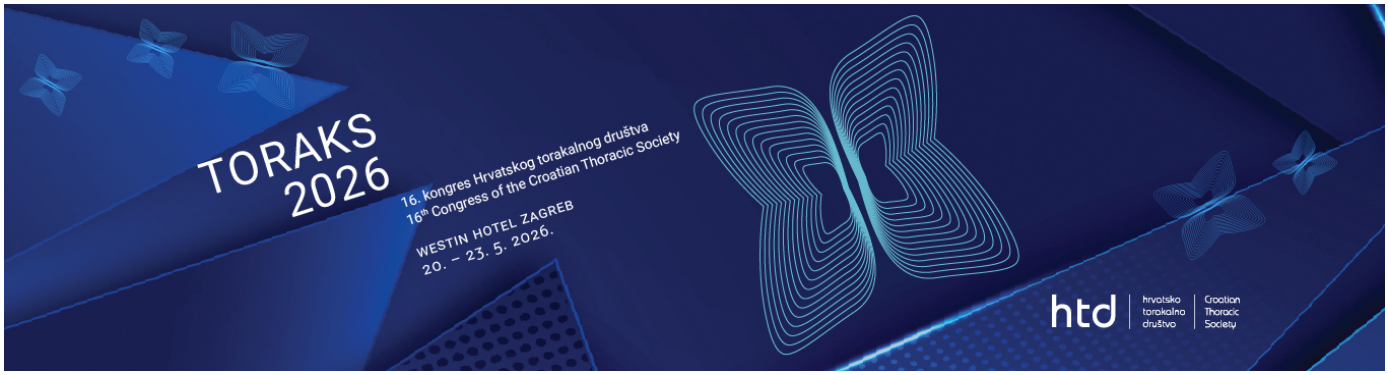


DETERMINANTS OF LONG-TERM PROGRESSION IN HYPERSENSITIVITY PNEUMONITIS: THE ROLE OF PHENOTYPE AND EARLY LUNG FUNCTION CHANGE

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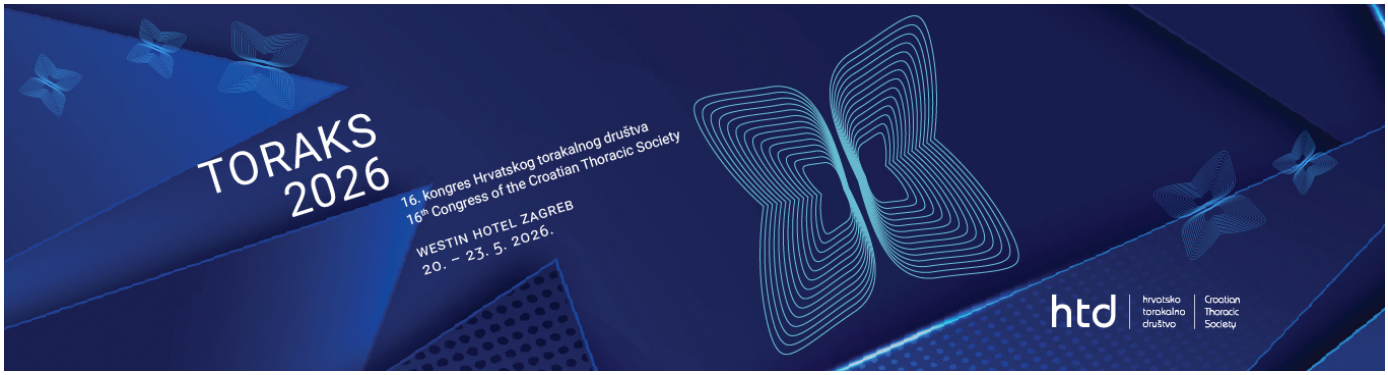
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Objective:

Hypersensitivity pneumonitis (HP) is an interstitial lung disease caused by an immune-mediated reaction of lung parenchyma to inhaled antigens. Lung function assessment is essential for evaluating disease progression and guiding management.

The aim of our study is to assess whether phenotype and early forced vital capacity (FVC) trajectory predict long-term progression in patients with HP.



Methods:

This retrospective single-centre observational study included 82 patients. Spirometry (including %FVC predicted) and diffusing capacity for carbon monoxide (%DLCO predicted) were recorded at baseline, 1, and 5 years.

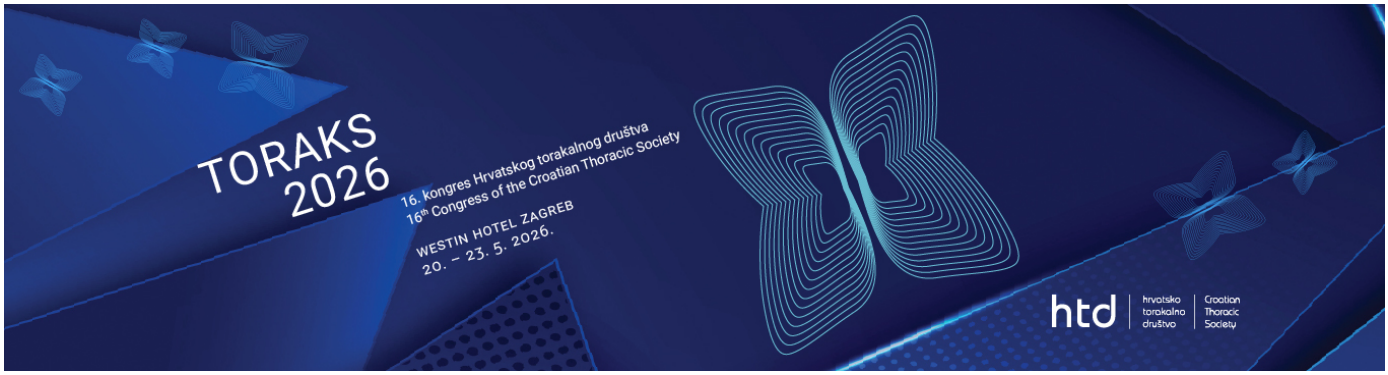
Patients were classified according to the change in FVC from baseline to 1 year as improvers (≥5%), stable (between −5% and +5%), or progressors (≤-5%). Patients were further classified according to radiological phenotype as fibrotic or non-fibrotic. Multivariable logistic regression analysis was performed to evaluate predictors of progression between years 1 and 5, including early FVC trajectory, phenotype, baseline FVC, and baseline DLCO.

Result:

The cohort included 48 fibrotic and 34 non-fibrotic patients (mean age 67.4 years; 56.6% female). Early lung function trajectories were observed, with 39.5% of patients classified as progressors, 33.3% improvers, and 27.2% stable. 5-year progression was noted in a similar percentage of patients across different FVC trajectory groups, whereas progression occurred much more frequently in fibrotic than non-fibrotic phenotype (64.6% vs. 25.0%). (Tables 1 and 2)

In multivariable analysis, fibrotic phenotype was strongly associated with progression between years 1 and 5 (OR 0.09, $p<0.001$), whereas early FVC trajectory was not an independent predictor. Baseline lung function parameters were not significant predictors of progression. The overall model was statistically significant ($p=0.003$) and explained approximately 28% of the variance in the long-term outcome.

Conclusion:



Patients with HP have heterogeneous clinical courses. Phenotype appears to be a more important determinant of long-term progression than short-term changes in lung function. Further research into predictive biomarkers is needed to improve risk stratification and better phenotype specific patient groups.