INTRODUCTION:

Asthma is a respiratory disease that affects your lungs. In asthma, airways of the lungs constrict due to swelling and accumulation of mucus. Newer remedies known as targeted therapies have evolved as a result of advancements in medical research, greatly relieving these patients. The biologics used in the severe allergic asthma is Omalizumab.

Methods: A single-arm prospective pilot study of omalizumab in severe allergic asthma was conducted in a tertiary care hospital for the duration of one year with the help of Asthma Quality of Life Questionnaire (AQLQ).

Results and discussions: On an initial dose of omalizumab of 150 mg in 2 vials subcutaneously every month for 6 months, among our study population, 45% of the patients had their symptoms improve more than they had with prior medications. Results show that the patient’s overall score has improved by nearly 50%. This shows that omalizumab improves the quality of life of severe asthmatic patients.

Conclusion: Patients treated with omalizumab have improved their clinical conditions and quality of life, and it can prevent exacerbations by controlling the severity of the condition.

Keywords: AQLQ, Allergic asthma, Exacerbation, IgE, Omalizumab.
**Patient Selection:**
- Patients with known case of wheezing.
- Patients who had an exposure to dust.
- Patients with elevated IgE level.
- Patient with normal Absolute Eosinophil Count (AEC).

**Data Collection:**
The study was conducted from November 2021 to November 2022. All the patients were sent to the interviewers by their pulmonary department physicians at a tertiary care hospital in Southern India. Before recommending patients to the interviewers, the physicians described the objective of the study to them. If the patients refused to participate in the interview, the doctor would respect their decision.

Before conducting the interview, all participants provided written informed Consent. Patients who did not know what their diagnosis were not referred to us by their doctor and hence were not enrolled for this study interview.

**Statistics:**
Using descriptive statistical techniques, information on sociodemographic variables, medical history, and responses to questions about symptoms, activity limitation, emotional function, and environmental stimuli were condensed. Means, frequencies (n) and percentages (%) were used to display the results.

**RESULTS AND DISCUSSION:**

**Treatment period:**
Mean omalizumab duration in our study was 24 weeks with a recommended dosing scheme according to total IgE level and weight. The Omalizumab was generally prescribed 150 mg in 2 vials subcutaneously per month. All patients were non-smokers and had no other lung pathology present at the same time.

**Outcomes:**
In our study, we included 9 patients receiving omalizumab injection for severe allergic asthma. Demographics of these patients were included in (Table -1). Among our study population, 56% were male and 44% were female patients. 33% were under the age 30. All the patients completed six doses of omalizumab.

The AQLQ questionnaire was divided into 4 domains: symptoms, activity limitation, emotional function, and environmental stimuli. The symptom domain includes 12 questions; activity limitation includes 11 questions; emotional function includes 5 questions; and environmental stimuli includes 4 questions.

The AQLQ questionnaire was taken from the patients prior to the treatment, which is tabulated in table-2. Patient experienced acute exacerbations, breathing difficulty, frequent hospitalization, and a lag in their daily activities prior to the treatment.

On initiation of omalizumab, many patients experienced the treatment’s clinical improvements within a few doses, and there were no adverse effects noted. On completion of all doses 45% patients felt symptomatic relief.

The AQLQ questionnaire was repeated, and the results are shown in Table 3. Results show that the patient’s overall score has improved by nearly 50%, which was greater than the study conducted by Hanania NA et al. 10. This shows that omalizumab improves the quality of life of severe asthmatic patients.

Treatment with omalizumab was associated to significantly lower mean daily doses of OCS, asthma flare-ups, inpatient hospitalizations, outpatient visits (apart from those for omalizumab administration), hospital bed days, and sick days from work/school. In our study, the asthma exacerbation rate decreased by 60% after using omalizumab, which was greater than the study conducted by Barnes N et al 11.

