Profile of Rhinosinusitis Patients at Universitas Airlangga Hospital Surabaya from 2018 – 2021

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Abstract

Background: Rhinosinusitis is an inflammatory condition of the nasal and paranasal sinus mucosa. Based on the duration of the disease, rhinosinusitis is divided into two types: acute rhinosinusitis and chronic rhinosinusitis. Acute rhinosinusitis occurs within a period of less than 12 weeks, while chronic rhinosinusitis persists for more than 12 weeks.
Objective: The aim of this research is to describe the profile of rhinosinusitis patients at Universitas Airlangga Hospital in Surabaya from 2018 – 2021.
Methods: This research is an observational study conducted using a retrospective descriptive method with the utilization of medical record data. The total sample size for this study is 118 subjects.
Result: The distribution of rhinosinusitis patients by sex revealed a higher percentage of females at 64.4%. The age group with the highest frequency is ≥65 years, at 28.8%. The most dominant clinical symptom in rhinosinusitis patients is a runny nose, at 70.3%. The most common type of rhinosinusitis is chronic rhinosinusitis, with a percentage of 80.5%. The most frequently affected sinus location is the maxillary sinus, at 55.9%. The most commonly found physical examination ENT local is presence of secretions, at 46.6%. The most common risk factor is nasal anatomical abnormalities, at 42,3%. The most commonly of medical therapy is medication, at 85.6%.
Conclusion: From this study, profile of rhinosinusitis patients at the Otorhinolaryngology-Head and Neck Surgery (ORL-HNS) Clinic of Universitas Airlangga Hospital from 2018 to 2021 is predominantly female, aged above 65 years, with the most common diagnosis being chronic rhinosinusitis involving the maxillary sinus. The most frequently reported clinical symptom is nasal discharge, with the most prevalent finding being the presence of secretions. The most common risk factor is nasal anatomical abnormalities, and the majority of patients receive medicamentosa therapy.

Keywords : profile rhinosinusitis; acute rhinosinusitis; chronic rhinosinusitis

1. Introduction

Rhinosinusitis is an inflammatory condition affecting the nasal mucosa and paranasal sinuses. The causes of rhinosinusitis involve a combination of host, agent, and environmental factors. Based on the duration of the illness, rhinosinusitis is divided into two types: acute rhinosinusitis and chronic rhinosinusitis. Acute rhinosinusitis occurs within less than 12 weeks, while chronic rhinosinusitis persists for more than 12 weeks [1].

The National Health Interview Survey in the United States states that rhinosinusitis is one of the most common reasons for clinical visits during a one-year period, with 73 million cases related to rhinosinusitis.

The reported total medical costs for rhinosinusitis patients amount to $2.4 billion, excluding surgical or radiographic expenses [2]. Another study in 2012 reported that 12% of the U.S. population was diagnosed with rhinosinusitis. Approximately 20 million cases of Acute Bacterial Rhinosinusitis (ABRS) occur each year in the United States. In children, rhinosinusitis occurs at a rate of approximately 6-8 episodes per year [3]. A study conducted in Saudi Arabia recorded 100 cases of sinusitis in children [4].

The incidence of rhinosinusitis in Indonesia lacks precise epidemiological data. Research on rhinosinusitis is conducted by various institutions, and there is no official specific data from the government. A study at the RSUD dr. Zainoel Abidin Banda Aceh in 2019-2020 reported 445 patients diagnosed with rhinosinusitis. Acute rhinosinusitis accounted for a higher percentage, at 60.30%, while chronic rhinosinusitis was at 39.70% [5]. Another study at RSUD Soetomo Surabaya, using medical records from March 2018 to February 2019, showed 43 cases of chronic rhinosinusitis in individuals aged ≥ 18 years, with the highest incidence in the 36-45 age group [6].

Rhinosinusitis can lead to complications affecting the eyes and intracranial region. Studies indicate that orbital complications often occur in children at a rate of 72.2%, while in adults, the rate is 27.8% [7]. Discomfort caused by rhinosinusitis can disrupt the quality of life for sufferers. Patients may experience difficulty sleeping due to nasal congestion, fatigue, and it may even impact their mental and psychological health. Rhinosinusitis requires special attention by understanding its symptoms, risk factors, and complications. This insight into the disease's mechanisms allows for preventive measures that reduce symptoms and complications [8].

As of now, there is no epidemiological data on rhinosinusitis at Universitas Airlangga Hospital in Surabaya. Therefore, the aim of this research is to describe data related to the profile of rhinosinusitis patients at Airlangga University Hospital from 2018 – 2021.

