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Original Research Article

Prevalence of rhinology related consultations in an ear, nose throat clinic in a period of one year

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ABSTRACT

Background: Several studies have been conducted to forecast the top emergencies that are frequently seen among patients in an ENT clinic. In the past four years, there has been only one study that calculates the prevalence of a specific rhinology disease (allergic rhinitis) in five Middle Eastern countries. The results of the study have demonstrated that 1808 of 33,486 subjects enrolled in the study have fulfilled the case definition of allergic rhinitis. The mentioned study has only reviewed active cases of allergic rhinitis, disinclining other rhinology conditions that patients frequently complain of. The following paper will calculate the prevalence of common rhinology conditions generally in a specialized ENT clinic in the Kingdom of Bahrain over a period of 1 year.
Methods: Patients' information was collected prospectively on monthly basis starting from June 2021 until June 2022. The patients were registered under a senior ENT consultant at a semi-governmental hospital in The Kingdom of Bahrain.
Results: Out of 2711 subjects enrolled in the study, 1424 patients have been registered with rhinology related complaints, exhibiting approximately (52.4%) of the total sample size. Allergic rhinitis was the most prevalent clinically diagnosed rhinology disease and Rhinoplasty surgery was the most frequently operated surgery. The socio-demographics of the study measured (52.0%) Higher females ration between Rhinology patients. In contrast, A higher percentage of males attended the clinic for otology/ear consultations (57.2%).
Conclusions: Rhinology related consultations is concluded to be more prevalent compared to otology and laryngology.

Keywords: Rhinology, Allergic rhinitis, Epidemiology, Sinusitis, Otolaryngology

INTRODUCTION

ENT is known to be one of the broadest fields in medicine.[1] The national health service of the United Kingdom has registered around 1476 ENT surgeons, making ENT one of the biggest surgical specialties under the NHC.[1] Several studies have been conducted to forecast the top emergencies that are frequently seen among patients in an ENT clinic.[2] In the past four years, there has only been one study that calculated the prevalence of a specific rhinology disease (allergic rhinitis) in five Middle Eastern countries.[3] The results of the study have demonstrated that 1808 of 33,486 subjects enrolled in the study have fulfilled the case definition for allergic rhinitis.[3] The mentioned study has only reviewed active cases of allergic rhinitis, disinclining other rhinology conditions that patients frequently complain of such as acute and chronic sinusitis. Accordingly, the following paper will calculate the prevalence of common rhinology conditions generally in a specialized ENT clinic in the Kingdom of Bahrain. The samples that are used are registered under the senior author in a semi-governmental hospital over a

period of one year.

METHODS

The sample used in the study were obtained from a semi government hospital directly using their patients record system, health operating environment (HOPE system). A total of 2711 patients were registered under the senior ENT consultant starting from June 2021 until June 2022, as the study aims to record the prevalence of rhinology cases in a period of one year only. Patients' information was collected on a regular monthly basis starting from June 2021 until June 2022. Variables used in the study included specialty, gender, and patients' diagnosis. The patients were categorized into 4 groups, rhinology, laryngology, otology, and fascial plastics. Several patients were registered with multiple complains including more than one specialty such as otology and rhinology complains in one consultation. Therefore, the following patients were included in statistical analysis based on their rhinology complaints (Table 1). Rhinology patients were then subcategorized into 16 categories (Table 3), with each category representing a specific diagnosis, aiding to assimilate the most common diagnosis seen in the clinic. Class 7 of the mentioned categories referred to as ''others'' includes unfrequently seen complaints in the clinic as they represent the minority from the total sample size.

Table 1: Prevalence of ENT subspecialties.

ENT specialties	Number of patients	Valid percentage (%)
Otology	830	30.6
Laryngology	437	16.1
Facial plastics	20	0.7
Rhinology	1366	50.4
E + N + T	23	0.8
N + E	23	0.8
N + T	12	0.4
Total rhinology**	1424	52.4
Total population	2711	100.0

**Sums up number of patients with multiple complaints and rhinology patients.

A further study was performed by separating clinically managed patients with a rhinology complaint from patients that required surgical intervention. Moreover, the data collected were inputted into a database using the statistical package for the social sciences, SPSS version 26.

