Mendelian randomization.

Methods

This was a Mendelian randomization analysis where summary statistics for IL-27 were derived from a genome-wide association study (GWAS) involving 21,758 individuals. For CP, data included 195,395 individuals, with specific diagnostic criteria. For AR, data encompassed 56,637 individuals. A bidirectional Mendelian randomization analysis was conducted using single nucleotide polymorphisms (SNPs) as instrumental variables. SNPs associated with IL-27 were identified, and analyses were performed using inverse variance weighting (IVW), weighted median (WM), and MR-Egger methods. Sensitivity analyses assessed heterogeneity and pleiotropy, ensuring robust findings.

Results

About 24 SNPs were associated with IL-27 when analysing CP, while 21 SNPs were associated with IL-27 when analysing AR. The IVW analysis indicated a causal effect of increased circulating IL-27 levels on higher CP risk (OR = 1.14, p = 0.020) (Figure 1) and a reduced risk for AR (OR = 0.88, p = 0.012) (Figure 2). Sensitivity analyses showed no significant heterogeneity or pleiotropy in these relationships. Reverse analyses found a causal effect of CP on IL-27 levels (OR = 1.05, p = 0.016), but no significant relationship was identified between AR and IL-27 (OR=0.97, p = 0.209).



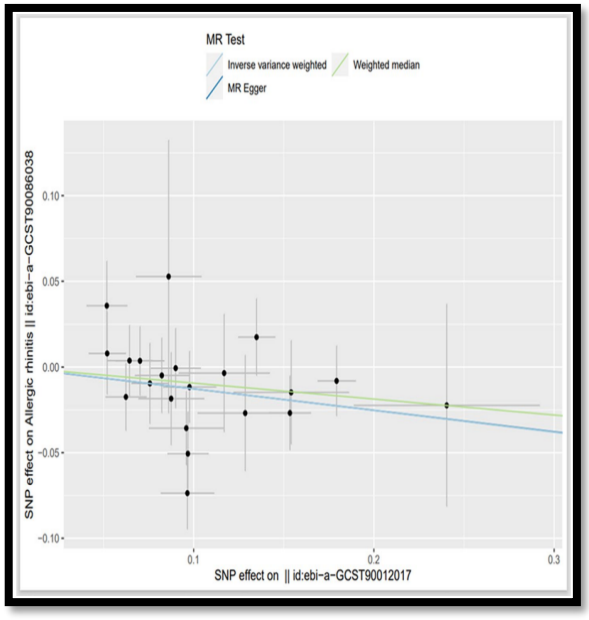


Figure 1. Scatter plot showing causal relationship between circulating interleukin-27 and chronic periodontitis	**Figure 2. Scatter plot showing causal relationship between circulating interleukin-27 and allergic rhinitis**

Discussion

This study findings provided novel insights into the role of IL-27 in the pathogenesis of CP and AR using a robust Mendelian randomization approach. Elevated levels of IL-27 were associated with increased susceptibility to CP, potentially through the promotion of Th1 responses that exacerbate periodontal tissue destruction. Conversely, higher IL-27 levels were associated with a decreased risk of AR, likely due to its inhibitory effects on Th2-mediated inflammation.[2] Previous studies have also demonstrated that IL-27 has been shown to inhibit the Th2 response in AR, thereby reducing the risk of AR.[3] The findings suggested a complex interplay between these conditions, emphasizing the need for further research on cytokine interactions in inflammatory processes. Although the study utilized a comprehensive genetic database, its limitations include a focus on European ancestry and the need for broader interleukin analysis.[2]

Conclusion

This study highlighted the critical role of circulating IL-27 levels in the pathogenesis of CP and AR, offering potential avenues for innovative diagnostic and therapeutic strategies in clinical practice.

Elevated levels of IL-27 were linked to an increased risk of chronic periodontitis and associated with a reduced risk of allergic rhinitis

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Relationships among Visual analog scales, Total nasal symptom scores, and Peak nasal inspiratory flow in Children with Perennial Allergic Rhinitis

Introduction

Allergic rhinitis (AR) is a prevalent allergic condition in children, with global prevalence rates of 8.5% in those aged 6–7 years and 14% in adolescents aged 13–14 years.[1] Effective treatment is essential to prevent complications such as sinusitis and otitis media. AR significantly impacts patients' quality of life (QOL), leading to increased medication costs and physician visits. Traditionally, AR is classified as seasonal (SAR) or perennial (PAR). Recent guidelines have refined this classification based on symptom duration, severity, and impact on QOL. Subjective assessments, particularly the visual analog scale (VAS), are crucial for monitoring symptoms and adjusting treatment. VAS is highly associated with total nasal symptom score (TNSS) but negatively associated with peak nasal inspiratory flow (PNIF) in adults with AR. However, assessing AR in young children can be challenging, leading to a focus on parent-assessed VAS (P-VAS).[2] In addition, correlations among parent-assessed VAS (P-VAS), VAS, TNSS, and PNIF in children with AR were limited in the literature. This study aimed to investigate the correlation between subjective measurements (VAS, TNSS, P-VAS) and objective measurement (PNIF), in children and adolescents diagnosed with PAR.

