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Case study: A Combination of Mepolizumab and Omalizumab injections for severe asthma
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Abstract

A Combination of Mepolizumab and Omalizumab injections for severe asthma. Introduction. Patients with severe persistent asthma account for a large proportion of asthma morbidity and health care expenditures. In this case report we describe the use of a combination of omalizumab and mepolizumab in severe asthma with elevated IgE levels and eosinophilic phenotype. Case Study. We are treating a 55 year old woman with severe persistent eosinophilic asthma and elevated IgE levels. Her regimen included salmeterol/fluticasone propionate inhaler 500/50 one puff twice a day, budesonide nebulizer twice a day, tiotropium respimat inhaler two puffs daily, montelukast 10 mg daily, Albuterol as needed, Azithromycin 250 mg three times a week, and also omalizumab injections. She was having recurrent asthma exacerbations requiring the use of oral corticosteroids. Due to frequent exacerbations, we referred her for Bronchial Thermoplasty. This procedure was denied by insurance and therefore the patient was started on 20 mg PO prednisone daily. Mepolizumab was added approximately 4 months after starting chronic PO prednisone. We were able to taper down the steroids and she is currently on 4 mg daily. Results. Since we added the mepolizumab injections along with the omalizumab injections, we have been able to decrease the prednisone steadily and currently the patient is on 4 mg daily. The plan is to taper off the corticosteroids slowly as the clinical status allows. Conclusion. Combination of omalizumab and mepolizumab could become the gold standard for severe asthma patients that have elevated IgE levels and an eosinophilic phenotype. Case Report: A Combination of Mepolizumab and Omalizumab injections for severe asthma

1. Introduction

The American Thoracic Society defines severe asthma as asthma that requires treatment with high dose inhaled corticosteroids plus a second controller and/or systemic corticosteroids to prevent it from becoming “uncontrolled” or that remains “uncontrolled”

despite this therapy (1). Patients with severe persistent asthma comprise only 5-10% of the total asthma population, but account for a large proportion of asthma morbidity and health care expenditures (2). Omalizumab is an anti-IgE antibody approved for moderate to severe allergic asthma with an IgE level of 30-700 ku/L, positive allergic skin or specific IgE tests to a perennial allergen, and incomplete symptom control with inhaled glucocorticoids (3). Mepolizumab, a monoclonal antibody to Il-5, reduces exacerbations in patients with severe asthma who have blood eosinophil counts of 150/microL or greater (4). In this case report we describe the use of a combination of omalizumab and mepolizumab in severe asthma with elevated IgE levels and eosinophilic phenotype.

2. Case report

We are treating a 55 year old woman with severe persistent eosinophilic asthma and elevated IgE levels. Her regimen included salmeterol/fluticasone propionate inhaler 500/50 one puff twice a day, budesonide nebulizer twice a day, tiotropium respimat inhaler two puffs daily, montelukast 10 mg daily, Albuterol as needed, Azithromycin 250 mg three times a week, and also omalizumab injections. She had been on Omalizumab for approximately two years. She was having recurrent asthma exacerbations approximately once a month requiring the use of oral corticosteroids. Due to frequent exacerbations, we referred her to a tertiary care center for Bronchial Thermoplasty (BT). This procedure was denied by insurance and therefore the patient was started on 20 mg PO prednisone daily (April 2017). We were not able to taper down the steroids as that would lead to a flare up of her asthma. Mepolizumab was added approximately 4 months after starting chronic PO prednisone (August 2017). We were able to taper down the steroids and she is currently on 4 mg daily (March 2018).

Between January 2017 and August 2017, the patient has had one ER visit and one hospitalization related to asthma exacerbation. After the addition of Mepolizumab she has not had any ER visits or hospitalizations. The number of exacerbations was approximately once a month prior to the combination therapy. Following that, she has had only two exacerbations in the past eight months, which required a brief prednisone taper before going back to the baseline dose of prednisone.

Results

Since we added the mepolizumab injections along with the omalizumab injections, we have been able to decrease the prednisone steadily and currently the patient is on 4 mg daily. She now uses the albuterol rescue inhaler less than twice a week. The plan is to taper off the corticosteroids slowly as the clinical status allows.

3. Discussion

We observed a remarkable response to the combination of mepolizumab and omalizumab injections. The dose of prednisone was decreased to a minimum, currently 4 mg daily, and

hopefully it will be tapered off completely in the near future. Moreover, we reduced the number of asthma exacerbations, ER visits, and avoided bronchial thermoplasty. Further randomized controlled studies that incorporate the combination of omalizumab and mepolizumab are urgently needed. This combination could become the gold standard for severe asthma patients that have elevated IgE levels and an eosinophilic phenotype.

Conflict of interest statement

The authors report no conflict of interest.

Sincerely,

Rejmon Dedaj MD, FCCP

Lindie Unsel, APRN

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