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Characteristics of Patient at Rinology Divison of Ear, Nose, and Throat Polyclinic in Prof. Dr. I.G.N.G. Ngoerah General Hospital Denpasar in 1 January 2020 – 31 December 2021

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ABSTRACT

Rhinology-related diseases are very common worldwide. Although not fatal, they may cause significant morbidity and reduce quality of life. We ai0med to describe the characteristics of patients in the rhinology division at the eye, nose and throat (ENT) Polyclinic, Prof. Hospital. Dr. I.G.N.G Ngoerah Denpasar in the period 1 January 2020 to 31 December 2021. It was a retrospective descriptive study which conducted in the rhinology division of the ENT Polyclinic, Prof. Hospital. Dr. I.G.N.G Ngoerah Denpasar from 1 January 2020 to 31 December 2021. A total of 752 patients underwent outpatient care during the period January 1, 2020, to December 31, 2021. Various rhinology cases found included inferior turbinate hypertrophy, nasal septum deviation, allergic rhinitis, bullous turbinate, nasal polyps, maxillary sinusitis, ethmoidal sinusitis, frontal sinusitis, sphenoidal sinusitis and pansinusitis. The most common diagnosis is inferior turbinate hypertrophy, and the least is frontal sinusitis. Inferior turbinate hypertrophy is commonly found in men and at the age of 41-50 years. The similar results also found in other cases, where it is more commonly found in men and at the age of 31-50 years. These results may contribute as a basic information to provide health care in general and to develop prevention strategy related to rhinology disease.

Keywords: characteristic, descriptive, rhinology.

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I. Introduction

Symptoms associated with the nose, ears and throat are the most common complaints found both at the emergency department and polyclinic visits. The number of polyclinic visits with nose-associated problem reached 20.1 million annually in the United States [1]. Nose does not only act as a respiratory tract but also as humidifying and filtering respiratory air. It also has role in smelling and sound phonation [2].

Rhinosinusitis is one of the most common diseases included in the spectrum of nasal diseases. Annually, the prevalence of rhinosinusitis reached 58 million in the United States and reached 107 million in China. Untreated acute rhinosinusitis will lead to chronic rhinosinusitis. In addition, patients with comorbidities such as allergic rhinitis and asthma are also more prone to experiencing chronic rhinosinusitis which may cause a significant decrease in quality of life [3]–[5].

Nasal septal deviation, turbinate hypertrophy, and nasal polyps are also common nasal complaints. They can cause long-term symptoms of nasal obstruction resulting in changes in nasal structure and physiology. This chronic nasal obstruction may cause sleep disturbances, facial pain, and loss of productivity. This will eventually lead to a significant decrease in quality of life [2],[6].

Based on the description above, it can be concluded that rhinology-related diseases are very common worldwide. Although nose-related diseases are not fatal, they may cause significant morbidity and reduce quality of life. Thus, we aimed to described the characteristics of patients in the rhinology division at the eye, nose and throat (ENT) Polyclinic, Prof. Hospital. Dr. I.G.N.G Ngoerah Denpasar in the period 1 January 2020 to 31 December 2021.

II. Methods

This was a retrospective descriptive study. It was conducted in the rhinology division of the ENT Polyclinic, Prof. Hospital. Dr. I.G.N.G Ngoerah Denpasar from 1 January 2020 to 31 December 2021. The inclusion criteria in this study were new patients who were treated at the rhinology division of Prof. Dr. I.G.N.G Ngoerah Denpasar from 1 January 2020 to 31 December 2021. Exclusion criteria were patients with incomplete medical records. The sample was collected consecutively. The data was obtained secondary from electronic medical records. The results of the examination were recorded in the data collection sheet for further analysis. The research results were presented descriptively in the form of tables and narratives.

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III. Results

In total, there were 752 patients who underwent outpatient care at the rhinology division of the ENT Polyclinic, Prof. Hospital. Dr. I.G.N.G. Ngoerah Denpasar for the period January 1, 2020 to 31 December, 2021 (Table I).

