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A Clinical study of aetiological factors in Chronic Sinusitis

ENT

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ABSTRACT

Chronic sinusitis is one of the common problems encountered in ENT practice. Individuals with acute rhinosinusitis have symptoms for less than four weeks and those with chronic rhinosinusitis have symptoms for greater than 12 weeks.
In the present study we have selected 100 patients with chronic sinusitis. Patients coming to the ENT department with symptoms of chronic sinusitis were considered for the study. Detail history was taken and through clinical examination was done. All the routine investigation was done. Special investigations includes X- ray paranasal sinus (water's view) with open mouth, CT scan of paranasal sinus, allergic test like absolute eosinophil count, nasal smear for eosinophil and serum IgE level.
Our observations were, commonest age group is 16 – 25 years, nasal obstruction is the commonest symptom followed by headache. Deviated nasal septum is the commonest clinical finding. Anatomical variations are the commonest findings in CT scan.

KEYWORDS:

Chronic sinusitis, Hyposmia, Halitosis, Concha bullosa

Introduction

Chronic sinusitis is one of the common problems encountered in ENT practice causing significant morbidity to patients. The term 'sinusitis' refers to a group of disorders characterized by inflammation of the mucosa of the paranasal sinuses. Because the inflammation nearly always also involves the nose, the term 'rhinosinusitis' is often being used to describe this inflammation of the lining mucosa of nose and paranasal sinuses[1].

Individuals with acute rhinosinusitis have symptoms for less than four weeks and those with chronic rhinosinusitis have symptoms for greater than 12 weeks. Those who have symptoms from four to 12 weeks are considered to have a subacute infection, or 'subacute rhinosinusitis'. Some of these will resolve within that time frame and others will progress to chronic rhinosinusitis[3].

Chronic rhinosinusitis is typically described more broadly as an inflammatory disorder, and the importance of specific microbial agents in driving the process remains controversial, as the role of bacteria in chronic rhinosinusitis is not well established[1].

Chronic rhinosinusitis remains a common cause of morbidity, social embarrassment and impaired performance at school or workplace. The disease is extremely common and prevalence depends on age, gender and geographical location of population studies. Chronic rhinosinusitis in addition to physical discomfort also causes a substantial economic burden to patient in terms of missed workdays due to physician or hospital visits[2].

In this study, every attempt has been made to find out the etiological factors of Chronic rhinosinusitis, so that correction of etiology will help in correcting the disease.

MAJOR FACTORS	MINOR FACTORS
1. headache	Facial pain/pressure
2. Nasal obstruction	Halitosis
3. Nasal discharge / postnasal discharge	Fatigue
4. Hyposmia / cacosmia	Dental pain
5. Purulence on nasal examination	Cough, ear pain/pressure/fullness

Aims and Objectives

1. To study the etiological factors contributing to chronic rhinosinusitis
2. To study the clinical presentation of chronic rhinosinusitis.

Materials and Methods

- Study setting – A tertiary care hospital in Andhra Pradesh
- Sample size – 100
- Study design – Prospective study conducted over a period of September 2014 to July 2016.

- Methodology – Approval from the Institutional ethical committee was taken for the study. Patients coming to the ENT department with symptoms of chronic sinusitis were considered for the study. Detail history was taken and through clinical examination was done. All the routine investigation was done. Special investigations includes X- ray paranasal sinus (water's view) with open mouth, CT scan of paranasal sinus, allergic test like absolute eosinophil count, nasal smear for eosinophil and serum IgE level. All the data were collected and analysed.

Inclusion criteria –

- Patients presenting with 2 major symptoms or one major and 2 minor symptoms persisting for more than 12 weeks duration are included in the study.
- Patients giving consent for the study on them
- Patients coming for regular follow up

Exclusion criteria –

- Children less than 5 years of age
- Patients presenting with acute sinusitis
- Patients suffering from chronic granulomatous diseases of nose.
- Patients not giving consent for study
- Patients not coming for regular follow up.

Results

We have selected 100 patients for study by different inclusion and exclusion criteria mentioned above. Out of 100 patients 52 were male and 48 were female. Table -1 shows the age distribution of the patients under study. It shows taht the maximum number of patients were in the age group of 16 – 25 years (29%) followed by the age group 26 – 35 years (25%). Least number of patients was in the age group of 66 – 75

years (1%).

Table 1: Age distribution of the Patients (n = 100)

Age (years)	Males	Females	Total no. of patients	Percentage
5-15	9	9	18	18
16-25	13	16	29	29
26-35	15	10	25	25
36-45	14	8	22	22
46-55	1	1	2	2
56-65	1	2	3	3
66-75	0	1	1	1

Table -2 show the distribution of the symptoms. It shows that the maximum number of patients were presented to us with symptom of nasal obstruction (89%), followed by headache (77%) and facial pain (69%). Least common symptoms are fatigue (6%), dental pain (6%) and cough (5%).

Out of 100 patients 35 were belong to low socioeconomic status group.

Table 2: Distribution of symptoms

Symptoms	Male	Female	Total no. of patients	Percentage
Headache	37	40	77	77
Nasal obstruction	48	41	89	89
Nasal discharge	11	14	25	25
Post nasal drip	12	5	17	17
Facial pain/pressure	35	34	69	69
Halitosis	10	3	13	13
Fatigue	3	3	6	6
Dental pain	2	4	6	6
Cough	1	4	5	5
Ear pain	5	3	8	8
Sneezing	12	8	20	20
Snoring	5	6	11	11

Table – 3, shows the findings of the clinical examination in these patients. Maximum number of patients were having deviated nasal septum (DNS) ie 69 members, either to right (32) or to left (34) or s' shaped (3). Hypertrophied inferior turbinate was found in 52 numbers of cases. Mucopus in the middle turbinate was found in 39 cases. Hypertrophied middle turbinate was a rare finding in our study (5 cases).