**Table 1 Demographics**

<table>
<thead>
<tr>
<th>Patient</th>
<th>Age</th>
<th>Gender</th>
<th>IgE level before treatment IU/ml</th>
<th>No of doses taken</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>41</td>
<td>Male</td>
<td>612</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>24</td>
<td>Male</td>
<td>676</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>50</td>
<td>Male</td>
<td>1026</td>
<td>6</td>
</tr>
<tr>
<td>4</td>
<td>32</td>
<td>Female</td>
<td>858</td>
<td>6</td>
</tr>
<tr>
<td>5</td>
<td>11</td>
<td>Female</td>
<td>750</td>
<td>6</td>
</tr>
<tr>
<td>6</td>
<td>35</td>
<td>Male</td>
<td>742</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td>35</td>
<td>Female</td>
<td>792</td>
<td>6</td>
</tr>
<tr>
<td>8</td>
<td>11</td>
<td>Male</td>
<td>1833</td>
<td>6</td>
</tr>
<tr>
<td>9</td>
<td>52</td>
<td>Female</td>
<td>715</td>
<td>6</td>
</tr>
</tbody>
</table>

**Table 2: AQLQ Scores Prior Omalizumab Administration**

<table>
<thead>
<tr>
<th>Patient</th>
<th>Activity Limitation</th>
<th>Symptoms</th>
<th>Emotional Function</th>
<th>Environmental Stimuli</th>
<th>Overall Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3.18</td>
<td>3.25</td>
<td>3.00</td>
<td>2.50</td>
<td>11.93</td>
</tr>
<tr>
<td>2</td>
<td>3.27</td>
<td>3.33</td>
<td>2.60</td>
<td>2.25</td>
<td>11.45</td>
</tr>
<tr>
<td>3</td>
<td>2.72</td>
<td>3.16</td>
<td>3.40</td>
<td>3.00</td>
<td>12.28</td>
</tr>
<tr>
<td>4</td>
<td>3.45</td>
<td>3.50</td>
<td>3.20</td>
<td>2.75</td>
<td>12.90</td>
</tr>
<tr>
<td>5</td>
<td>3.01</td>
<td>3.00</td>
<td>2.80</td>
<td>2.00</td>
<td>10.84</td>
</tr>
<tr>
<td>6</td>
<td>3.09</td>
<td>2.91</td>
<td>2.60</td>
<td>2.50</td>
<td>11.10</td>
</tr>
<tr>
<td>7</td>
<td>2.63</td>
<td>2.66</td>
<td>2.00</td>
<td>1.75</td>
<td>09.04</td>
</tr>
<tr>
<td>8</td>
<td>2.81</td>
<td>2.58</td>
<td>2.40</td>
<td>2.00</td>
<td>09.79</td>
</tr>
<tr>
<td>9</td>
<td>2.54</td>
<td>2.50</td>
<td>2.20</td>
<td>1.50</td>
<td>08.74</td>
</tr>
</tbody>
</table>
Asthma that is caused by allergens like pollen, pets, and dust mites is known as allergic (or atopic) asthma. Patients with elevated IgE levels are more likely to begin receiving biologics, which reduce the need for frequent hospitalization. Patients treated with omalizumab have improved their clinical outcomes and quality of life, and it can prevent exacerbations by controlling the severity of the condition. Since asthma can only be managed, it is necessary to avoid triggers and have a healthy lifestyle.

**CONCLUSION:**

Asthma that is caused by allergens like pollen, pets, and dust mites is known as allergic (or atopic) asthma. Patients with elevated IgE levels are more likely to begin receiving biologics, which reduce the need for frequent hospitalization. Patients treated with omalizumab have improved their clinical conditions and quality of life, and it can prevent exacerbations by controlling the severity of the condition. Since asthma can only be managed, it is necessary to avoid triggers and have a healthy lifestyle.

**PATIENT’S CONSENT**

Written informed consent was obtained from the patients for the publication of this study.

**ACKNOWLEDGMENT**

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**AUTHORS CONTRIBUTION**

All authors equally contributed.

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**ETHICAL APPROVAL**

Not applicable.

**CONFLICT OF INTEREST**

The authors have no conflicts of interest.

**REFERENCES:**