TABLE I: Characteristics of Patients

Diagnosis	Frequency (n)	Percentage (%)
Inferior turbinate hypertrophy	223	29.65%
Septum deviation	110	14.62%
Polyp	43	5.71%
Maxillary sinusitis	139	18.50%
Ethmoid sinusitis	42	5.60%
Frontalis sinusitis	13	1.72%
Sphenoidalis sinusitis	20	2.65%
Middle turbinate bullosa	100	13.30%
Allergy rhinitis	24	3.20%
Pansinusitis	38	5.05%
TOTAL	752	100%

The most common diagnosis found in this study were inferior turbinate hypertrophy in 223 patients (29.65%). Majority of new cases were male (Table II).

TABLE II: Characteristics of Patients in Rhinology Division Based on SEX

Diagnosis	Sex	Frequency (n)	Percentage (%)
Inferior turbinate hypertrophy	M	134	60.10%
	F	89	39.90%
	Total	223	100%
Septum deviation	M	78	70.90%
	F	32	29.10%
	Total	110	100%
Polyp	M	23	53.50%
	F	20	46.50%
	Total	43	100%
Maxillary sinusitis	M	81	58.30%
	F	58	41.70%
	Total	139	100%
Ethmoidalis sinusitis	M	25	59.50%
	F	17	40.50%
	Total	42	100%
Frontalis sinusitis	M	7	53.80%
	F	6	46.20%
	Total	13	100%
Sphenoidalis sinusitis	M	10	50.00%
	F	10	50.00%
	Total	20	100%
Middle turbinate bullosa	M	53	53.00%
	F	47	47.00%
	Total	100	100%
Allergy rhinitis	M	13	54.20%
	F	11	45.80%
	Total	24	100%
Pansinusitis	M	23	60.50%
	F	15	39.50%
	Total	38	100%

The most age that experienced inferior turbinate hypertrophy was 41–50 years (Table III). In cases of septal deviation, the most age was 31–40 years. Most polyps occurred at the age of 31–40 years. Maxillary and ethmoidal sinusitis occurred most frequently at the age of 41–50 years. Most frontal sinusitis at the age of 31–50 years, most sphenoidal sinusitis at the age of 31–40 years. The age group of 21-30 years has the most allergic rhinitis. Middle turbinate bullosa and pansinusitis often occurred at the age of 31-40 years.

TABLE III: Characteristics of Patients Based on Age

Diagnosis	Age group (years)	Frequency (n)	Persentase (%)
Inferior turbinate hypertrophy	0-10	3	1.33%
	11-20	22	9.86%
	21-30	47	21.07%
	31-40	34	15.24%
	41-50	60	26.90%
	51-60	33	14.80%
	61-70	16	7.20%
	71-80	8	3.60%
	Total	223	100%
Septum deviation	0-10	2	1.82%
	11-20	16	14.54%
	21-30	14	12.74%
	31-40	38	34.54%
	41-50	17	15.45%
	51-60	16	14.54%
	61-70	4	3.64%
	71-80	3	2.73%
	Total	110	100%
Polyp	0-10	0	0.00%
	11-20	1	2.33%
	21-30	7	16.27%
	31-40	19	44.20%
	41-50	6	13.95%
	51-60	7	16.27%
	61-70	2	4.65%
	71-80	1	2.33%
	Total	43	100%
Maxillary sinusitis	0-10	3	2.15%
	11-20	10	7.21%
	21-30	17	12.23%
	31-40	38	27.33%
	41-50	51	36.70%
	51-60	12	8.63%
	61-70	5	3.60%
	71-80	3	2.15%
	Total	139	100%
Ethmoid sinusitis	0-10	0	0.00%
	11-20	1	2.35%
	21-30	7	16.70%
	31-40	10	23.80%
	41-50	13	30.95%
	51-60	5	11.90%
	61-70	4	9.50%
	71-80	2	4.80%
	Total	42	100%
Frontalis sinusitis	0-10	0	0.00%
	11-20	0	0.00%
	21-30	2	10.00%
	31-40	6	30.00%
	41-50	6	30.00%
	51-60	3	15.00%
	61-70	3	15.00%
	71-80	0	0.00%
	Total	20	100%
Sphenoidal sinusitis	0-10	0	0.00%
	11-20	0	0.00%
	21-30	2	15.33%
	31-40	4	30.80%
	41-50	3	23.07%
	51-60	1	7.70%
	61-70	2	15.40%
	71-80	1	7.70%
	Total	13	100%
Middle turbinate bullosa	0-10	0	0.00%
	11-20	13	13.00%
	21-30	22	22.00%
	31-40	39	39.00%
	41-50	14	14.00%
	51-60	7	7.00%
	61-70	3	3.00%
	71-80	2	2.00%
	Total	100	100%

