Asthma is an important cause of morbidity and mortality in the world, especially in the developing countries with an incidence of more than 300,000 every year, and the incidence has increased by nearly 10% over the last decade.\textsuperscript{[1-3]} Conventionally, asthma severity has been assessed with a combination of subjective (daytime and nighttime symptoms) and objective measures (Spirometry, peak flow recordings).\textsuperscript{[4]} Recently, use of rescue medications and assessment of risk factors for asthma exacerbations have been given its due importance in assessing asthma control. Due to the wide variation among different asthmatics, there is a need for other biomarkers to further classify these patients. For example, treatment-naive asthmatics, with very low lung functions (forced expiratory volume in 1 s <30%), may reach normal lung functions in 15 days and are highly treatment responsive. On the other hand, asthmatics with a lung function of 70% may continue to be symptomatic with hardly any change in their lung functions in spite of Step 4 or 5 treatments according to Global Initiative for Asthma guidelines.\textsuperscript{[4]} Therefore, clinicians need other markers, which could help them manage their asthma patients better.

Specific IgE levels of common aeroallergens are much better markers of atopy than total IgE levels. Many patients with asthma have normal IgE levels but may have elevated specific IgE levels. Total IgE may be elevated in the absence of any allergic disease including asthma. Studies in the western population have shown a median total IgE levels in the adult general population of 40.8 IU/ml (interquartile range 15.5–114).\textsuperscript{[5]} and in children, 106 IU/ml (95% confidence interval 101.5–112).\textsuperscript{[6]} Asthma was present even among those in the lowest measurable total IgE levels and measuring 11 specific IgEs could identify 99% of the atopic cases.\textsuperscript{[5]} It is important that one is aware of the levels and ranges of total IgE in the local general population without allergic disease before interpreting whether the levels are in the abnormal range. A study in the general population in South India observed the mean levels of total IgE of more than 500 IU/ml.\textsuperscript{[7]} None of these cases had any allergic disease. The reason that populations in some parts of the world have high total IgE could be due to the protective effects of IgE against the venom from insect bites, xenobiotics and to induce itching resulting in the expulsion of ectoparasites. In addition, exposure to environmental pollution along with smoking or passive smoking is associated with higher levels of total IgE.\textsuperscript{[6]} Although studies have not found an association between total IgE levels and asthma, a large study (TENOR) found association between levels of total IgE and severity of asthma.\textsuperscript{[6]}

Most studies have found a positive association between severity of sputum eosinophilia and asthma severity, though some have not.\textsuperscript{[8]} The sputum eosinophilia assessed on induced sputum represents the eosinophils in the mucus and lumen. Studies that have evaluated the effect of oral steroids have observed that though the mucosal eosinophils on bronchial biopsies have reduced after treatment, the eosinophils in the lumen continue to persist, possibly because of poor penetration of the drug into the mucus.\textsuperscript{[8]} Sputum eosinophil levels have been correlated with asthma severity based on spirometry, symptom scores, bronchial hyperresponsiveness on methacholine challenge test, and peak flow monitoring.\textsuperscript{[8]} Reduced eosinophil apoptosis is one of the identified reasons for the increased eosinophil load in the airways of asthmatics.\textsuperscript{[9]} It is to be noted though that there are many asthmatics with normal sputum eosinophil counts. Increased sputum eosinophil count could be a useful biomarker and is present across the spectrum of asthma severity, from mild to the most severe asthma, but needs further studies to confirm its ability to predict treatment responsiveness, disease progression, and risk for long-term complications such as airway remodeling.\textsuperscript{[8,9]} There are studies that have demonstrated that those with very severe asthma and sputum eosinophilia may benefit from mepolizumab.

Peripheral blood eosinophilia is a poor marker of asthma severity, and studies have found no association between peripheral blood eosinophil counts and asthma severity.\textsuperscript{[10]} In many cases of asthma, it is normal and there are other causes such as helminthiasis that may lead to peripheral blood eosinophilia. There may be cause for assessing peripheral blood eosinophilia at baseline to rule out other eosinophilic conditions mimicking asthma when the
absolute eosinophil count is >2000 cells/cmm with a total white blood cell count of more than 10,000 cells/cmm.

An interesting study in this issue of Lung India by Kumar et al. [11] confirms the earlier findings in the Indian population. The study highlights the presence of sputum eosinophilia as a separate phenotype that is spread across different asthma severities. It confirms that total IgE and peripheral blood eosinophilia does not help in assessing asthma severity. It would be very useful addition to the literature if the authors follow up a larger number of patients with and without sputum eosinophilia (>3%) across different asthma severities and characterize their treatment responsiveness, disease progression, and risk for developing long-term complications of asthma such as airway remodeling.

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