2. Method

This study is an observational research employing a retrospective descriptive method with secondary data sourced from medical records containing patient basic data, clinical symptoms, types of rhinosinusitis based on the duration of the disease, Otorhinolaryngology-Head and Neck Surgery (ORL-HNS) local status physical examinations, sinus location, risk factors, and types of therapy. The research was conducted at the Otorhinolaryngology-Head and Neck Surgery (ORL-HNS) Clinic of Universitas Airlangga Hospital, Surabaya, and the medical records installation room at Universitas Airlangga Hospital. The target population for this study comprises rhinosinusitis patients at Universitas Airlangga Hospital in Surabaya from 2018 - 2021.

The sampling technique employed in this research is total sampling, where the sample size is equal to the total number of the entire population of rhinosinusitis patients at Universitas Airlangga Hospital in Surabaya from 2018 – 2021. The sample for this study consists of rhinosinusitis patients at Universitas Airlangga Hospital in Surabaya who meet the inclusion criteria. The inclusion criteria for this study are patients diagnosed with rhinosinusitis at the Otorhinolaryngology-Head and Neck Surgery (ORL-HNS) Clinic of Universitas Airlangga Hospital and having complete medical record data. The exclusion criteria for this study are patients diagnosed with rhinosinusitis but with incomplete medical record data.

3. Result

Secondary data were obtained from patients with rhinosinusitis at Universitas Airlangga Hospital in Surabaya from 2018 – 2021. Total number of visits by rhinosinusitis patients to the Otorhinolaryngology-Head and Neck Surgery (ORL-HNS) Clinic at Airlangga University Hospital in Surabaya from 2018 – 2021

was 1812 patients. The number of patients diagnosed with rhinosinusitis at Universitas Airlangga Hospital from 2018 – 2021 was 484 patients. From this total, 366 rhinosinusitis patients were excluded due to incomplete medical record data. The selected sample for the research comprised 118 patients with rhinosinusitis at Universitas Airlangga Hospital in Surabaya from 2018 - 2021.

Table 1. Distribution of gender in rhinosinusitis patients at Universitas Airlangga Hospital, Surabaya, from 2018 – 2021

Gender	Frequency	Precentage (%)
Male	42	35,6
Female	76	64,4

Based on table 1, the most prevalent gender among rhinosinusitis patients at Universitas Airlangga Hospital, Surabaya, from 2018 – 2021 is female, comprising 76 patients (64.4%).

Table 2. Distribution of age in rhinosinusitis patients at Universitas Airlangga Hospital, Surabaya, from 2018 – 2021

Age (years)	Frequency	Precentage (%)
0 – 5	1	0,8
12 – 16	4	3,4
17 – 25	10	8,5
26 – 35	14	11,9
36 – 45	19	16,1
46 – 55	20	16,9
56 – 65	16	13,6
≥ 65	34	28,8

The age of patients was categorized into eight groups based on the classification from the Department of Health. According to the age distribution table 2, the most prevalent age group among rhinosinusitis patients at the Otorhinolaryngology-Head and Neck Surgery (ORL-HNS) Clinic of Universitas Airlangga Hospital from 2018 – 2021 was the ≥65 years age group, comprising 34 patients (28.8%). No occurrences of rhinosinusitis were observed in the 5-11 years age group.

Table 3. Distribution of types of rhinosinusitis based on the duration of the illness in rhinosinusitis patients at Universitas Airlangga Hospital, Surabaya, from 2018 – 2021

Type of rhinosinusitis	Frequency	Precentage (%)
Acute rhinosinusitis	23	19,5
Chronic rhinosinusitis	95	80,5

This study presents data on the distribution of types of rhinosinusitis based on the duration of the illness suffered by patients, namely acute rhinosinusitis occurring < 12 weeks, while chronic rhinosinusitis occurs > 12 weeks. The most prevalent type of rhinosinusitis at the Otorhinolaryngology-Head and Neck Surgery (ORL-HNS) Clinic of Universitas Airlangga Hospital in Surabaya from 2018 – 2021 was chronic rhinosinusitis, observed in 95 patients (80.5%).

Table 4. Distribution of types of rhinosinusitis based on sinus location in rhinosinusitis patients at Universitas Airlangga Hospital,

Surabaya, from 2018 – 2021

Sinus location	Frequency	Precentage (%)
Maxillary	66	55,9
Ethmoidal	2	1,7
Pansinusitis	9	7,6
Unspecified	40	33,9

Based on table 4, rhinosinusitis cases at Otorhinolaryngology-Head and Neck Surgery (ORL-HNS) Clinic of Universitas Airlangga Hospital in Surabaya from 2018 – 2021 most frequently affected the maxillary sinus, with 66 patients (55.9%). There is no available data on rhinosinusitis cases located in the frontal and sphenoidal sinuses