Diagnosis	Age group (years)	Frequency (n)	Persentase (%)
Allergy rhinitis	0-10	2	8.33%
	11-20	3	12.50%
	21-30	6	25.00%
	31-40	5	20.81%
	41-50	3	12.50%
	51-60	2	8.33%
	61-70	2	8.33%
	71-80	1	4.20%
	Total	24	100%
Pansinusitis	0-10	0	0.00%
	11-20	0	0.00%
	21-30	6	15.80%
	31-40	11	28.94%
	41-50	10	26.32%
	51-60	7	18.42%
	61-70	4	10.52%
	71-80	0	0.00%
	Total	38	100%

IV. Discussion

Hypertrophy of the inferior turbinate was the most common diagnosis found as a reason for visiting patients in the rhinology division. This is slightly different from epidemiological data which states that rhinitis, especially chronic rhinitis, was the most common disease found in the rhinology spectrum [1], [4]. This was also reported by a study conducted at a type C hospital in Sulawesi where the study showed that chronic rhinosinusitis (28.08%) and acute rhinitis (17.5%) were the two most common cases found at ENT polyclinic visits from 2015 to 2016 [7]. This difference might be due to the fact that this study was conducted in 2021, which was during the COVID-19 pandemic. The existence of the COVID-19 pandemic has caused a shift in the pattern of outpatient visits for diseases with symptoms involving the upper respiratory tract where visits that are mild and not life threatening were more advisable to use telemedicine compared to face-to-face meetings [8]. Moreover, this study was conducted in a tertiary services hospital which is a referral center in Bali and Nusa Tenggara region. Most of the simple rhinosinusitis cases have generally been handled in previous hospitals or even in primary health care facilities so cases of rhinosinusitis in this study were rare.

In this study, hypertrophy of the inferior turbinate was found more commonly in males (60.10%) and the age group of 41–50 years (26.90%). The study conducted by Zelenik *et al*. also reported that the median age of patients with inferior turbinate hypertrophy was 46 years with an age range of 33 years to 58 years [9]. Another study by Ciprandi *et al*. in children with choncae hypertrophy also revealed a male predominance. Male sex had increased the risk of developing turbinate hypertrophy 4.53 times higher in children [10]. Inferior turbinate hypertrophy is closely related to chronic inflammatory conditions in the nose, such as allergic rhinitis, vasomotor rhinitis, and chronic infectious rhinitis. Adult male patients were probably experienced more long-term exposure to pollutants due to smoking habits and exposure at work.

Maxillary sinus was the most commonly found location of sinusitis (18.60%) compared to other sinus locations in this study. This is consistent with previous studies which reported that the maxillary sinuses were the most involved sinuses in cases of rhinosinusitis (48.7%) [11]. The position of maxillary sinus ostium is higher than the sinus floor, therefor its drainage is highly dependent on cilia function and cannot be assisted by gravity. In addition, the near location of the maxillary sinuses to the teeth in the mouth cavity make the spreading of odontogenic infections is easier. Different result was reported in previous studies that acute and chronic rhinosinusitis were more commonly found in women [5], [12]. The smaller size of sinus ostium in women than men was contributed to obstruction and mucous drainage obstruction of sinus, which increase the risk of rhinosinusitis. In addition, the presence of the female hormone estrogen is suspected to play a role in increasing the inflammatory response when an infection occurs in the sinuses [4].

Almost all cases of sinusitis in this case were found in the age group of 31–40 years, either in the maxillary sinusitis (27.33%), frontal sinusitis (30.0%), sphenoidal sinusitis (30.80%), and pansinusitis (28.94%). Only ethmoidal sinusitis was most commonly found in the age group of 41-50 years (30.95%). This was in accordance with a study conducted by Putra *et al*. who found that chronic sinusitis patients were dominated by the age group 30-39 years (37.8%) [4]. A study conducted by Setiawan also found that the age group 46–55 years (20.2%) and 36–45 years (19.69%) were the most commonly found in patients with chronic rhinosinusitis [12]. Adult population was more likely to be exposed to allergens or air pollutants that might cause sinusitis exacerbations.