Methods

This was a prospective observational study conducted on patients aged 6–18 years with diagnosed PAR. AR was confirmed through a skin prick test (SPT) for common aeroallergens. The daily Total Nasal Symptom Score (TNSS) was recorded alongside VAS and P-VAS ratings, while PNIF was measured using portable flow meters. Patients and parents documented their symptoms in an electronic diary (E-diary) over an 8-week period. Statistical analyses were performed to evaluate the results.

Results

A total of 2387 E-diary records were analyzed from 46 patients, with 38 consistently completing the E-diary daily. Based on AR symptoms patients were categorized into mild (60.9%) and moderate-severe (39.1%) PAR groups. The majority had a history of atopy and

were sensitized to indoor allergens. The analysis revealed a strong correlation between VAS and P-VAS ($p < 0.001$) (Figure 1). Moderate correlations were found between VAS and TNSS ($r_s = 0.53$; $p < 0.001$) and P-VAS and TNSS ($r_s = 0.48$; $p < 0.001$). Weak negative correlations were observed between PNIF vs VAS, PNIF vs TNSS, and PNIF vs P-VAS. A weak negative correlation was also found between nasal congestion and PNIF. Notably, correlations varied with severity, but a stronger correlation existed in the moderate-severe PAR group compared to mild PAR.

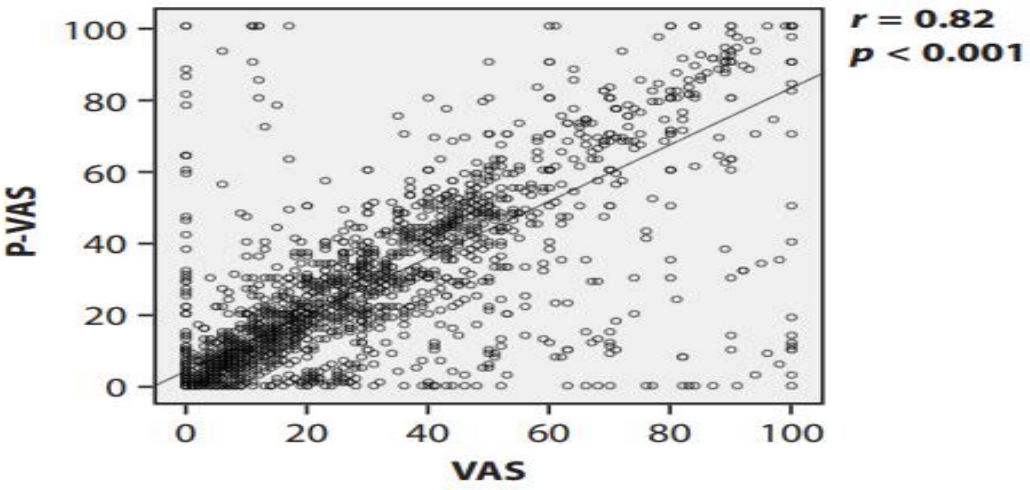

Figure 1. Correlations between symptom assessment using the visual analog scale (VAS) by patients and their parents (P-VAS)

Discussion

This study underscores the importance of effective symptom monitoring in AR treatment. VAS has been validated in adults, correlating well with objective measures. This study found weak negative correlations between PNIF and subjective assessments, suggesting that long-term nasal obstruction might lead patients to underestimate their symptoms.[2] These results align with the previous report showing a weak negative correlation.[3] The strong correlation was found between VAS and P-VAS indicating that parents can reliably assess their children's symptoms. Agreement levels between VAS and TNSS were fair overall, with better agreement in older children and those with more severe symptoms. The findings approach was useful in both subjective and objective measures for monitoring AR in children.[2]

Conclusion

This study recommends both subjective (VAS, TNSS) and objective (PNIF) measures for monitoring AR symptoms in children. Parent-assessed VAS (P-VAS) proved to be a reliable tool for evaluating nasal symptoms in younger patients unable to self-assess, highlighting the value of parental involvement in symptom management.

Parent-assessed Visual analog scale is a reliable tool to assess nasal symptoms among small children.

