Lebrikizumab: A new monoclonal antibody for asthmatics

Dr. Soumyadeep Bhaumik [1]

[1]Independent Medical Researcher, Kolkata, India

Conflicting Interest: None Declared

This article has been peer reviewed.

Article Submitted on: 1st January 2012

Article Accepted on: 5th February 2012

Funding sources: None Declared

Correspondence to: Dr. Soumyadeep Bhaumik

Address: 2, A. Sen Road, Kolkata-48, India

Email: soumyadeepbhaumik@rediffmail.com

EYE SPY

The study: *Corren J, Lemanske RF, Hanania NA, Korenblat PE, Parsey MV, Arron JR et al. Lebrikizumab treatment in adults with asthma .N Engl J Med 2011 Sep;365(12):1088-98.*

The pathophysiology of asthma is complex, with participation and activation of several acute and chronic inflammatory pathways within the airway. This complexity is further enhanced clinically due to the heterogenous response of asthma to treatment.

Why this study was needed ?

Majority of asthma patients are managed by primary care physicians with effective and safe therapies. However, some patients have poor control of their asthma despite adequate treatment. Recently, elevated levels of interleukin-13 were found in the sputum of patients with poorly controlled asthma, and it was hypothesized that inhibiting interleukin-13 may benefit such patients.
Lebrizikumab is an IgG4 humanised monoclonal antibody that specifically binds to interleukin-13, and thereby inhibits it. The study was planned to examine whether Lebrizikumab use leads to decreased levels of interleukin-13, along with marked clinical improvement. N.B: The study uses serum periostin as a surrogate marker for interleukin-13 owing to the fact that highly sensitive assays are required to quanitify interleukin-13 in blood or airway samples.

Study design : Random, double-blind, placebo-controlled, multi-center

What the study found ?

Lebrikizumab treatment was associated with improved lung function (mean FEV_1 ↑↑ by 5.5% after 12 weeks) as the primary study outcome. Patients with high pre-treatment levels of serum periostin had a greater improvement in lung function with lebrikizumab than patients with low periostin levels (8.2% vs. 1.6%, both compared to the placebo). The adverse drug reaction profiles of the lebrikizumab and placebo groups were mostly similar, except for musculoskeletal side effects, which were more common in the lebrikizumab group than in the placebo group (13.2% vs. 5.4%).

Where the were the limitations ?

Although objective improvement in lung function was observed, it did not have any significant reduction in the rate of protocol-defined exacerbations/severe exacerbations, or on the measures assessed as per the daily diary entries of the patient.

What is the way forward ?

The study needs replication involving larger numbers and wider genetic variation. Also, the study underlines the role of identifying bio-chemical markers like periostin in clinical practise. Another question that has been added to the enigma of asthma and its heterogeneity is about the management of patients with low periostin levels and uncontrolled asthma.