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A Comparative Analysis in Chronic Rhinosinusitis Patients Based On Diagnostic Nasal Endoscopy and CT Paranasal Sinuses

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I. INTRODUCTION

A heterogenous group of disorders characterised by chronic (>12 weeks duration) inflammation of nose and paranasal sinuses with or without nasal polyposis is called as chronic rhinosinusitis.A study by the National Institute of Allergy and Infectious Diseases (NIAID) recently conclude that 134 million Indians suffer from chronic rhinosinusitis.[1] In 2007,American Academy of Otolaryngology-Head and Neck surgery published new guidelines for rhinosinusitis & 12 major and minor symptoms of CRS were narrowed to four specific symptoms, and documentation of middle meatal inflammation was added to the diagnostic criteria for CRS.[2,3] The recent recommendations for CRS by AAO-HNS include both subjective and objective parameters of more than 12-week duration of two or more of the following signs and symptoms (subjective components) include mucopurulent discharge (anterior, posterior, or both), Nasal obstruction (congestion); facial pain-pressure-fullness; or decreased sense of smell. Inflammation documented by one or more of the following findings: (objective components) -purulent mucus or edema in the middle meatus or ethmoid region; polyps in nasal cavity or the middle meatus; and/o radiographic imaging demonstrating inflammation of the PNS. DNE & CT PNS play important role in diagnosing objective components of CRS.

Aim & Objective:

To arrive at correct diagnosis of CRS based on DNE and CT PNS Findings & To study effectiveness of DNE and CT PNS for evaluating patients with CRS.

Inclusion criteria : Patients with Chronic Rhinosinusitis in age group 15 to 65 years.

Exclusion criteria : Pregnant females**,**Age <15 years **,**Acute rhinosinusitis**,**Past h/o face trauma**,**Past h/o sinonasal surgery**,**Tumours of PNS**.**

II. Material and Methods

A study was carried out on 30 patients presenting with chronic rhinosinusitis over a period of 6 months in age group of 15 to 65 years. DNE was performed in OPD in all patients suspected of CRS and DNE findings of first pass ,second pass and third pass were noted.CT scan of PNS axial, coronal and saggital sections was done and then staging was done using Lund-Mackay CT scoring system..

SINUS	RIGHT	LEFT
MAXILLARY	0-2	0-2
ANTERIOR ETHMOID	0-2	0-2
POSTERIOR ETHMOID	0-2	0-2
SPHENOID	0-2	0-2
FRONTAL	0-2	0-2
OSTEOMEATAL COMPLEX	0 OR 2	0 OR 2

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For the sinuses ,0 : No opacification1 : Partial opacification 2: Total opacification
For OMC, 0 : without obstruction 2: Obstructed
On CT evaluation, participants with Lund–Mackey scores equal to or more than 4, were diagnosed as having CRS and Lund–Mackay CT scores < 4 were considered to have negative results for diagnosis of CRS.

