


Prevalence and Clinical Profile of Chronic Rhinosinusitis Among Patients Attending in ENT OPD of a Tertiary Care Hospital

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ABSTRACT

Background: Chronic Rhinosinusitis (CRS) is a prevalent inflammatory disease of the nose & paranasal sinuses, causing immense suffering for millions of people around the world, thereby putting a significant burden on healthcare systems globally. This study was undertaken to evaluate the prevalence and clinical profile of patients with CRS in an ENT OPD. **Methods & Materials:** This cross-sectional observational study was performed at Combined Military Hospital, Jashore, Bangladesh from July 2024 to December 2025, among 120 patients diagnosed with CRS. Sociodemographic, lifestyle, comorbidities, symptoms, endoscopic, and paranasal sinus computed tomography scans were all included in the data collection. SPSS version 26 was used to enter and analyze all of the data. **Results:** The average age was 36.8 ± 12.9 years, and 56.7% of the population was male. The percentage of people who lived in cities was higher (68.3%). Nasal obstruction (90%), nasal discharge (80%), and post-nasal drip (69.2%) were the most common clinical complaints. CRS without nasal polyps had a higher rate (72.5%), while CRS with nasal polyps had a lower percentage (27.5%). Bilateral sides had a higher proportion (73.3%). AR coexisting with CRS was shown to be more common (38.3%), followed by smokers (23.3%). The maxillary (71.7%), ethmoidal (60%), and CT sinuses had higher percentages. **Conclusion:** Rhinological blockage and discharge are the most common symptoms of CRS, which is highly prevalent in tertiary care settings. A comprehensive investigation with a multidisciplinary treatment approach is emphasized by the high comorbidity prevalence of non-polypliod CRS and the equal

prevalence on both sides.

Keywords: Chronic Rhinosinusitis, Nasal mucosa, Nasal polyps

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INTRODUCTION

Chronic rhinosinusitis (CRS) is a common inflammatory condition of the nasal and paranasal mucosa, with persistent symptoms for longer than 12 weeks in duration [1]. It is among the most common diseases found in the practice of medicine and contributes to the socioeconomic burden of healthcare expenditure and lost productivity due to quality-of-life alteration, found to affect 5 to 15% of the global population in the current understanding of the condition's impact and relevance [2]. There are complex multifactorial mechanisms in the CRS, including the role of environment, the immune system, and genetic factors. Clinical classification of the condition has been done into two main categories, namely those suffering from chronic rhinosinusitis with nasal polyps (CRSwNP) and those without nasal polyps (CRSsNP), which clearly follow diverse mechanisms of pathology and management courses [3,4]. However, the symptoms that confirm the condition include nasal blockage, nasal discharge, facial pain or pressure, as well as a reduction in the sensation of smell, which must be further validated by evidence through nasal endoscopy or computed tomography scan findings [5]. There seems to be a clear requirement for

proper characterization despite the criteria being well defined. The epidemiology of CRS can be observed to have variations in different regions of the world depending on the levels of pollution, prevalence of allergic sensitivity, and the availability of medical facilities [6]. There is a lack of data in the developing world about the extent of the problem and the spectrum of cases in the context of CRS in the context of a referral institution in the country [7]. Various risk factors have been identified for the development of CRS, which include smoking, allergies, asthma, anatomical issues, and states of immunodeficiency [8]. Comorbidities tend to coexist in patients with CRS, making patient management a significant concern. New evidence has indicated the important roles of lifestyle changes and managing comorbidities in the overall management of CRS patients [9]. The role played by the tertiary care hospital acts as a referral center for cases that are complex and difficult to manage. These hospitals may have a different disease spectrum than the ones handled in the primary healthcare system. The assessment and establishment of the healthcare profile among the patients with CRS would be beneficial to understand the disease severity and the management requirements [10]. This study aimed to determine the

prevalence, identify, and comprehensively describe the clinical profile of patients with chronic rhinosinusitis who visited an ear, nose, and throat specialist's outpatient department at a Bangladeshi tertiary care hospital.

