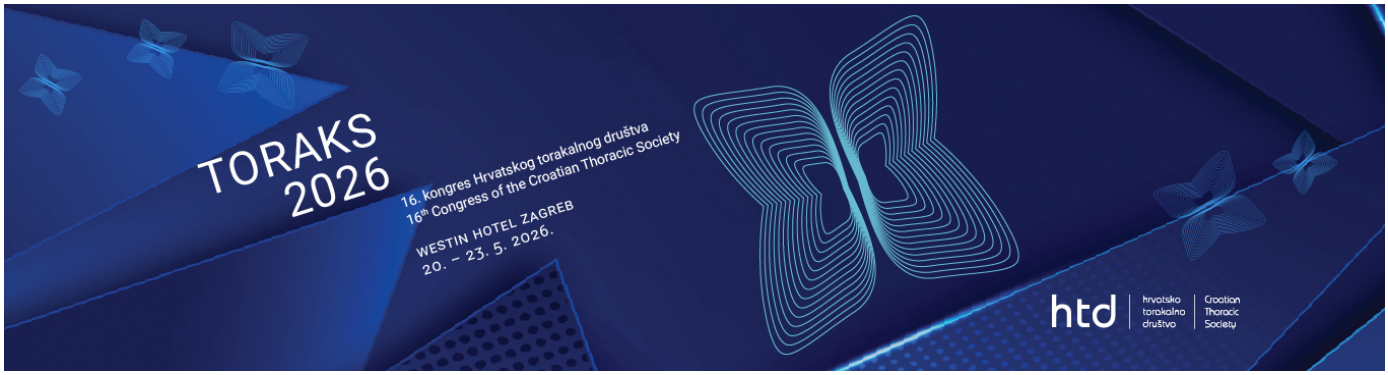


METABOLIC AND NUTRITIONAL FACORS AS CONTRIBUTORS TO THE SEVERITY OF DISEASE IN PATIENTS WITH SEVERE ASTHMA

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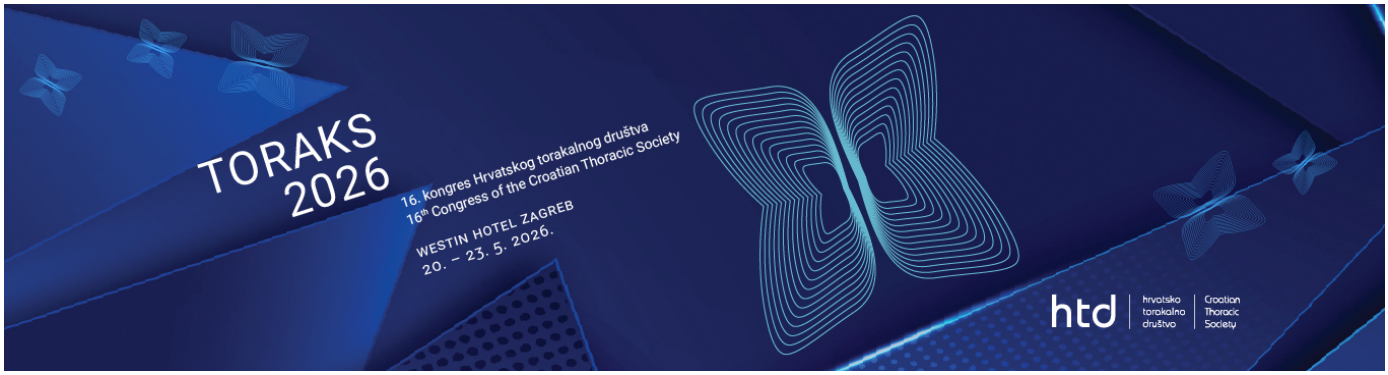
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Objective:

To investigate the association of CRP, BMI, and vitamin D with ΔFEV_1 in patients with severe asthma receiving biological therapy, and to identify potential predictors of treatment response.



Response to biological therapy in severe asthma is highly heterogeneous.

Systemic inflammation (CRP), body mass index (BMI), and vitamin D levels may influence improvement in lung function (FEV_1).

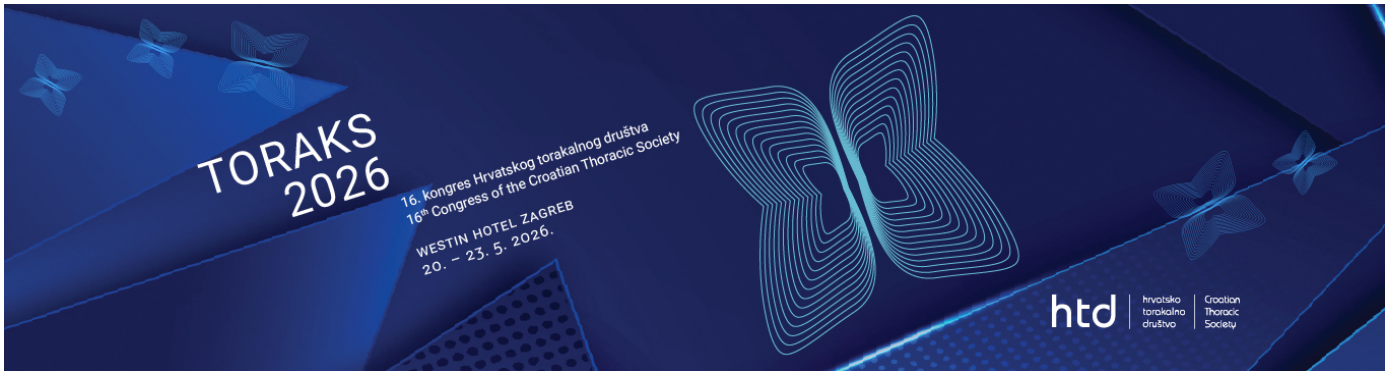
Methods:

A retrospective cohort of 165 severe asthma patients was analyzed.

The primary outcome was ΔFEV_1 (post-treatment minus baseline). Baseline FEV_1, CRP, BMI, and vitamin D levels were recorded. Associations were assessed using Spearman correlations, and multivariate linear regression was applied to identify independent predictors of response.

Result:

Median ΔFEV_1 was 6.0%. Elevated CRP and higher BMI were associated with smaller improvements in FEV_1 ($\rho = -0.196$, $p = 0.039$; $\rho = -0.18$, $p = 0.045$). Lower vitamin D levels were also linked to attenuated lung function recovery. Patients with optimal BMI and



normal vitamin D showed greater ΔFEV_1, suggesting that metabolic and nutritional factors may modulate therapy efficacy. Baseline FEV_1 remained the strongest independent predictor of lung function improvement in multivariate analysis.

Conclusion:

Elevated CRP, higher BMI, and lower vitamin D levels are associated with reduced lung function improvement in severe asthma patients following biological therapy. These findings highlight the importance of systemic inflammation and metabolic/nutritional status in predicting treatment response and suggest that interventions targeting nutritional optimization and weight management may enhance therapeutic outcomes. Further studies are warranted to validate these findings and clarify underlying mechanisms.