

CORRESPONDENCE

Nasal cytology: a Precision Medicine tool in clinical practice

The BSACI guideline for the diagnosis and management of allergic and non-allergic rhinitis (NAR) represents a precise and accurate document in defining the different subgroups of patients suffering from allergic rhinitis (AR) and NAR. We would like to stimulate the debate about this matter, mainly concerning the definition and classification of NAR. In particular, we would convince the readers that there are different phenotypes/endotypes of NAR in addition to NAR with eosinophils (NARES). This concept is clinically relevant as deserves an adequate work-up and constitutes the background for the Precision Medicine (PM) approach.

Actually, inflammatory NAR accounts for a very impressive epidemiologic impact: up to 50% of patients reporting chronic nasal symptoms, including itching, sneezing, watery rhinorrhoea and/or nasal congestion, may have this disorder. However, it is mandatory to define the different subgroups of inflammatory NAR: they may be classified exclusively on the basis of the predominant infiltrating inflammatory cell. Non-allergic rhinitis with eosinophils (NARES) is the best-known type of inflammatory NAR. NARES has been firstly described more than 30 years ago.¹ The diagnosis is based on typical symptoms, negative allergy assessment and of course documentation of eosinophil infiltrate >10% of total cells.¹ As accurately pointed out by the BSACI guideline, most NARES patients may develop aspirine-sensitive asthma and also nasal polyps.^{2,3} Successively, it was reported a NARES variant, characterized by the concomitant presence of eosinophil and mast cell infiltrate: the so-called NAR-ESMA (non-allergic rhinitis with eosinophils and mast cells), distinguished by more severe symptoms than NARES.⁴ Other phenotypes of inflammatory NAR are the NARNE (with predominant neutrophilic infiltrate) type and NARMA (with predominant mast cell infiltrate) type.⁵ Obviously, these well-characterized NAR phenotypes may be recognized only documenting the presence of specific inflammatory cells that infiltrate the nasal mucosa. Without performing nasal cytology (NC), it is impossible to diagnose them. Namely, NC is a fruitful and easy-to-apply diagnostic and prognostic tool to work-up rhinitis, as it allows to detect and measure the cell population at nasal level.⁶ Moreover, NC is helpful to discriminate different nasal disorders, to evaluate the impact on the nose of different stimuli, including allergen, microbes, physical and chemical agents, pharmacological molecules, and to document the effect of treatments. It is well acknowledged the increasing relevance of NC as a complementary diagnostic tool in the management of both AR and NAR. In addition, NC is not invasive, repeatable and cheap.

On the other hand, about the different investigations, the BSACI guideline reports that cytology includes different techniques for obtaining cells, such as secretions, lavage, scraping, cotton buds or

brushing.² However, the BSACI guideline states that these techniques have not been standardized, nor have the criteria for evaluating cell counts.² In particular, the cited reference seems to be dated and concerns AR alone.⁷ So, we would remind a recent Review on this topic published in this Journal.⁸ This Review in detail pointed out that the NC methodology is easy and well standardized, mainly concerning the sampling, staining and interpretation.⁸ In this regard, NC represents a quick test able to define the phenotype/endotype of patients with rhinitis. In fact, only NC allows to diagnose and adequately treat patients presenting peculiar phenotypes/endotypes. Really, PM is an up-to-date strategy aiming at individuating the precise pathophysiological mechanisms. So, PM is the basis for the Personalized Medicine, such as defining the more appropriate treatment in every patient. In this regard, NC is than ever advisable and recommended. In this context, it has been recently evidenced that NC allowed a PM-based approach in the non-surgical management of nasal polyps.⁹

In conclusion, we believe that NC represents a relevant and reliable step in the work-up of patients with both AR and NAR, and deserves adequate consideration in clinical practice.

CONFLICT OF INTEREST

All co-authors contributed to this paper, and there is no conflict of interest.

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REFERENCES

1. Jacobs RL, Freedman PM, Boswell RN. Nonallergic rhinitis with eosinophilia (NARES syndrome). Clinical and immunologic presentation. *J Allergy Clin Immunol*. 1981;67:253-262.

2. Scadding GK, Kariyawasam HH, Scadding G, et al. The BSACI guideline for the diagnosis and management of allergic and non-allergic rhinitis (revised Edition 2017; First Edition 2007). *Clin Exp Allergy*. 2017;47:856-889.
3. Leone C, Teodoro C, Pelucchi A, et al. Bronchial responsiveness and airway inflammation in patients with nonallergic rhinitis with eosinophilia syndrome. *J Allergy Clin Immunol*. 1997;1006(Pt1):775-780.
4. Gelardi M, Maselli del Giudice A, Fiorella ML, et al. Non-allergic rhinitis with eosinophils and mast cells constitutes a new severe nasal disorder. *Int J Immunopathol Pharmacol*. 2008;21:325-331.
5. Gelardi M, Quaranta N, Passalacqua G. When sneezing indicates the cell type. *Int Forum Allergy Rhinol*. 2013;3:393-398.
6. Gelardi M, Fiorella ML, Russo C, et al. Role of nasal cytology. *Int J Immunopathol Pharmacol*. 2010;23:45-49.
7. Romero JN, Scadding G. Eosinophilia in nasal secretions compared to skin prick test and nasal challenge test in the diagnosis of nasal allergy. *Rhinology*. 1992;30:169-175.
8. Gelardi M, Iannuzzi L, Quaranta N, et al. Nasal cytology: practical aspects and clinical relevance. *Clin Exp Allergy*. 2016;46:785-792.
9. Gelardi M, Iannuzzi L, De Giosa M, et al. Non-surgical management of Chronic Rhinosinusitis with Nasal Polyps based on clinical cytological grading: a Precision Medicine-based approach. *Acta Otorhinolaryngol Ital*. 2017;37:38-45.