Table 5. Distribution of clinical symptoms in in rhinosinusitis patients at Universitas Airlangga Hospital, Surabaya, from 2018 – 2021

	Clinical symptoms	Frequency	Precentage (%)
1.	Runny nose		
	Yes	83	70,3
	No	35	29,7
2.	Congested nose		
	Yes	79	66,9
	No	39	33,1
3.	Facial pain		
	Yes	36	30,5
	No	82	69,5
4.	Hyposmia		
	Yes	36	30,5
	No	82	69,5
5.	Cough		
	Yes	26	22,0
	No	92	78,0
6.	Smelly nose		
	Yes	11	9,3
	No	107	90,7
7.	Headache		
	Yes	27	22,9
	No	91	77,1

The data obtained in this study indicates that the most commonly experienced clinical symptom among rhinosinusitis patients at Universitas Airlangga Hospital from 2018 – 2021 is a runny nose, observed in 83 patients (70.3%).

Tabel 6. Distribution of ORL-HNS local status physical examinations in rhinosinusitis patients at Universitas Airlangga Hospital, Surabaya, from 2018 – 2021

Physical Examination of ORL-HNS local status		Frequency	Percentage (%)
1.	Nasal cavity		
	Wide	84	71,2
	Narrow	34	28,8
2.	Swollen mucosa		
	Yes	21	17,8
	No	97	82,2
3.	Hyperemia		
	Yes	16	13,6
	No	102	86,4
4.	Deviated septum		
	Yes	19	16,1
	No	99	83,9
5.	Hipertrophy of concha		
	Yes	31	26,3
	No	87	73,7
6.	Secret		
	Yes	55	46.6
	No	63	53.4
7.	Crust		
	Yes	5	4,2
	No	11	95,8
8.	Polyp		
	Yes	7	5,9
	No	111	94,1

The data obtained in table 6, indicates the results of the physical examination of the ORL-HNS local status with a diagnosis of rhinosinusitis, revealing that the most prevalent finding is the presence of secretions in 55 patients (46.6%).

Table 7. Distribution of risk factors in rhinosinusitis patients at Airlangga University Hospital, Surabaya, from 2018 – 2021

Risk factors		Frequency	Percentage (%)
1.	Anomalies in nasal anatomy		
	Yes	50	42,3
	No	68	57,6
2.	Smoking		
	Yes	1	0,8
	No	117	99,2

The obtained data indicates that the most prevalent risk factor is nasal anatomical abnormalities, found in 50 patients (42.3%).

Table 8. Distribution of types of therapy in rhinosinusitis patients at Universitas Airlangga Hospital, Surabaya, from 2018 – 2021

Types of therapy	Frequency	Percentage (%)
Medicamentosa	101	85,6
Operation	17	14,4

The management of patients with rhinosinusitis at the Otorhinolaryngology-Head and Neck Surgery (ORL-HNS) Clinic of Universitas Airlangga Hospital from 2018 to 2021 primarily involved medical therapy, with the highest number being 101 patients (85.6%).

4. Discussion

Based on the data collected through the medical record from Universitas Airlangga Hospital Suatabaya about the gender of the patient based in table 1 showed that the gender of patients was mostly female (64,4%). This study is also supported by several research findings that indicate similar results, stating that the majority of rhinosinusitis patients are female [5][9][10][11][12][13]. The occurrence of rhinosinusitis is frequently observed in females, presumably due to differences in anatomical size, susceptibility to tobacco, and hormonal factors. Women are also more susceptible to blockages and infections due to smaller sinus ostia [11]. Female tend to be more attentive to the symptoms they experience, leading them to promptly seek healthcare examinations. Research results can also be influenced by various factors such as population demographics, environmental conditions, and health considerations [14].

This study indicates that rhinosinusitis is most commonly found in individuals aged ≥ 65 years, accounting for 28.8%, followed by the age group of 46–55 years at 16.9%. In adulthood, numerous lifestyle changes, dietary patterns, and infections are prevalent. The adult age group is also more likely to engage in outdoor activities, leading to increased exposure to pollutants and irritants more frequently [15]. Adults face a higher risk of developing rhinosinusitis due to the nasal passages tending to dry with age, weakening of cartilage strength resulting in alterations in blood flow, and a decline in cough and vomiting reflexes. Additionally, the immune system weakens, increasing the susceptibility to severe respiratory infections compared to younger adults [16].

Based on the data in table 3, the majority of rhinosinusitis patients at the Otorhinolaryngology-Head and Neck Surgery (ORL-HNS) Clinic of Universitas Airlangga Hospital were diagnosed with chronic rhinosinusitis, with a disease duration of ≥12 weeks, constituting 80.5%. Several studies have shown similar results, indicating a higher prevalence of chronic rhinosinusitis compared to acute rhinosinusitis [5][17][15][18]. The factor of insufficient knowledge and awareness levels among the community in recognizing the symptoms of rhinosinusitis, coupled with the perception that these symptoms are common and will disappear with inappropriate medication, may lead to recurring incidents resulting in severe symptoms and the development of chronic conditions [19].