Table 3: Examination findings:

Findings		Male	Female	Total
Mucosa	Congested	**5**	**4**	**9**
	Pale	**7**	**6**	**13**
DNS	Right	**17**	**15**	**32**
	Left	**20**	**14**	**34**
	's' shaped	**2**	**1**	**3**
Hypertrophied inferior turbinate	Bilateral	**20**	**10**	**30**
	Right	**3**	**7**	**10**
	Left	**7**	**5**	**12**
Sinus tenderness		**7**	**9**	**16**
Post nasal drip		**12**	**5**	**17**
Hypertrophied middle turbinate		**3**	**2**	**5**
Mucopus in middle meatus		**18**	**21**	**39**
Congested middle meatus	Right Left	**4** **4**	**2** **1**	**11**
Polyp		**6**	**3**	**9**

There are few associated features we got in our study ie adenoid hypertrophy in 13 cases, allergy in 15 cases and dental infection in 6 cases.

Table – 4 shows the distribution of the anatomical variations which may contributed to the development of sinusitis. Deviated nasal septum was found in 69 cases, concha bullosa in 5 cases, prominent bulla ethmoidalis in 3 cases, paradoxical middle turbinate in 1 case and prominent ager nasi cell in 1 case.

Table 4: Distribution of anatomical variations: (n= 79)

Anatomical variations	Male	Female	Total
Deviated nasal septum	39	39	69
Concha bullosa	3	2	5
Prominent bulla ethmoidalis	1	2	3
Paradoxical middle turbinate	-	1	1
Prominent Ager nasi cell	-	1	1

Tale – 5 shows that the CT scan findings of the paranasal sinuses. Anatomical variations were found in 79 cases, polyp in 9 cases, soft tissue attenuation in the sinuses in 28 cases and mucosal thickening in 54 cases.

Table 5: CT PNS findings:

CT PNS findings	Male	Female	Total
Anatomical variations	43	36	79
Polyp	6	3	9
Soft tissue attenuation (35-40 HU)	13	15	28
Mucosal thickening	30	24	54

After clinical examination and all the investigations including CT scan we found that, out of 100 patients bilateral sinusitis was found in 63 cases (34 males, 29 females) and unilateral in 37 cases (20 males, 17 females).

Discussion

In the present study 52 were males (52%) and 48 were females (48%). So male to female ratio in this study is 1.08:1. In a study by Wabnitz DA, Nair S, Wormald PJ[3], male to female ratio is 1.3:1.In a study by Ling FT, Kountakis SE[4], male to female ratio is 1.1:1. In a study done by kurien et al[5] the male to female ratio is 2:1.

The mean age in our study is 28.63 years. The mean age of patients in study by Bharadwaj[6] was 38.53 years. In a study done by Wabnitz DA, Nair S, Wormald PJ[3] the mean age of patients was 44.5 years. In another study done by Ling FT, Kountakis SE[4] the mean age of patients was 49.4 years.

In our study most common age group was 16-25 years. In an Indian study done by Kirtane MV et al[7], majority of the patients (46, 78%) were in third decade. According to McNeil et al[8] study, maximum age incidence was in 4th decade.

Regarding symptomatology nasal obstruction was predominant symptom in ourstudy seen in 89 patients, headache in 77 patients, facial pain in 69 patients, nasal discharge in 25 patients, post nasal discharge in 17 patients, sneeze attacks in 20 patients, halitosis in 13 patients, mouth breathing and snoring in 11 patients, ear pain in 8 patients, fatigue in 6 patients, dental pain in 6 patients and cough in 5 patients. Ling, Fancis T.K. Kountakis Stilianos E[9] conducted a study on clinical symptoms in chronic rhinosinusitis. They found in their study nasal obstruction accounted to 84% postnasal drip in 82% of patients respectively. The most common symptom in study by Bharadwaj6 was nasal obstruction (93%), followed by nasal discharge/ PND (80%), hyposmia/anosmia (65%), headache (65%), facial pain and pressure(31%), fatigue (15%).Other symptoms were relatively less common. In Nasser A Fagee al.10 study the commonest complaint was nasal obstruction (76%), headache (74.4%), anosmia (56.5%) & facial pressure/pain (50%).

Septal deviation is the commonest anatomical variation in our study contributing to 69% of total population of which deviated nasal septum to left seen in 34 patients (34%) and deviated nasal septum to right in 32 patients (32%) and's' shaped DNS in 3 patients (3%), congested middle meatus in 11 patients (11%), post nasal drip in 17 patients (17%), paranasal sinus tenderness in 16 patients (16%). Deviated nasal septum was more than 55.7% in a study by Maru[11].

In CT PNS, in our study anatomical variations were found in 79

patients (79%), polyp was seen in 9 patients (9%), soft tissue attenuation (35-40 HU) seen in 28 patients (28%) and mucosal thickening in 54 patients (54%).

In a prospective cohort study by Yoshimi Anzai et al[12] confirmed that the treatment decisions of surgery versus no surgery were altered in one third of patients after sinus CT, increasing probability of surgical treatment. The surgeon's agreement regarding the treatment decision was also improved after they reviewed the sinus CT.

Conclusion

- Chronic sinusitis is one of the common disease in the society. In the present study following are our observations
- Commonest age group is 16 – 25 years
- Nasal obstruction is the commonest symptom followed by headache.
- Deviated nasal septum is the commonest clinical finding.
- Anatomical variations are the commonest findings in CT scan.

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