Nasal polyp was dominated by men (53.50%) and 31–40 years old age group (44.20%) in this study. This is in accordance with a study conducted by Wirananda, Asthuta and Saputra which showed a predominance of men (74.1%) and the age group of 40–60 years (40.7%) in cases of nasal polyps. The number of chronic rhinosinusitis case with nasal polyps was found to be higher in males (56.3%). This is presumably due to the higher risk of exposure to pollutants and smoking habits in adult males causing damage to the cilia and the nasal cavity mucosa which tends to cause chronic rhinosinusitis. Chronic rhinosinusitis is the main risk factor for nasal polyps [13].

Nasal septal deviation in this study was most commonly found in males (70.90%) and the age group of 31-40 years (44.20%). The study conducted by Wojas *et al*. showed the incidence of nasal septum deviation was found to increase with age, from 15% in children aged 7-8 years to 39.7% in the adult population [14]. Cases of nasal septum deviation in the adult population are also most commonly found in men. The majority of patients with nasal septum deviation occurred in the adult male population, presumably due to the high incidence of trauma in this group. Direct trauma to the nasal bones or other parts of the face may damage the nasal septal cartilage. However, several cases of the nasal septum deviation can also occur due to perinatal developmental disorders which cause deformity of the nasal septum [14].

Middle turbinate bullosa in this study was also found more frequent in the male group and the age group of 31-40 years. This was slightly different from the study conducted by Rawi *et al*. where the proportion of men and women in cases of bullosa was comparable [15]. However, another study by Prinja *et al*. showed that the majority of patients with bullous concha were male (54.6%). The majority of age group with

concha bullosa in the study was 21–30 years (40.0%) and 31–40 years (34.2%) [16]. The exact cause of concha bullosa is still unknown. However, several studies stated that concha bullosa almost always occurred together with chronic rhinosinusitis and deviation of the nasal septum. It commonly found in the adult male population who have higher exposure to smoking, pollutants, and trauma [15].

Slightly different from other diagnostic characteristics, majority of allergic rhinitis in this study was found younger age group, namely 21-30 years. Several previous studies also reported that the younger age group (18–29 years) as the most dominant age group with allergic rhinitis [17], [18]. The allergen sensitization which increases with age may contribute to this result. Sensitization to this allergen reaches its peak in the second decade of life and begins to decline at the age of 30 years [18]. The positive rate of allergens was also found to be significantly higher in males, although several studies found that the incidence of allergic rhinitis was higher in females [17],[19]. Reports of allergic rhinitis in women were higher because they tend to recognize allergic rhinitis symptoms earlier and seek medical help.

V. Conclusion

A total of 752 patients underwent outpatient care during the period January 1, 2020, to December 31, 2021. Various rhinology cases found included inferior turbinate hypertrophy, nasal septum deviation, allergic rhinitis, bullous turbinate, nasal polyps, maxillary sinusitis, ethmoidal sinusitis, frontal sinusitis, sphenoidal sinusitis and pansinusitis. The most common diagnosis is inferior turbinate hypertrophy and the least is frontal sinusitis. Inferior turbinate hypertrophy is commonly found in men and at the age of 41–50 years. The similar results also found in other cases, where it is more commonly found in men and at the age of 31–50 years.

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Conflict of Interest

Authors declare that this study does not have any conflict ofinterest.

References

[1] Merna C, Berger MH, Lin HW, Bhattacharyya N. Ambulatory visits for common rhinologic complaints in the United States: A patient-centered perspective. *Int Forum Allergy Rhinol*. 2022 Jun; 12(6): 859–62.

[2] Kim TK, Jeong JY. Deviated nose: Physiological and pathological changes of the nasal cavity. *Arch Plast Surg*. 2020;47(6):505–15.

[3] Liva GA, Karatzanis AD, Prokopakis EP. Review of rhinitis: Classification, types, pathophysiology. *J Clin Med*. 2021;10(14).

[4] Putra TRI, Teuku Husni TR, Sariningrum HA, Endalif D. Characteristics of chronic sinusitis based on non-contrast ct scan at the ent-head and neck surgery Polyclinic of Regional General Hospital Dr. Zainoel Abidin Banda Aceh. *Indones J Trop Infect Dis*. 2022;10(1):55–61.

