CHRONIC RHINOSINUSITIS AND INFLAMMATORY BOWEL DISEASE: DISCOVERING THE GUT-LUNG AXIS- PRELIMINARY RESULTS FROM A SINGLE-CENTER PILOT STUDY

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Background and aim

Inflammatory Bowel Diseases (IBD) are multifactorial and debilitating diseases that significantly impact patients' quality of life. A key characteristic of IBD is immune system dysregulation, which contributes to a higher risk of developing additional chronic immune-related disorders, such as chronic rhinosinusitis (CRS). The coexistence of these two conditions can undoubtedly affect patients' life and disease history. This study aims to determine the **prevalence of CRS in individuals with IBD and evaluate its impact on their quality of life**.

Materials and methods

We conducted a prospective, observational, single-center pilot study, enrolling consecutive IBD patients undergoing biological therapy. Clinical, demographic, and disease history data were collected. The sino nasal outcome test 22 (SNOT-22) questionnaire was administrated to each patient to assess subjective symptoms of CRS. Based on the SNOT-22, participants were stratified into two groups: Group 1 (SNOT-22 < 30), indicating no or mild CRS, and Group 2 (SNOT-22 > 30), indicating moderate to severe CRS. Group 2 patients underwent a comprehensive otolaryngological assessment, which included fibrolaryngoscopy to confirm the diagnosis of chronic rhinosinusitis, and laboratory immunological testing. Final diagnoses of CRS were established on otolaryngological evaluation. Given the small sample size and non-normal distribution of variables, group comparisons were performed using the Mann-Whitney U test for continuous variables.

Results

We enrolled 100 IBD patients, of which 57% were affected by ulcerative colitis (UC) and 43% were affected by Crohn's Disease (CD):

- CD patients stratified by disease location:
  1. Ileum: 14 patients (32%)
  2. Colonic: 8 patients (19%)
  3. Ileum-Colonic: 19 patients (44%)
  4. Upper GI: 2 patients (5%)
- RCU patients stratified by disease location:
  1. E1 (proctitis): 8 patients (14%)
  2. E2 (left sided colitis): 20 patients (35%)
  3. E3 (extensive colitis): 26 patients (46%)

Among them, 37% of patients were naive to biological therapy, while 13% had failed at least two lines of biological therapy. Based on the SNOT-22 score, patients were divided in:

- Group 1 with SNOT-22 < 30 (mild symptoms):

1. CD (43): 26 patients (60%)
2. RCU (57): 36 patients (63%)

- Group 2 with SNOT-22 > 30 (moderate to severe symptoms):
  1. CD (43): 17 patients (40%)
  2. RCU (57): 21 patients (37%)

Patients with **Crohn's disease in Group 2 exhibited higher disease activity**, as measured by the Harvey-Bradshaw Index (HBI), compared to those in Group 1 (mean HBI: 3.8 vs. 1.38**; p = 0.004**). In contrast, no significant difference in disease activity was observed among patients with ulcerative colitis between the two groups. At the time of analysis only 22 patients of Group 2 underwent otolaryngological and laboratory evaluation. Among them, 11 patients showed endoscopic signs of CRS. Although no statistically significant differences were observed in biological markers (Eosinophil cationic protein, IgE) or clinical activity scores (HBI, Mayo) between CRS and non-CRS patients (Table 1), this may be attributed to the small sample size and exploratory nature of the analysis.

	CRS (11)	NO CRS (11)	p-value
CD RCU	6 5	6 5	
HBI (mean ± SD)	4,6 ± 2,6	4,6 ± 2,6	0.144
FULL-MAYO, (mean ± SD)	4,6 ± 2,0	4 ± 3,2	0,59
ECP (mean ± SD)	41,9 ± 34,2	28,6 ± 14,8	0,43
IgE (mean ± SD)	112,1 ± 217,7	193 ± 351	0.29

Table 1. *Clinical and biological parameters between CRS and non-CRS patients, showing no significant differences in the preliminary analysis.*

Conclusion

This pilot study suggests that **chronic rhinosinusitis (CRS) is prevalent among patients with inflammatory bowel disease (IBD)**. Consistent with prior reports, our study identified a CRS prevalence of approximately 10% among IBD patients. **Disease activity, as measured by the Harvey-Bradshaw Index (HBI), was significantly higher in CD patients with SNOT-22>30**, whereas no such correlation was found in ulcerative colitis (UC) patients. While preliminary comparisons between CRS and non-CRS patients did not yield statistically significant differences in immunological or clinical parameters, these findings underscore the need for larger cohorts and more complete datasets to uncover potential pathophysiological links within the gut–lung axis.