III. RESULTS :

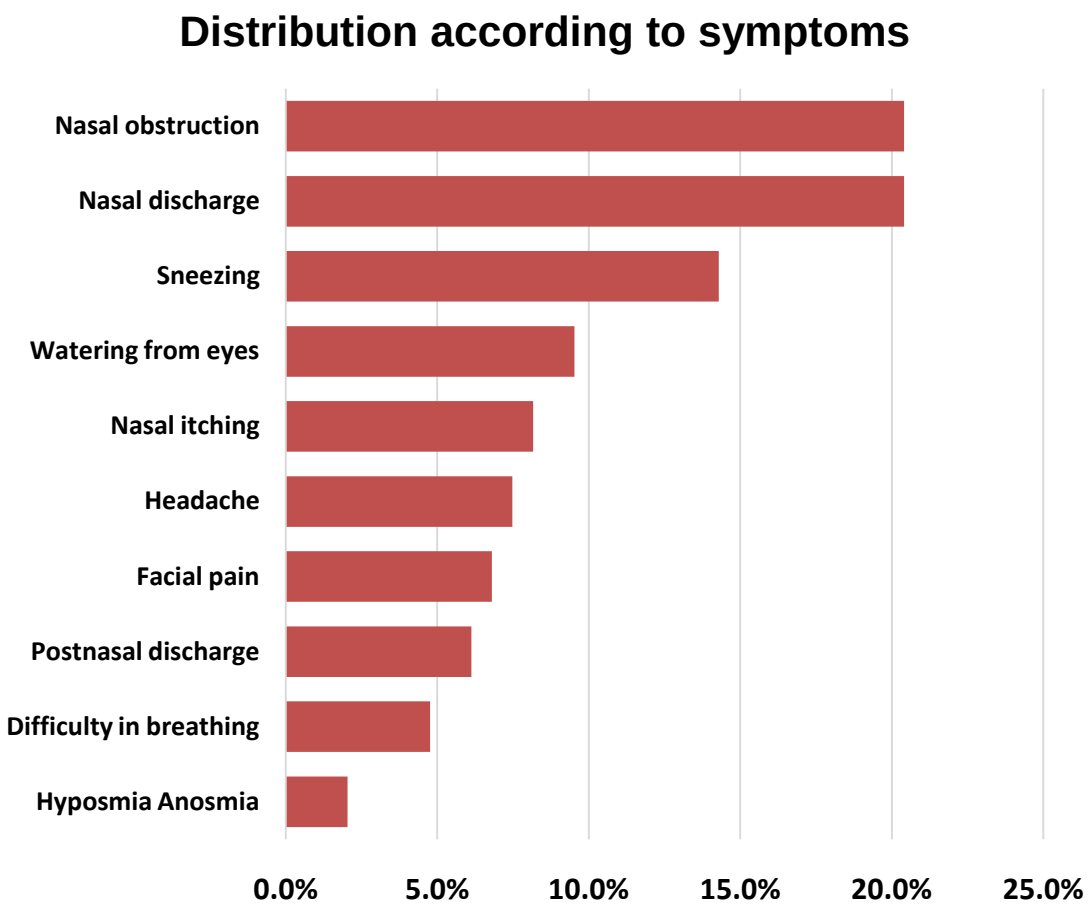

Table 1: Age-sex distribution of study participants

Age (Years)	Gender				Total	
	Male		Female			
	n	%	n	%	n	%

15-35	8	72.7%	3	27.3%	11	36.7%
36-65	12	63.2%	7	36.8%	19	63.33%
Total	20	66.7%	10	33.3%	30	100.0%

DNE is used for early diagnosis of patients with CRS, CT PNS and DNE findings were compared. It showed sensitivity of 77.78% and specificity in 83.33%

DNE	**CTPNS**		**Total**
	Disease	**No Disease**	
Disease +	**14**	**2**	**16**
Disease -	**4**	**10**	**14**
Total	**18**	**12**	**30**

Result of Diagnostic test evaluation		
Statistic	**Value**	**95% CI**
Sensitivity	77.78%	52.36% to 93.59%
Specificity	83.33%	51.59% to 97.91%
Positive Likelihood Ratio	4.67	1.29 to 16.94
Negative Likelihood Ratio	0.27	0.11 to 0.66
Disease prevalence	60.00%	40.60% to 77.34%
Positive Predictive Value	87.50%	65.86% to 96.21%
Negative Predictive Value	71.43%	50.39% to 86.02%
Accuracy	80.00%	61.43% to 92.29%

