Aims and Objectives
help in correcting the disease.
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 / acacosmia | Dental pain
5. Purulence on nasal examination | Cough, ear pain/pressure/fullness

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

Table 2: Distribution of symptoms

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

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 3: Examination findings:

<table>
<thead>
<tr>
<th>Findings</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mucosa</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Congested</td>
<td>5</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>Pale</td>
<td>7</td>
<td>6</td>
<td>13</td>
</tr>
<tr>
<td>DNS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Right</td>
<td>17</td>
<td>15</td>
<td>32</td>
</tr>
<tr>
<td>Left</td>
<td>20</td>
<td>14</td>
<td>34</td>
</tr>
<tr>
<td>S' shaped</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Hypertrophied inferior turbine</td>
<td>20</td>
<td>10</td>
<td>30</td>
</tr>
<tr>
<td>Bilateral</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Right</td>
<td>3</td>
<td>7</td>
<td>10</td>
</tr>
<tr>
<td>Left</td>
<td>7</td>
<td>5</td>
<td>12</td>
</tr>
<tr>
<td>Sinus tenderness</td>
<td>7</td>
<td>9</td>
<td>16</td>
</tr>
<tr>
<td>Post nasal drip</td>
<td>12</td>
<td>5</td>
<td>17</td>
</tr>
<tr>
<td>Hypertrophied middle meatus</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Mucopus in middle meatus</td>
<td>18</td>
<td>21</td>
<td>39</td>
</tr>
<tr>
<td>Congested middle meatus</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Right</td>
<td>4</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Left</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Polyp</td>
<td>6</td>
<td>3</td>
<td>9</td>
</tr>
</tbody>
</table>

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: Distribution of anatomical variations: (n=79)

<table>
<thead>
<tr>
<th>Anatomical variations</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deviated nasal septum</td>
<td>39</td>
<td>39</td>
<td>69</td>
</tr>
<tr>
<td>Concha bullosa</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Prominent bulla ethmoidalis</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Paradoxical middle turbinate</td>
<td>-</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Prominent Ager nasi cell</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 5: CT PNS findings:

<table>
<thead>
<tr>
<th>CT PNS findings</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anatomical variations</td>
<td>43</td>
<td>36</td>
<td>79</td>
</tr>
<tr>
<td>Polyp</td>
<td>6</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>Soft tissue attenuation</td>
<td>13</td>
<td>15</td>
<td>28</td>
</tr>
<tr>
<td>Mucosal thickening</td>
<td>30</td>
<td>24</td>
<td>54</td>
</tr>
</tbody>
</table>

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 the mean age of patients was 44.5 years. In another study done by Ling FT, Kountakis SE 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, majority of the patients (46, 78%) were in third decade. According to McNeil et al study, maximum age incidence was in 4th decade.

Regarding symptomatology nasal obstruction was predominant symptom in our study 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 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 Bharadwaj 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 pain/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.

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 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.

References