

## Correspondence

**Increased nasal IL-5 levels act as a predisposing factor of asthma in southern China**

To the Editor:

We read the comparative study by Bachert et al<sup>1</sup> on Chinese and Belgian patients with nasal polyps (NPs) with great interest. They reported that IL-5 production and IgE levels in NPs are associated with asthma comorbidity. Strikingly, this important study described a low positive IL-5 production (7.4%) and low asthma comorbidity (8%) in Chinese patients with NPs, which was distinct from those in Belgian counterparts. The finding thus added novel information about how differential inflammatory patterns in the nasal mucosa might function in the context of united airways.

While demonstrating the low prevalence of asthma in Chinese patients with NP, which was consistent with the previous reports in China,<sup>2,3</sup> Bachert et al<sup>1</sup> reported a low positive rate of IL-5 in NPs that was distinct from several other Chinese studies.<sup>3-6</sup> The discrepancy might be a result of the difference in pathological states of patients at the time of sampling (eg, different inflammatory profiles, medications, atopy, infection, and many other factors), reflecting great heterogeneity of NPs in different environments. Despite this, the low positive production of IL-5 is still in question because NP is also shown to be a T<sub>H</sub>2-associated inflammation in adult Chinese patients.<sup>3</sup> We previously reported that the IL-5 concentration was significantly increased in NP tissues compared with normal controls.<sup>4</sup> To emphasize the importance of IL-5 production in linking the upper and lower airways in Chinese patients, here we add evidence that an increased IL-5 level in NPs, as well as nasal tissues of patients with chronic rhinosinusitis (CRS) and allergic rhinitis (AR), is the possible predisposing factor to asthma comorbidity.

In this study, 19 patients with NPs, 15 patients with CRS, 22 patients with moderate-severe persistent AR, and 8 normal subjects were enrolled from 3 major Chinese cities (Guangzhou,

Zhuhai, and Zhongshan) that were similar to those in the report by Bachert et al.<sup>1</sup> The atopic status was evaluated by skin prick tests to common inhalant allergens and then confirmed by specific IgE detection (Phadia, Uppsala, Sweden). The nasal tissues (including the polyp in the NP group, and the ethmoidal mucosa in the CRS group, and the inferior turbinate in the AR and normal groups) were sampled, and the concentrations of IL-5 in tissue homogenates were measured by using an ELISA kit (R&D Systems, Minneapolis, Minn). The detection limit for IL-5 is 7.8 pg/mL, and all values below the detectable limit (samples from only 2 controls) were set to be 0 for convenient analysis. All IL-5 data were analyzed by using the Kruskal-Wallis *H* test and the nonparametric Mann-Whitney *U* test, and a *P* value less than .05 was set for statistical significance except for multiple comparisons after Bonferroni correction, where a *P* value less than .0125 was set for statistical significance.

In this study, we found that the measurable (positive) rates of IL-5 production in the NP, CRS, and AR groups were 100%. Compared with normal controls, the levels of IL-5 in the NP, CRS, and AR groups were found to be significantly upregulated (*P* = .001, .0001, and .003, respectively; Fig 1, A), and the IL-5 level in NP was significantly higher than levels in CRS and AR (*P* = .0001 and .0004, respectively; Fig 1, A). When NP and nasal tissues of CRS and AR were classified into 2 groups on the basis of the presence of comorbid asthma, we found that the level of IL-5 in NP from patients with asthma was significantly higher than that from patients without asthma (*P* = .0002; Fig 1, B), and we also observed a similar upregulation of IL-5 production in patients with CRS and AR with asthma (*P* = .028 and .0007, respectively; Fig 1, B). In addition, the concentrations of IL-5 in NPs and CRS with atopy were significantly higher than concentrations in those without atopy (data not shown). Our data, therefore, demonstrate the relevance of upregulated IL-5 in nasal tissues (NP, CRS, and AR groups) to the development of asthma in southern China. We

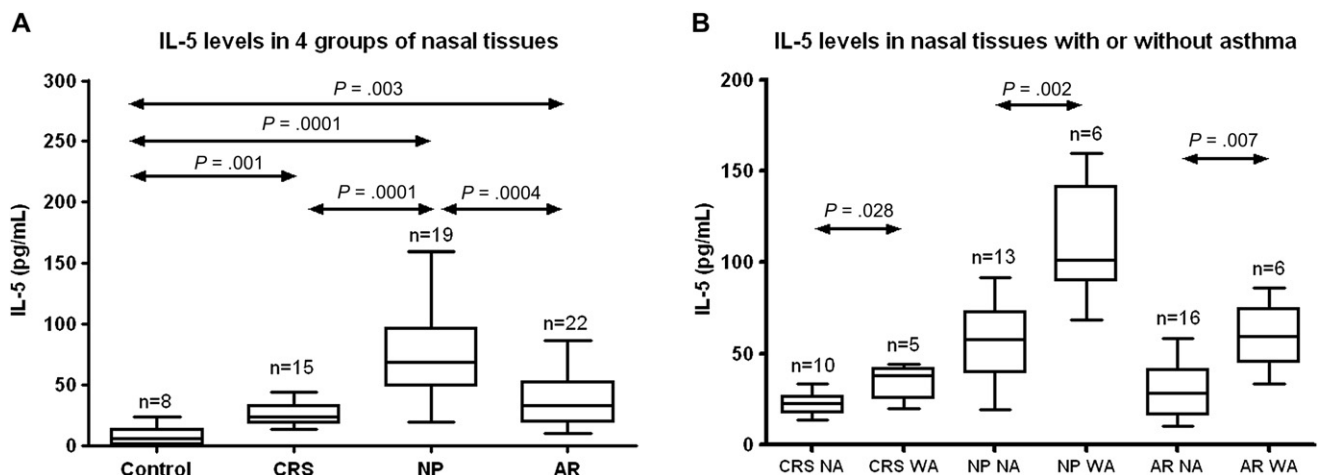


**FIG 1.** IL-5 levels in 4 groups of nasal tissues (NP, CRS, AR, and normal control). **A**, IL-5 levels were significantly elevated in NP, CRS, and AR compared with the normal control (*P* < .0125 was considered statistically significant after Bonferroni correction for multiple comparisons). **B**, IL-5 levels were significantly elevated in NP, CRS, and AR with comorbid asthma compared with those without comorbid asthma (NA, without asthma; WA, with asthma; *P* < .05 was considered statistically significant for intragroup comparisons).

are not sure whether the differences in characteristics of patients with CRS have accounted for the differences in IL-5 between the 2 research groups, because good IL-5 production in Chinese patients with AR and normal controls was reported again in another recent study.<sup>7</sup> Thus, investigation with larger patient numbers should be performed to validate further the importance of IL-5 in Chinese patients with CRS and concomitant asthma.

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Supported by National Natural Science Grants of China (no. 30872845, 81070771, 81070772).

Disclosure of potential conflict of interest: The authors have declared that they have no conflict of interest.

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doi:10.1016/j.jaci.2011.01.059