Association Between Skin Test Positivity and Malignancy in IgE-Deficient Patients

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INTRODUCTION

Recent findings have shown that IgE plays a role in tumor immunity and that IgE-deficient (IgE<2.5 kU/L) patients have higher rates of malignancy. Despite undetectable serum IgE, some IgE-deficient patients exhibit positive skin testing with standard aeroallergens. We investigated whether the presence of skin test reactivity influenced the susceptibility of IgE-deficient patients to develop malignancy. Our hypothesis was that IgE-deficient patients with negative skin tests would have higher rates of malignancy than those with positive skin tests, possibly because of lack of tissue protective-IgE.

METHODS

We identified 69 patients with selective IgE-deficiency but with normal levels of other immunoglobulin isotypes who had been evaluated between 2014-2018 for chronic respiratory symptoms and had environmental skin tests (skin prick (SPT) and/or intradermal skin testing (IDST)) performed. Malignancy status and skin tests results were determined by chart review.

RESULTS

Most of the IgE-deficient patients were women (80%), with a mean age of 50 (±15.05) and of Hispanic origin (46%). Overall, 12/69 (17.4%) IgE-deficient patients presenting with environmental allergy-like symptoms had cancer diagnosis (Table 1). Overall, at least one positive skin test (SPT or IDST) was depicted in 21/69 (30.4%) patients. 48 patients were non-atopic (Figure 1). The rate of malignancy diagnosis was significantly higher in non-atopic IgE-deficient patients (11/48, 22.9%), compared with those with at least one positive skin test (1/21, 4.8%, OR=12.76, 95% CI: 1.12-144.2, p=0.04) (Figure 2). Both solid and hematologic malignancies were present in this cohort of patients with IgE deficiency. (Figure 2)

CONCLUSIONS

The lower rate of a malignancy diagnosis in IgE-deficient patients with at least one positive skin test suggests a malignancy-protective role of bound/tissue IgE in this subgroup. Our results have important clinical relevance, since this is the first attempt to investigate potential factors that could predict which IgE-deficient patients have the highest risk to develop malignancy. These intriguing findings indicate the need for further research in this new area.

REFERENCES