The accuracy of the analyzed data has been estimated by establishing a 95% confidence interval (CI) for each category mentioned in the study. In addition, Frequency and percentages were used to display categorical variables, mean and standard deviation (SD) were used to demonstrate numerical variables (age).

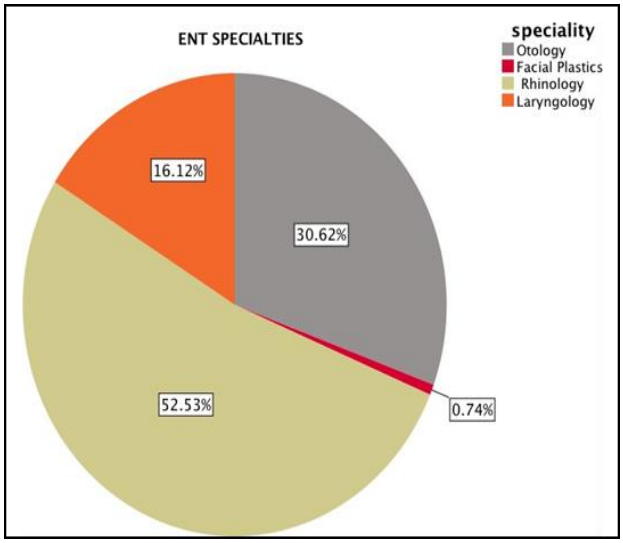

Figure 1: Comparing prevalence of ENT specialties.

RESULTS

ENT patients

The 4 categorical specialties (Otology, laryngology, rhinology, and facial plastics) were compared and statically analyzed. The outcome measured rhinology as the most prevalent specialty yielding 52.4% (1424 patients out of the total 2711 patients) with an accuracy of (95% CI, 52.5%-54.4%). Otology was the second most prevalent clinical specialty with 830 patients and an estimate of 30.6% of the total population (95% CI, 28.9%-32.4%). In addition to 437 laryngology patients (16.1%) (95% CI, 14.8%-17.6%) and 20 facial plastics patients being the least prevalent (0.7%) (95% CI, 0.5%-0.11%) of the total 2711 population.

DISCUSSION

An absolute number of 1424 patients were analyzed and subcategorized based on their rhinology related complains (Table 3). Relying on the statistics that were obtained, a total of 303 patients were diagnosed with allergic rhinitis during the study, representing 21.3% of the sample size (95% CI 19.2- 23.6%). Accordingly, allergic rhinitis is considered the most prevalent diagnosis in comparison to the other clinical diagnosis.

A total of 210 patients were diagnosed with deviated nasal septum (DNS). Out of the 210 patients, 71 patients were presented with DNS + turbinate hypertrophy. In addition, 117 patients with a DNS have undergone a septoplasty procedure in the course of their treatment. all the patients that reached out to the clinic for a clinical diagnosis without a surgical approach, sums up to 14.8% of the total sample size (95% CI 13.0-16.8%) making a DNS the second most prevalent diagnosis without considering the surgical approaches. Following DNS comes sinusitis representing 12.1% of the total sample size (171 patients)

(95% CI 10.4-13.9%), disregarding the functional endoscopic sinus surgery (FESS) that was performed on a total of forty-three patients during their treatment.

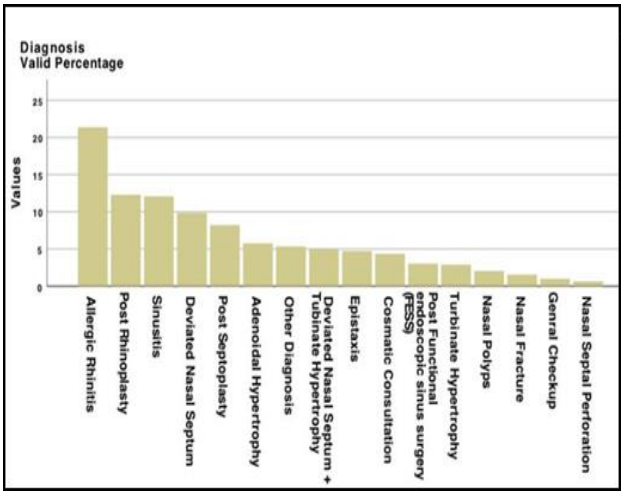

Figure 2: The prevalence of rhinology diseases.