This study yields similar results to research [20][21][9][15][4][22] indicating that the most commonly affected sinus location in rhinosinusitis is the maxillary sinus. The maxillary sinus is the sinus most frequently affected by inflammation. This is due to the higher location of the ostium of the maxillary sinus, causing drainage to rely solely on ciliary movement and drainage through a narrow infundibulum. Any impairment in ciliary movement can lead to the accumulation of secretions in the sinus, providing a breeding ground for bacteria. The base of the maxillary sinus is the root of the teeth, so infections in the teeth can also result in maxillary rhinosinusitis [23].

According to European Position Paper on Rhinosinusitis and Nasal Polyps 2020 (EPOS 2020), this aligns with the major symptom theory of rhinosinusitis, which includes nasal congestion, nasal obstruction,

facial pain, and hyposmia or anosmia. In children, a major clinical symptom is cough. The diagnosis is confirmed when there are two or more major criteria or one major symptom and two or more minor criteria. The results of this study indicate that the majority of rhinosinusitis patients experienced clinical symptoms of rhinorrhea or nasal discharge, with 83 patients (70.3%). This occurs because inflammation in the nasal cavity leads to swollen mucosa, resulting in the blockage of sinus ostia. This obstruction disrupts the function of ostial drainage and ventilation, causing a decrease in oxygen or hypoxia that affects mucosal response, leading to vasodilation, impaired ciliary function, and gland dysfunction. Consequently, there is an accumulation of secretions due to ostial obstruction [2].

The results of this study indicate the most common finding, which is the presence of secretions in 55 patients (46.6%). Several studies have reported similar results in their research [24]. According to European Position Paper on Rhinosinusitis and Nasal Polyps 2020 (EPOS 2020), the diagnosis of rhinosinusitis is confirmed if nasal polyps, mucopurulent secretion from the middle meatus, and/or mucosal edema in the middle meatus are observed during nasal examination or endoscopy [1].

Based on the table 7, the results of this study indicate that a significant number of rhinosinusitis patients at the Otorhinolaryngology-Head and Neck Surgery (ORL-HNS) Clinic of Universitas Airlangga Hospital did not have specific anamnesis data related to risk factors. However, among the patients with identified risk factors, anatomical abnormalities of the nose were the most prevalent, observed in 50 patients (42.3%), followed by smoking in 1 patient (0.8%). This study also asserts that there is a significant correlation between nasal anatomical abnormalities and maxillary sinusitis type ($p = 0.002$) and ethmoidal sinusitis type ($p = 0.046$). This is supported by Bachret's pressure theory, suggesting that posterior nasal septum deviation is a risk factor for sinusitis due to alterations in airflow, primarily affecting the maxillary sinus and the sinuses closest to the posterior vertical part [25].

This research indicates that the majority of rhinosinusitis patients at the the Otorhinolaryngology-Head and Neck Surgery (ORL-HNS) Clinic of Universitas Airlangga Hospital received medical therapy (85.6%). In general, the primary management of rhinosinusitis involves medical therapy. The use of antibiotics in cases of Recurrent Acute Rhinosinusitis (RARS) is administered for 7 days, and if improvement occurs, antibiotic therapy may be continued for 7-14 days. However, if there is no improvement, an evaluation or surgical intervention such as Functional Endoscopic Sinus Surgery (FESS), inferior meatus antrostomy, or Caldwell Luc procedure may be considered. This results in a higher proportion of medical therapy, as a two-week duration often demonstrates a favorable response, while surgical procedures require specific indications, such as the absence of improvement after two weeks or evidence of ostial obstruction unresponsive to medical treatment. The primary indications for surgical intervention in rhinosinusitis are suspicion of complications or neoplasms. Relative indications for other interventions include the presence of polyps in chronic rhinosinusitis that does not respond well to medical therapy [26].

5. Conclusion

This study concludes that the profile of rhinosinusitis patients at the the Otorhinolaryngology-Head and Neck Surgery (ORL-HNS) Clinic of Universitas Airlangga Hospital from 2018 – 2021 is predominantly female, aged ≥ 65 years, with the most common diagnosis being chronic rhinosinusitis involving the maxillary sinus. The most frequently reported clinical symptom is nasal discharge, with the most prevalent finding being the presence of secretions. The most common risk factor is nasal anatomical abnormalities, and the majority of patients receive medicamentosa therapy

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