Background

Local Allergic Rhinitis (LAR): Clinical phenotype

- Seasonal/perennial rhinitis symptoms suggestive of being related to allergen exposure
- Absence of systemic IgE sensitization
- Non-atopic patient

Positive response to the nasal allergen challenge (NAC)

Pathophysiology?

Increase in tryptase, nasal sIgE and eosinophil cationic protein in nasal fluid of LAR patients after NAC

Role of mucosal IgE?

Aim of study

To investigate the involvement of IgE immune responses in the pathophysiology of local allergic rhinitis at both mucosal and peripheral levels

Materials & Methods

In vivo provocation cohorts

Baseline Day 4
Nasal sIgE Nasal Biopsy Blood sample

Day 1 Day 2 Day 3
NAC

9 house dust mite (HDM)-LAR patients
5 HDM-allergic rhinitis (AR) patients
5 healthy non-atopic controls (HC)

Symptoms

Mucosal Eosinophils

Our in vivo experimental model mimics naturally occurring allergic rhinitis

Results

1 | Mucosal level

IgE+FceRI+ cells

Before nasal challenge After nasal challenge

IgE-producing plasma cells are increased in the nasal mucosa of local allergic rhinitis patients after the nasal allergen challenge

IgE plasma cells

Before nasal challenge After nasal challenge

Total plasma cells

Nasal HDM-sIgE in patients with allergic rhinitis and local allergic rhinitis

2 | Peripheral level

Peripheral IgE-producing plasma cell lineage after nasal allergen challenge

IgE-dependent activation of peripheral basophils in patients with local allergic rhinitis

Conclusions

1. Our results indicate that IgE is produced in the nasal mucosa of LAR and AR patients
2. A proportion of the IgE in LAR patients might be HDM-specific, as suggested by the nasal sIgE/BAT results and the NAC-induced increase of IgE+ plasma cells
3. The distinct proportion of peripheral IgE+ plasmablast might reflect differential maturation process of IgE-plasma cells between AR and LAR patients

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