

Omalizumab for Allergic Bronchopulmonary Aspergillosis in Paediatric Patients with Cystic Fibrosis

Kate McLellan¹, Kate Stanford¹, Joni Donagher¹, Melanie Wong², Hiran Selvadurai², Pathma Joseph¹, Peter Barclay¹

¹ Department of Pharmacy, ² Department of Respiratory, The Children's Hospital at Westmead, Sydney
Children's Hospitals at Westmead, Sydney Children's Hospitals Network, NSW, Australia



Background

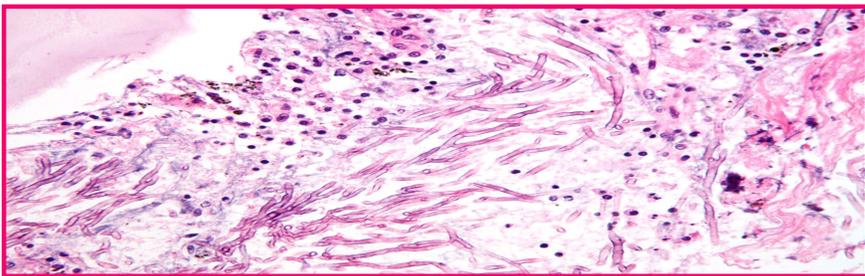
- Allergic bronchopulmonary aspergillosis (ABPA) is a fungal infection that in acute exacerbations, further complicates a cystic fibrosis (CF) patient's condition.
- Antifungal agents such as itraconazole, and high dose systemic glucocorticoids are the mainstay treatment in acute ABPA exacerbations.
- These present limitations where patients are presenting with poor symptom control, continual exacerbations and adverse effects as a result of the prolonged therapy.



- Off-label omalizumab is a steroid-sparing alternative therapy.
- Omalizumab is a recombinant humanized IgG1 monoclonal antibody that selectively binds to IgE preventing the binding of IgE to immune effector cells.

Aim

To investigate the efficacy, safety, and cost of omalizumab for the treatment of ABPA in CF patients at a tertiary paediatric hospital.



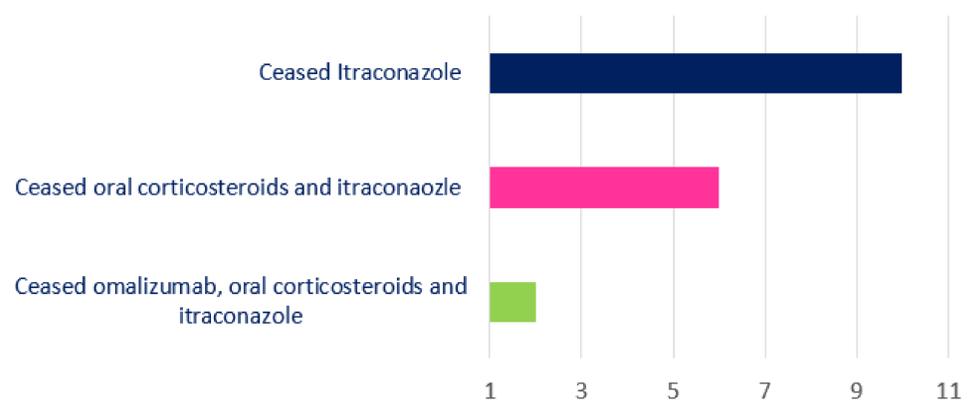
Method

- A retrospective study to assess the efficacy of omalizumab in the treatment of ABPA in CF patients was conducted.
- We reviewed medical and laboratory records from June 2013 to June 2022 of patients who have received one or more doses of omalizumab (Xolair™).
- We measured symptom control, adverse effects of treatments, body mass index, FEV1% predicted, immunoglobulin E levels and cost to date.

Results

- 11 patients with an average age of 14 (range 10-19) years received 300 mg/dose monthly initially.
- 5 patients have been successfully stretched to 6–8 weekly and **2 patients have stretched and ceased omalizumab**, average treatment duration of 3.5 years. These patients ceased or reduced oral corticosteroid and antifungal use.

Number of patients who have successfully ceased medications since omalizumab treatment



- Omalizumab therapy was less effective in patients with poor compliance and concomitant long-term infections.
- Unwanted side effects of systemic steroids were reduced and ABPA remission prolonged.
- The total average cost of omalizumab treatment per patient was **\$38,522.55** (range \$6560-\$82841) for **566 treatment sessions** with an average of 52 treatments/patient, an annual cost of \$9840 per patient.

Conclusion

- Omalizumab has the potential to be an alternative treatment for ABPA in CF patients due to its steroid-sparing effects and beneficial clinical outcomes
- Omalizumab is particularly beneficial in the paediatric population where growth suppression and poor glucose control is often worsened by prolonged systemic steroid use.