[5] Poluan FH, Marlina L. Prevalence and risk factor of chronic rhinosinusitis and the impact on quality of life in students of the Medical Faculty Christian University of Indonesia in 2018. *J Drug Deliv Ther*. 2021;11(3-S):154–62.

[6] Hopkins C. Chronic Rhinosinusitis with Nasal Polyps. *N Engl J Med*. 2019;381(1):55–63.

[7] Nayoan CR, Tandirerung FJ. Variasi Kasus Penyakit Hidung dan Sinus Paranasal di Klinik THT-KL RSUD Undata Palu Periode 2015-2016 [Variations in Cases of Nose and Paranasal Sinus Diseases in the ENT-KL Clinic, Undata Hospital, Palu, 2015-2016 Period]. *J Kesehat Tadulako*. 2022;8(3):200–3. Indonesian.

[8] Kasle DA, Torabi SJ, Savoca EL, Judson BL, Manes RP. Outpatient Otolaryngology in the Era of COVID-19: A Data-Driven Analysis of Practice Patterns. *Otolaryngol - Head Neck Surg* (United States). 2020;163(1):138–44.

[9] Zeleník K, Javorská Z, Taimrová R, Vrtková A, Hránková V, Tedla M, *et al*. Association between Inferior Turbinate Hypertrophy and Extraesophageal Reflux. *JAMA Otolaryngol – Head Neck Surg*. 2022;148(8):773–8.

[10] Ciprandi G, Tosca MA, Gallo F, Passali GC, Ameli F. Turbinate hypertrophy in children with allergic rhinitis: Clinical relevance. *Acta Biomed.* 2020;91:43–7

[11] Ugwuanyi D, Chiegwu H, Anakwe A, Ajekwuenu E, Balogun O. Prevalence of paranasal air sinusitis: Computed tomography finding in a Tertiary Hospital, Southeast Nigeria. *Glob J Res Anal*. 2018;7(1):337–40.

[12] Setiawan I. Maxillary rhinosinusitis profil in General Hospital of Haji Surabaya on January-December 2017. *Saintika Med*. 2021;17(1):80–8.

[13] Wirananda IMSV, Asthuta AR, Saputra KAD. Karakteristik penderita polip hidung di poliklinik THT-KL RSUP Sanglah Denpasar tahun 2018 [Characteristics of nasal polyp sufferers in the ENT-KL polyclinic of Sanglah Hospital Denpasar in 2018]. *Intisari Sains Medis*. 2019;10(3):781–4. Indonesian.

[14] Wojas O, Szcz P, Grzanka A, Krzych-fa E, Samoli B. Nasal septum deviation by age and sex in a study population of poles. *J Rhinolaryngo-Otologies*. 2019;7:1–6.

[15] Al-Rawi NH, Uthman AT, Abdulhameed E, Al Nuaimi AS, Seraj Z. Concha bullosa, nasal septal deviation, and their impacts on maxillary sinus volume among Emirati people: A cone-beam computed tomography study. *Imaging Sci Dent*. 2019;49(1):45–51.

[16] Prinja S, Davessar J, Singh G, Kansal L, Kaur J. Role of concha bullosa in etiopathogenesis of chronic rhinosinusitis: A clinical study. *Int J Contemp Med Res*. 2017;4(3):774–6.

[17] Alexandropoulos T, Haidich AB, Pilalas D, Dardavessis T, Daniilidis M, Arvanitidou M. Characteristics of patients with allergic rhinitis in an outpatient clinic: A retrospective study. *Allergol Immunopathol (Madr)*. 2013;41(3):194–200.

[18] Hong SN, Won JY, Nam EC, Kim TS, Ryu YJ, Kwon JW, *et al*. Clinical manifestations of allergic rhinitis by age and gender: A 12-year single-center study. A*nn Otol Rhinol Laryngol*. 2020;129(9):910–7.

[19] Almehizia AA, AlEssa RK, Alwusaidi KM, Alzamil KA, AlJumah M, Aljohani S, *et al*. Allergic rhinitis: Disease characteristics and coping measures in Saudi Arabia. *PLoS One.* 2018;14(6):1–16.