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Case Report on Treatment of Hand Eczema with Infection in Human Immunodeficiency Virus Patients

Introduction

Hand eczema (HE) is a complex and often chronic condition primarily affecting hands and wrists, and it is frequently associated with eczema in the feet. HE significantly impacts the quality of life (QoL).[1] Individuals with human immunodeficiency virus (HIV) face an increased risk of Staphylococcus aureus infections, which can worsen the severity of hand eczema. Additionally, the prevalence of allergic diseases, including hand eczema and chronic itch, is higher among HIV-positive patients. Currently, there are no optimal treatments for hand eczema, and managing the condition in individuals with HIV is even more challenging.[2] This case report aimed to highlight the challenges of treating hand eczema in HIV-positive patients, particularly when complicated by Staphylococcus aureus infection.

Case Presentation

A 46-year-old man with a year-long history of pruritic rash characterized by symmetrical erythema, scaling, fissures, and pustules on the hands and wrists. The patient had a 3-year past medical history of HIV infection and no prior allergic conditions. The patient presented with diffuse edematous erythema and dry scales covering both palms and wrists, followed by yellow pustules, linear fissures, and erosion. Patient symptoms included severe itching and pain, impacting his quality of life. Laboratory results showed elevated eosinophils (9.7%), increased C-reactive protein (15.99 mg/L), and significantly high immunoglobulin E levels (1104.86 IU/ml). Histological examination revealed excessive keratinization, pustules in the stratum corneum, and infiltration of lymphocytes and eosinophils in the dermis. The diagnosis was established as hand eczema with associated S. aureus infection. The patient was initially treated with topical steroids, mupirocin, and moisturizers provided temporary relief, but the condition

worsened upon discontinuation. Subsequent therapies, including oral antihistamines and tripterygium glycosides, were ineffective. Monthly diprospan injections yielded partial improvement, but symptoms intensified after treatment cessation. In response, ozone therapy of 3.0mg/L concentration of ozonated water under 20°C for 9 days (20 minutes every day) was initiated. Remarkably, after 3 days, significant improvement was noted, pustules subsided, and the scales decreased. After 9 days, the erosions healed, and swelling diminished significantly (Figure 1). The patient reported reduced pain and itchiness, and no recurrence was observed during a three-month follow-up.

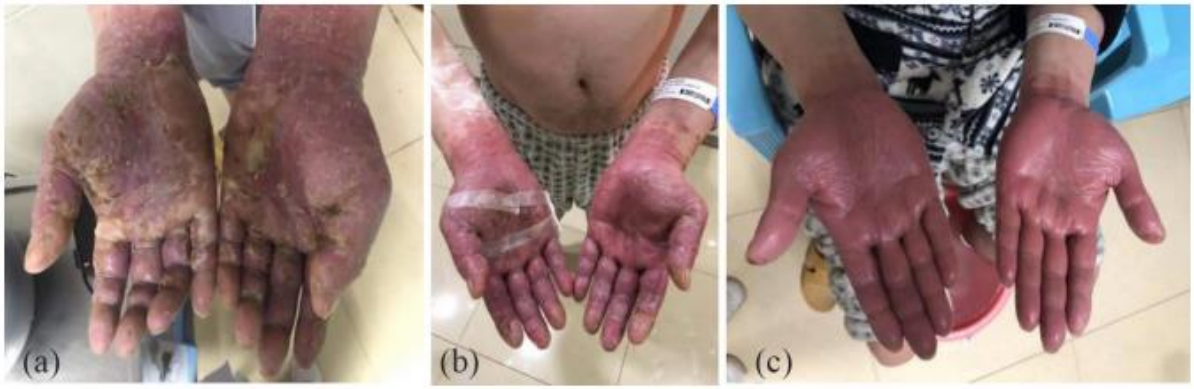

Figure 1. (a) Hand eczema before treatment. (b) After 3-day treatment of topical ozone therapy. (c) After 9-day treatment of topical ozone therapy.

Discussion

HIV-infected individuals often exhibit a Th2 cytokine predominance, which predisposes them to allergic conditions such as atopic dermatitis. This patient displayed elevated levels of IL-10 and IL-6, further indicating a skewed immune response. Traditional treatments for hand eczema are inadequate, highlighting the need for alternative therapies.[2] Ozone therapy was chosen for its antibacterial properties and ability to enhance wound healing. Studies show that ozone can effectively eliminate S. aureus and modulate the immune response, making it a viable treatment option.[3] The combination of topical ozone therapy and moisturizers resulted in a marked improvement in clinical symptoms, significantly alleviating pain and pruritus while avoiding the side effects associated with glucocorticoids.[2]

Conclusion

This case illustrates the potential of ozone therapy as an effective treatment for hand eczema in an HIV-positive patient, particularly in the cases of S. aureus infection and resistance to traditional therapies.

Ozone therapy is an effective treatment for hand eczema in an HIV-positive patient, particularly in the cases of Staphylococcus aureus infection.

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