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Serum macrophage migration inhibitory factor as a potential biomarker to evaluate therapeutic response in patients with allergic asthma: an exploratory study

Key words: **macrophage migration inhibitory factor; allergic asthma; eosinophilic inflammation; fractional exhaled nitric oxide; IgE;**

Research Summary

Background:

Previous studies have shown that macrophage migration inhibitory factor (MIF) is involved in the pathogenesis of asthma. This study aimed to investigate whether serum MIF reflects a therapeutic response in allergic asthma.

Methods:

We enrolled 30 asthmatic patients with mild-to-moderate exacerbations and 20 healthy controls, analyzing the parameter levels of serum MIF, serum total IgE (tIgE), peripheral blood eosinophil percentage (EOS%), and fractional exhaled nitric oxide (FeNO). Lung function indices were used to identify disease severity and therapeutic response.

Research Summary

Results:

- All measured parameters in patients before treatment were at higher levels than those of controls. After one week of treatment, most parameter levels decreased significantly except for serum tIgE.

- Serum MIF positively correlated with EOS% as well as FeNO, but negatively correlated with lung function indices.

- Receiver operator characteristic (ROC) curve analysis indicated that among the parameters, serum MIF exhibited a higher capacity to evaluate therapeutic response. The area under the curve (AUC) of MIF was 0.931, with a sensitivity of 0.967 and specificity of 0.8.

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Research Summary

Conclusion:

Serum MIF may serve as a potential biomarker for evaluating therapeutic response in allergic asthma with mild-to-moderate exacerbations.

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Innovation points

A series of comprehensive figures were generated to summarize this research about MIF related to allergic asthma

Fig. 1: Comparison of serum MIF, tIgE, EOS%, and FeNO levels before and after treatment in asthmatic patients.

Fig. 2: Correlation among the levels of serum MIF, EOS%, and FeNO in asthmatic patients before and after treatment .

Fig. 3: Correlation among serum levels of MIF and FeNO and lung function indices in asthmatic patients before and after treatment .

Fig. 4 ROC curve analysis for evaluating the capacity of different parameters to profile therapeutic response.