METHODS & MATERIALS

The study was a cross-sectional observational study undertaken at Combined Military Hospital, Jashore, Bangladesh from July 2024 to December 2025 over a period of 12 months. The study population was composed of patients attending the outpatient department, having clinical features suggestive of Chronic Rhinosinusitis, in which a total population of 120 was enrolled after obtaining informed written consent from the patients along with clearance from the Institutional Review Board. Patients aged 16 years and above of both sexes, presenting with the following prominent symptoms of Rhinosinusitis, such as nasal obstruction, presence of nasal discharge, facial pain & pressure, loss of smell in varying amounts for a period not less than 12 weeks, were chosen for the study. The patient was judged to have Chronic Rhinosinusitis based on the definition set by the "European Position Paper on Rhinosinusitis & Nasal Polyps," along with

nasal endoscopic & computed tomograms of the paranasal sinuses. Patients with Acute Rhinosinusitis less than 12 weeks, in case of an episode of Acute Exacerbation in the preceding four weeks, those with a History of Sinonasal surgery in the preceding six months, Sinonasal malignancy, cases with Immune conditions, Patient being pregnant, & those not willing to participate in the study were not chosen for this study on Rhinosinusitis. The data was collected by using a structured proforma, in which parameters studied were Sociodemographics regions such as age, sex, residence, & occupations, & lifestyle areas such as Smoking status,

Medical conditions comprising Allergic Rhinitis, Bronchial Asthma, Diabetes mellitus, & Hypertension, Family history of "Atopy," detailed "symptom profile," & "duration," & all patients were subjected to detailed "Nasal Endoscopic Examination with 0 degree rigid endoscope to observe mucosal edema, presence & character of nasal polyps, character & amount of nasal discharge, & areas related to anatomy," & then non-contrast "computed tomogram of the paranasal sinuses to observe involvement & disease extent." The data obtained was quantified by using suitable computer programs & represented in the

form of frequencies, percentages, means, & Standard Deviations.

RESULTS

Table 1 shows that most patients suffering from CRS were from the age group 25-34 years (28.3%), with an average age of 36.8 ± 12.9 years. 56.7% of patients were male, and 43.3% were female. Urban population (68.3%) was higher than the rural population, pointing towards possible correlations between CRS and environmental exposures. The occupational class identified service holders (35%) and students (16.7%) as most affected.

Table I
Socio-Demographic Characteristics of Study Participants (n = 120).

| Variable | Category | Frequency (n) | Percentage (%) |
|-------------------|----------------|---------------|----------------|
| Age group (years) | 16-24 | 22 | 18.3 |
| | 25-34 | 34 | 28.3 |
| | 35-44 | 28 | 23.3 |
| | 45-54 | 20 | 16.7 |
| | ≥55 | 16 | 13.4 |
| | Mean ± SD | 36.8 ± 12.9 | - |
| Sex | Male | 68 | 56.7 |
| | Female | 52 | 43.3 |
| Residence | Urban | 82 | 68.3 |
| | Rural | 38 | 31.7 |
| Occupation | Student | 20 | 16.7 |
| | Service holder | 42 | 35 |
| | Business | 16 | 13.3 |
| | Homemaker | 28 | 23.3 |
| | Others | 14 | 11.6 |

Table II revealed that 31.7% have exposure to smoking (23.3% current smokers and 8.4% former smokers), which can be considered a highly influential and

modifiable risk factor. Total patient group (38.3%) has a comorbid condition of allergic rhinitis. Bronchial asthma is seen in 12.5% of total patients. Systemic

diseases such as hypertension in 14.2% and diabetes mellitus in 11.7% can be considered important, in addition to a family history of atopy in 26.7%.