Table 2: Representation of genders in each ENT specialty.

Specialty		Gender		Total
		Female	Male	
Rhinology	Count	740	684	1424
	% within specialty	52.0	48.0	100.0
Otology	Count	355	475	830
	% within specialty	42.8	57.2	100
Laryngology	Count	212	225	437
	% within specialty	48.5	51.5	100
Facial plastics	Count	10	10	20
	% within specialty	50.0	50.0	100
Total	Count	1317	1394	2711
	% within specialty	48.6	51.4	100.0

ENT surgical interventions

Other than the most prevalent diagnosis in the study, patients were distributed according to their diagnosis into their own classes. Three of the mentioned categories where surgical approaches performed under the senior ENT consultant after clinically diagnosing the patients. The following categories included septoplasty, rhinoplasty, and FESS. Out of the mentioned procedures, rhinoplasty displayed the greatest percentage in relation to the other surgical procedures, exhibiting approximately 12.3% of the total sample size (95% CI 10.7-14.1%). In addition, when comparing the surgical categories alone disregarding the other clinically manageable categories, rhinoplasty showcased a total of 52.24% of the total surgical approaches (95% CI 46.7%-57.7%). Following Rhinoplasty, Septoplasty procedures are the second most prevalent procedures performed, exhibiting 39.4% of the total surgical procedures (95% CI 29.8-40.3%). Moreover, septoplasty is one of the most frequently seen clinical complains that patients seek a surgical intervention for in an ENT clinic.[5]

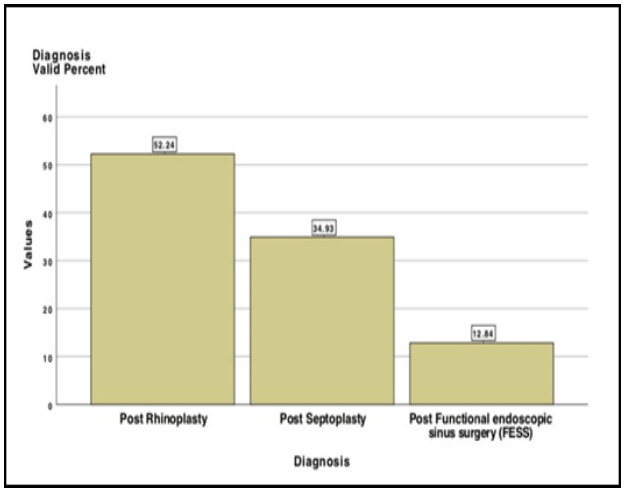

Figure 3: The prevalence of patients that required.

Socio-demographics

The clinically registered patients exhibit gender differences in prevalence irrespective of age, the patients' ages ranged between (0 years-87 years) with a mean age of 35.7 (SD=17.9) for both genders. Accordingly; out of 2711 patients 1317 (48.6%) (95% CI 46.7%-50.5%) were females and 1394 (51.4%) (95% CI 49.5%, 53.3%) were males. Defining Males as more clinically prevalent than females, otology category was the main influence on the outcome (table3). Notwithstanding other specialties and based on the subcategorized cases of Rhinology patients (1424); The most prevalent were Female patients n=740 (52%) (95% CI 49.4%-54.6%), in this category males were less in frequency n=684 (48%) (95% CI 46.4%-50.6%). (male/female=0.9) this ration difference between genders is attributed by the modal factor of rhinoplasty surgeries (92% females and 8% males) and cosmetic consultations (93.5% are females). Cosmetic reasons and social and environmental factors might be considered factorial contributors to this increase.