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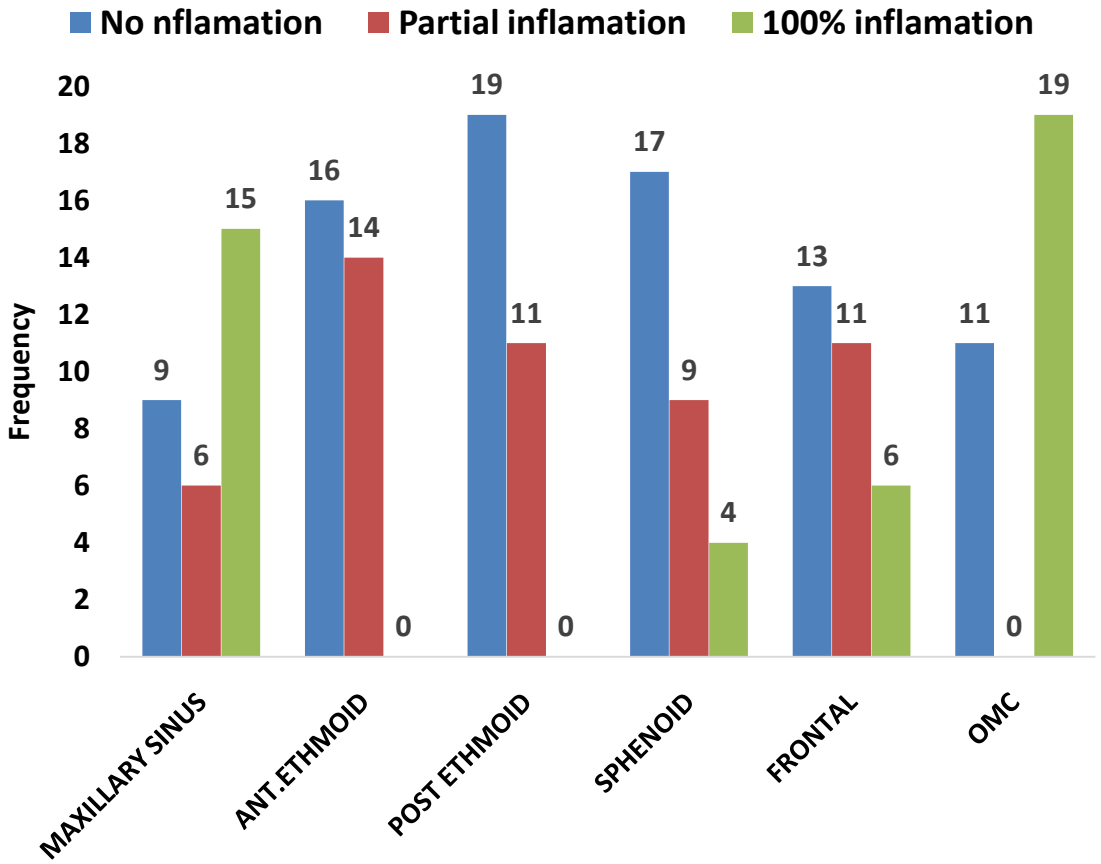

IV. DISCUSSION

In this study ,Nasal obstruction with nasal discharge are most common chief complaints. We did a comparative evaluation of endoscopy with CT, considering CT as the gold standard for diagnosing CRS.Based on clinical guidelines and endoscopy, Bhattacharyya and Lee suggested that when DNE was added to the AAOHNS symptom-based guidelines for CRS, the diagnostic accuracy was improved [4].In a study conducted by Goel et al. showed a sensitivity of 76.47% and a high specificity of 92.86% with 95% CI. This study concluded that CT scan gave a better idea of the condition of the PNS and the osteomeatal complex.[5] In 2002 Stankiewicz and Chow evaluated the relationship between symptom history,nasal endoscopy, and CT findings.Out Of the 37 patients with positive CT findings, 17 had positive endoscopic results, and 20 had negative endoscopic results. The sensitivity of endoscopy as compared with CT results was 46 %, specificity was 86 %.[6]

V. CONCLUSION

DNE is performed on all patients suspected of having CRS and most patients with CRS can be diagnosed and treated based on symptoms and DNE findings . CT scan is useful in patients with limited or poor endoscopic visualization, due to polyps, or septal deviation or crowding of osteomeatal complex and presence of hidden air spaces like sphenoid sinus, ethmoid bulla and posterior ethmoids.

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