Table II
Lifestyle Factors and Comorbid Conditions Among CRS Patients.

| Variable | Category | n (%) |
|---------------------------|----------------|-----------|
| Smoking status | Non-smoker | 82 (68.3) |
| | Current smoker | 28 (23.3) |
| | Former smoker | 10 (8.4) |
| Allergic rhinitis history | Present | 46 (38.3) |
| | Absent | 74 (61.7) |
| Bronchial asthma | Yes | 15 (12.5) |
| Diabetes mellitus | Yes | 14 (11.7) |
| Hypertension | Yes | 17 (14.2) |
| Family history of atopy | Present | 32 (26.7) |

Table III unveiled that nasal obstruction (90%) and rhinorrhea (80%) were the common nasal symptoms. Post-nasal drip (69.2%), facial pain/pressure (56.7%), and

headaches (65%) indicated the common pain-related symptomatology. Olfactory dysfunction was prevalent (30%), with hyposmia/anosmia. Other symptomatology,

including sneezing (26.7%) and cough (19.2%) suggested an inflammatory and an airway disease process.

Table III
Clinical Symptom Profile of Chronic Rhinosinusitis.

| Symptom | Frequency (n) | Percentage (%) |
|-------------------|---------------|----------------|
| Nasal obstruction | 108 | 90 |
| Nasal discharge | 96 | 80 |
| Post-nasal drip | 83 | 69.2 |

| | | |
|----------------------|----|------|
| Facial pain/pressure | 68 | 56.7 |
| Headache | 78 | 65 |
| Hyposmia/anosmia | 36 | 30 |
| Sneezing | 32 | 26.7 |
| Chronic cough | 23 | 19.2 |

Table IV demonstrated that the majority 39.2% of the patients suffered from the same symptoms for longer than 1 year, while (32.5%) of the patients had symptoms for longer than 6 months to 1

year. CRS without nasal polyps was observed in 72.5% of the patients, while in the remaining 27.5%, the diagnosis was CRS with polyps. Bilateral distribution of the diseases in 73.3% of the patients

indicated the spread of the inflammation in the sinuses, while in the remaining 26.7%, which showed unilateral distribution, one has to rule out the focal conditions.

Table IV
Duration of Symptoms and Clinical Classification.

| Variable | Category | n (%) |
|----------------------|-----------------------------------|-----------|
| Duration of symptoms | 12 weeks-6 months | 34 (28.3) |
| | >6 months-1 year | 39 (32.5) |
| | >1 year | 47 (39.2) |
| Type of CRS | CRS without nasal polyps (CRSsNP) | 87 (72.5) |
| | CRS with nasal polyps (CRSwNP) | 33 (27.5) |
| Laterality | Bilateral | 88 (73.3) |
| | Unilateral | 32 (26.7) |

Table V shows mucosal edema in 68.3% of cases, which was mostly due to inflammation. Presence of purulent discharge was found in 46.7% of cases.

Septal deviation was observed in 40% cases, which was an important variation with possible role in disease etiology. CT scans revealed maxillary sinus disease in

71.7% cases, followed by ethmoid, frontal, and sphenoid sinuses in 60%, 28.3%, and 18.3% cases, respectively.

Table V
Endoscopic and Radiological Findings.

| Finding | Category | n (%) |
|-----------------|-----------------------------|-----------|
| Nasal endoscopy | Mucosal edema | 82 (68.3) |
| | Purulent discharge | 56 (46.7) |
| | Nasal polyps | 33 (27.5) |
| | Septal deviation | 48 (40) |
| CT PNS findings | Maxillary sinus involvement | 86 (71.7) |
| | Ethmoid sinus involvement | 72 (60) |
| | Frontal sinus involvement | 34 (28.3) |
| | Sphenoid sinus involvement | 22 (18.3) |

There were multiple responses.