Out of 1424 patients, male patients are more likely to undergo; a septoplasty surgery (86 out of 117) (73.5% males) compared to (only 26.5% females), DNS (61.2%), adenoid hypertrophy (53.7%), DNS + turbinate hypertrophy (66.2%), epistaxis (58.2%), FESS surgery (79.1%), nasal fractures (59.1%).

Other than rhinoplasty surgery, female patients were more likely to be diagnosed with allergic rhinitis (51.5%), sinusitis (55.0%), nasal septal perforation (66.7%), and visited for a cosmetic consultation (93.5%).

Table 3: The conditional probability criteria for the diagnosis of each rhinology disease summarized by classifying males and females.

Rhinology-related diagnoses			Gender		Total	Valid percentage (%)
			Female	Male		
Diagnosis	Allergic rhinitis	Count	156	148	304	21.3
		% within diagnosis	51.3	48.7	100	
	Post rhinoplasty	Count	161	14	175	12.3
		% within diagnosis	92.0	8.0	100	
	Sinusitis	Count	95	77	172	12.1
		% within diagnosis	55.2	44.8	100	
	DNS	Count	54	86	140	9.8
		% within diagnosis	38.6	61.4	100	
	Post septoplasty	Count	31	86	117	8.2
		% within diagnosis	26.5	73.5	100	
	Adenoidal hypertrophy	Count	38	44	82	5.8
		% within diagnosis	46.3	53.7	100	
	Other diagnosis	Count	34	42	76	5.3
		% within diagnosis	44.7	55.3	100	
	DNS+turbinate hypertrophy	Count	24	47	71	5.0
		% within diagnosis	33.8	66.2	100	
	Epistaxis	Count	28	39	67	4.7
		% within diagnosis	41.8	58.2	100	
	Cosmetic consultation	Count	58	4	62	4.4
		% within diagnosis	93.5	6.5	100	
	Post FESS	Count	9	34	43	3.0
		% within diagnosis	20.9	79.1	100	
	Turbinate hypertrophy	Count	15	26	41	2.9
		% within diagnosis	36.6	63.4	100	
	Nasal polyps	Count	13	16	29	2.0
		% within diagnosis	44.8	55.2	100	
	Nasal fracture	Count	9	13	22	1.5
		% within diagnosis	40.9	59.1	100	
	General checkup	Count	9	5	14	1.0
		% within diagnosis	64.3	35.7	100	
	Nasal septal perforation	Count	6	3	9	0.6
		% within diagnosis	66.7	33.3	100	
Total		Count	740	684	1424	100
		% within diagnosis	52.0	48.0	100	

CONCLUSION

This study forecasts the prevalence of registered patients in the ENT clinic and compared the most frequently diagnosed ENT complains. Hence, allergic rhinitis is concluded to be the most prevalent clinically diagnosed condition in the clinic (21.3%). The clinical burden of allergic rhinitis in five Middle Eastern countries. is a relevant literature that hypothesized our results and was the only study that highlighted the high prevalence of allergic rhinitis in the middle eastern countries.

When it comes to surgical approaches, rhinoplasty procedures were the most frequently preformed procedures in our study.

Even with the lack of publications regarding prevalence of rhinology-related conditions in Bahrain; our study gives an estimated percentage by analyzing a smaller size (convenience sample) out of the 1,819,135 Bahrain population.

This study was influenced by the '5-year audit of rhinology procedures carried out in a district general hospital. The audit focuses on the risks of ENT surgeries during the period (1998-2002), disregarding the epidemiology of ENT. Our research aims to revise the overlooked present-day ENT-related disease surveillance.

Our study also concludes that males are more likely to have otology\ear related concerns (57.2%). Summing up the numbers of patients; the patients that had a septoplasty surgery and the patients diagnosed with DNS, were also males and had a higher percentage compared to females (14.8%). However, females ratio has been marked higher in Rhinoplasty procedures and cosmetic consultations

(M/F=0.9) and in the total cases of rhinology diseases (92.0%).

The only limitation of this study is the exclusion of (Turbinoplasty) surgical treatment from our statistics due to the lack of data.

The data were collected in a prospective manner which might subsequently show alternative results throughout upcoming years.

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Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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