Epidemiology of Chronic Sinusitis in Patients with Inflammatory Bowel Disease

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Background and Purpose

Chronic Sinusitis (CS) is a prolonged inflammation of the sinus or nasal passages, with potential risk association to Inflammatory Bowel Disease (IBD).

This study aimed to investigate CS prevalence in IBD patients, compare Ulcerative Colitis (UC) and Crohn's Disease (CD), and explore the impact of nasal polyps on the IBD-CS association.

Methods

A retrospective cohort study using a comprehensive dataset from the TriNetX Analytics network, encompassing 94,940,088 patients across 57 healthcare organizations in the United States.

The study included six patient groups:

1. Adults ≥ 18 years old with Inflammatory Bowel Disease (experimental), n = 478,879
2. Adults ≥ 18 years old without Inflammatory Bowel disease (control), n = 78,744,097
3. Adults ≥ 18 years old with Ulcerative Colitis (experimental), n = 260,221
4. Adults ≥ 18 years old without Ulcerative Colitis (control), n = 78,962,755
5. Adults ≥ 18 years old with Crohn's Disease (experimental), n = 260,990
6. Adults ≥ 18 years old without Crohn's Disease (control), n = 78,961,986

The diagnosis of IBD, UC, and CD was based on encounter diagnosis. The prevalence of CS and its different forms were determined using ICD-10 criteria.

Relative risks with 95% confidence intervals (CI) were calculated to assess the association between IBD and CS, as well as the differences between UC and CD.

Results

Out of the 79,222,976 patients included in the study, 478,879 had a diagnosis of IBD, resulting in a prevalence of 0.60%.

Patients with IBD were 2.99 times more likely to have a diagnosis of CS (Table 1).

When comparing UC and CD patients separately to those without IBD, UC patients had a higher relative risk for CS compared to CD (Tables 2 and 3).

Compared to IBD patients, UC patients were slightly more likely to have a CS diagnosis with nasal polyps (RR: 1.10, 95% CI: 1.03-1.19), and less likely to have a diagnosis of CS without nasal polyps (RR: 0.994, 95% CI: 0.990-0.999).

CD patients were slightly less likely to have CS with polyps (RR: 0.90, 95% CI: 0.83-0.97), and more likely to have CS without polyps (RR: 1.01, 95% CI: 1.002 - 1.01).

Table 1. Prevalence and Relative Risks of an ICD related encounter diagnosis of Chronic Rhinosinusitis among patients with and without Inflammatory Bowel Disease

Form of Chronic Rhinosinusitis (ICD-10 Code)	Patients among 478,879 adults with IBD and Percent Prevalence	Patients among 78,744,097 adults without IBD and Percent Prevalence	Relative Risk for patients with IBD (95% CI)
Chronic Rhinosinusitis (J32)	35,397 7.39%	1,944,585 2.47%	2.99 (2.96-3.02)
Chronic Rhinosinusitis with Nasal Polyps (J32, and J33)	1,799 0.38%	96,902 0.12%	3.05 (2.91-3.20)
Chronic Rhinosinusitis without Nasal Polyps (J32, without J33)	33,598 7.02%	1,847,683 2.35%	2.99 (2.96-3.02)

Table 2. Prevalence and Relative Risks of an ICD related encounter diagnosis of Chronic Rhinosinusitis among patients with and without Ulcerative Colitis.

Form of Chronic Rhinosinusitis (ICD-10 Code)	Patients among 260,221 adults with UC and Percent Prevalence	Patients among 78,962,755 adults without UC and Percent Prevalence	Relative Risk for patients with UC (95% CI)
Chronic Rhinosinusitis (J32)	21,353 8.21%	1,958,629 2.48%	3.31 (3.27-3.35)
Chronic Rhinosinusitis with Nasal Polyps (J32, and J33)	1,198 0.46%	97,503 0.12%	3.73 (3.52-3.95)
Chronic Rhinosinusitis without Nasal Polyps (J32, without J33)	20,155 7.75%	1,861,126 2.36%	3.29 (3.24-3.33)

Table 3. Prevalence and Relative Risks of an ICD related encounter diagnosis of Chronic Rhinosinusitis among patients with and without Crohn's Disease.

Form of Chronic Rhinosinusitis (ICD-10 Code)	Patients among 260,990 adults with CD and Percent Prevalence	Patients among 78,961,986 adults without CD and Percent Prevalence	Relative Risk for patients with CD (95% CI)
Chronic Rhinosinusitis (J32)	18,334 7.02%	1,961,648 2.48%	2.83 (2.79-2.87)
Chronic Rhinosinusitis with Nasal Polyps (J32, and J33)	836 0.32%	97,865 0.12%	2.58 (2.41-2.77)
Chronic Rhinosinusitis without Nasal Polyps (J32, without J33)	17,498 6.70%	1,863,783 2.36%	2.84 (2.80-2.88)

Conclusion

We found a significant association between Inflammatory Bowel Disease and Chronic Sinusitis.

Patients with IBD were more likely to have a diagnosis of CS compared to those without IBD.

Patients with Ulcerative Colitis were at higher risk of having CS than patients with Crohn's Disease.

Patients with UC had a higher risk of CS with nasal polyps while patients with CD had a higher risk of CS without nasal polyps.

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