DISCUSSION

This study demonstrated the prevalence and clinical spectrum of CRS in a tertiary care center and provided inferences on the demographic and diagnostic profile of the disease. The mean age of 36.8 ± 12.9 years, which predominated in the age group of 25-34 years, agrees with Smith et al., who stated the productivity of the affected classes of people in the community, thereby creating a considerable socioeconomic burden [11]. The male predominance of 56.7% in our study concurs with that of Kim et al., but variations do exist in the gender ratio in the general population [12]. Urban dominance (68.3%) implies linkages with air pollutants, exposure to allergens, and associated lifestyle factors. Mady et al. showed that the rise of urbanization has been linked with air quality deterioration and the rise of CRS [13]. The occupational pattern indicating service holders, students being predominantly affected, draws attention not only to its burden but also to

its effects on the working-age group. A significant exposure to smoking was also found to be prevalent in the CRS patients, and it was observed to be 31.7%. This further supports the existing body of evidence related to the pathogenesis of sinonasal inflammation, dysfunction of cilia, and vulnerability to infections due to exposure to tobacco smoke [14]. This also supports the concept reported by Bousquet et al., as the association with allergic rhinitis was found to be 38.3%, and the association with bronchial asthma was found to be 12.5% in the study [15]. This symptom complex, which consists of nasal obstruction (90%) and rhinorrhoea (80%), closely mirrors the main characteristics associated with CRS and largely impacts quality of life. A reduction in olfactory sensation, or hyposmia, found in 30% of patients, relates to a symptom that has been substantially overlooked, which largely impacts nutritional intake, awareness, and psychiatric well-being [16]. The presence of facial pain at 56.7% and cough at 19.2%

differs significantly, leading to specific symptom management. The dominance of CRSsNP (72.5%) over CRSwNP (27.5%) found in this study is consistent with Cao et al., although phenotypic variations occur according to geographical location [17]. These phenotypes have different characteristics of inflammation, where CRSwNP is predominantly eosinophilic with a higher rate of recurrence after treatment. Bilateral involvement in 73.3% suggests widespread inflammation, although unilateral disease always requires investigation for neoplastic or fungal infection [18]. Endoscopic examination showed mucosal edema (68.3%) and the presence of purulent discharge (46.7%) as dominant signs. This is evident in diagnosing CRS. Septal deviation in 40% of the cases is a contributing anatomical lesion potentially causing obstruction in the ostiomeatal complex and poor sinus ventilation [19]. CT scan studies showed that the maxillary sinus was involved in 71.7% of the cases. This clearly showed that sinus

anatomy contributes to the gravitation of fluids in the dependent areas. A high prevalence of 60% in the case of the ethmoid sinus highlights its association with obstruction in the ostiomeatal complex and spread of infection to other sinuses [20]. Comorbidities, such as hypertension in 14.2% and diabetes mellitus in 11.7%, make it essential to take special precautions while managing treatment, as these factors can affect treatment modalities, as well as outcomes. A family history of atopy in 26.7% points towards genetic susceptibility, implying a complex pathophysiological cause in both genetic and environmental elements [21]. The presentation with symptoms for longer than 6 months in 71.7% of cases would indicate issues with the initial diagnosis, lack of awareness, and the initial care delivered. It again underlines the nervous system of educating the primary care physicians better about the diagnosis of CRS and the criteria for referral. The clinical profile as presented in this case would be useful for forming the foundation for the managerial approach and patient education in the tertiary level of care.

LIMITATIONS

This study might not be accurately representative of the overall population, considering it comprises a single-center study with a limited sample size. Additionally, because the study is hospital-based, intervention bias may exist, and patients may have been selected for evaluation in a tertiary care center.

CONCLUSION

Individuals attending the tertiary care facility have a significant prevalence of rhinosinusitis chronicus, primarily in the younger to middle-aged age range, with a similar predisposition in men. Nasal blockage and discharge are the main symptoms of this illness. Changes in quality of life and smell have a significant effect. The etiological homogeneity is diminished by the high prevalence of relationship with smoking exposure and allergic rhinitis, necessitating a more comprehensive workup and therapy approach. A particular management approach is required due to the majority of patients' lack of nasal polyps, their propensity to be bilaterally distributed, and their maxillary predilection.

RECOMMENDATIONS

Larger multicentric studies with follow-up periods will aid in the evaluation of

treatment responsiveness, prognostic variables, and the impact of specific therapies on illness progression and quality of life.

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CONFLICT OF INTEREST

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