

## The Impact of Asthma on the Quality of Life and Symptoms in Patients with Chronic Rhinosinusitis

**Ana Penezić<sup>1</sup>, Matej Pačić<sup>2</sup>, Tomislav Gregurić<sup>3</sup>, Marko Velimir Grgić<sup>1</sup>, Tomislav Baudoin<sup>1</sup>, Livije Kalogjera<sup>1</sup>**

<sup>1</sup>Clinical Department of Otolaryngology and Head and Neck Surgery, University Hospital Centre “Sestre Milosrdnice”, Vinogradska 29, 10000 Zagreb, Croatia, <sup>2</sup>Department of Gastroenterology, University Hospital „Sveti Duh“, Sv.Duh 64, 10000 Zagreb, Croatia, <sup>3</sup>Department of Radiology, University Hospital Centre “Sestre Milosrdnice”, Vinogradska 29, 10000 Zagreb, Croatia  
apangercic@gmail.com

**Objective:** The aim of the study was to test whether asthma per se is a factor influencing subjective and objective outcomes in patients with chronic rhinosinusitis (CRS).

**Materials and methods:** This was a cross-sectional study which enrolled CRS patients for 2 years. Patients were asked to score the severity of their rhinosinusitis symptoms on a visual analog scale (VAS), and to fill out a questionnaire on the health-related quality of life– Sinonasal Outcome Test 22 (SNOT-22). CRS was confirmed by symptoms, endoscopy and CT findings. We have defined matching pairs of asthmatic and non-asthmatic patients based on nasal polyp presence, gender, age and allergic sensitization and analysed the difference in symptom scores, HRQL impairment and imaging scores.

**Results:** We observed pairs from 250 patients with CRS, from which 65 (26%) had asthma and 185 (74%) did not have asthma. There was a higher proportion of CRS with nasal polyps (64.2% vs. 29.7%) in the asthma group and positive history of allergy (67.2% vs. 28.2%). Lund-Mackay (LM) scores were higher in asthma patients (13.06 vs. 8.83). We found 60 matching asthma and non-asthma CRS pairs. There was no difference in the SNOT-22 total score (46.45 for asthma and 43.52 for non-asthma group,  $p < 0.357$ ). When comparing each symptom individually in matching patients, we found a statistically significant difference in taste and smell ( $p < 0.016$ ), and there were slightly higher scores in falling asleep and morning tiredness ( $p < 0.053$  and  $p < 0.069$ ). There were more allergy positive patients in the asthma group (66.1% asthma group vs. 50.8% non-asthma group) when we stratified for CRS phenotypes, gender and age. Asthma patients had worse VAS scores for smell than matching couples in the non-asthma group ( $p < 0.013$ ). The LM score was significantly higher in male patients both in the asthmatic and non-asthmatic group ( $p = 0.039$  and  $0.015$ ), while SNOT-22 was insignificantly worse in female asthmatics ( $p = 0.079$ ). Global Osteitis scores were higher in the CRS with nasal polyposis and asthma subgroup of patients.

**Conclusion:** CRS patients with asthma have significantly impaired smell and taste. Aspirin intolerant, asthma positive CRS with nasal polyposis patients have significantly higher osteitis score when compared to other subgroups of CRS patients.

**Key words:** chronic rhinosinusitis, asthma, quality of life, symptoms, osteitis