

**AN OBSERVATIONAL STUDY ON THE DIAGNOSIS OF DUSHTAPRATISHYAYA  
W.S.R. TO RADIOLOGICAL & HEMATOLOGICAL INVESTIGATIONS**

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**ABSTRACT**

*Dushta Pratishyaya* is one among the complications of *Pratishyaya* and it occurs due to improper management or negligence of other types of *Pratishyayas*, this disease all *Tridoshas* are vitiated, hence treatment should be based on all *Doshas*. Many conditions of upper respiratory infections like Chronic rhinitis, Chronic sinusitis, Atrophic rhinitis, Pan sinusitis etc come under purview of *Dushtapratishyaya* as they have similar clinical features to share with like nasal congestion, purulent discharge, anosmia, etc. So, while treating *Dushta Pratishyaya* a physician should understand the proper cause, present condition of the disease & prognosis. In the present observational study, 50 subjects were registered based on inclusion criteria, and all are made to undergo for investigations like Hb, TC, DC, AEC & PNS X-ray. Obtained haematological & radiological reports are analysed for the involvement of sinuses, structural deformity like deviated nasal septum, and low immunity in case of reduced Hb & persistent infection in case of raised AEC. *Lakshanas* of *Dushta Pratishyaya* like *Nasasrava*, *Mukhadourgandya* were understood well with these investigations. Among 50 subject's PNS x-ray 40% had DNS, 62% had maxillary haziness followed by 42% frontal haziness & 2% of sphenoid haziness. 50% subjects had increased AEC & 34% had reduced Hb. Comparing to the haematological investigation, PNS x-ray had shown the significant result in the present study.

**KEYWORDS:** *Dushtapratishyaya*, Haematological investigation, Radiological investigation.

**INTRODUCTION**

Among *Nasa Roga Pratishyaya* is the most common disease. It has got various types based on *Dosha* vitiation. *Acharya Sushrutha* has dedicated a whole chapter for *Pratishyaya* only. By this the importance of *Pratishyaya* can be understood.

“*Pratikshanamshyayathiithipratishyayah*”<sup>[6]</sup>  
*Pratishyaya* word indicates that it is recurrent and can precipitate even due to minute etiological factors. *Dushta pratishyaya* is a condition which occurs as a result of improper treatment or regimen

followed during *pratishyaya* or unmanaged and leftover for a long period.<sup>[7]</sup> In 2015 alone, about 17.2 billion cases of upper respiratory infections have occurred worldwide.<sup>[8]</sup> A disease diagnosed based on objective parameters holds a higher hand than a disease diagnosed just based on subjective criteria. Many of the diseases mentioned in *Ayurveda* have a big list of subjective parameters in it and most of them lack objective criteria / parameters to assess them. Objective criteria like investigations

helps to understand the disease in depth such as site of involvement, structural deformity, stage of disease, prognosis etc. Hence the utility of Radiological & Haematological investigation in diagnosing the disease *Dushta Pratishyaya* is studied and expressed through this study.

### **AIMS & OBJECTIVES**

- 1.To diagnose *Dushtapratishyaya* based on clinical features as mentioned in classics.
- 2.To establish the relationship between subjective and objective parameters in diagnosis of *Dushtapratishyaya* with special reference to radiological and haematological investigations.

### **MATERIALS & METHODS**

**a) Sample source:** Patients were selected from OPD and IPD of JSS Ayurveda Medical College and Hospital Mysore and Medical camps and other referrals.

#### **b) Inclusion criteria**

Either gender with the history of *pratishyaya* for 12 or more than 12 weeks & Age group from 12-60 years

#### **c) Exclusion criteria:**

Individuals affected with TB, AIDS & Autoimmune disorders. Septic sinusitis, fungal rhinosinusitis & epistaxis.

#### **d) Criteria for assessment**

**Subjective parameters-** *Prakledana* & *parishushkata* of *nasa*, *Anaha* & *vivarana* of *nasa*, *Mukhadourgandya*, *Nasika kleda samshosha*, *Anosmia*, *Pooyopama*, *asita*, *rakta gratita sleshma srava*.

**Objective parameters** -Anterior & posterior rhinoscopic examination, PNS X-RAY Water's view, Haematological investigation (AEC,TC, DC, ESR).

### **ETHICAL CLEARANCE**

The study protocol was cleared by the ethical committee of the institute. Written consent was taken from each patient for

participation in the study. Patients were free to withdraw from the study at any time without giving any reason.

### **STATISTICAL ANALYSIS**

Data collected was entered in MS-Excel 2010 and analyzed using SPSS version 23. Chi square test was applied for the data to assess the association between subjective & objective parameters. Obtained results were interpreted statistically significant at  $p < 0.05$ .

### **OBSERVATION**

The observation was categorized into three divisions.

1. Observation based on vital data & history taking In the present study majority of the subjects were male 68%, 32% were in the age group of 25-36 years, 100% subjects had nasal congestion & decongestion (*anaha* & *vivarana*), *Prakledana* & *Parishushkata* & nasal discharge. 59% were having *mukha-dourgandhya*, 84% had *kshavapravritti* & 82% had *shiropoonata*. 76% were having hypersensitivity to allergens, 90% had the history of taking allopathic treatment (oral & decongestant spray) 2% had undergone surgery. 90% had disturbed sleep, 66% had soft consistency stool, 66% of subjects were addicted to tea & coffee. 70% had a exposure to Fan/AC & 90% had exposure to allergens in their residential as well as working area.

2. Observation based on nasal & paranasal examination In the present study 100% had inflamed nasal mucosa, 47% presented with DNS, 98% had inferior turbinate hypertrophy among 40% were unilateral & 58% were bilateral. 76% had middle turbinate hypertrophy among 52% were unilateral & 24% were bilateral. All the subjects (100%) were observed with *nasasrava* among which 54% were having catarrhal discharge, 36% had mucoid discharge, 6% had purulent discharge & 4% had mucopurulent discharge. On sinus examination maxillary swelling was observed in 68%

subjects in which, 44% were bilateral & 24% were unilateral. Frontal swelling was observed in 32% subjects in which 4% were unilateral & 28% were bilateral. On palpation 74% had maxillary tenderness, 48% had frontal tenderness & 6% had ethmoid tenderness. Based on patency, 22% subject had patent nose & in remaining i.e. 78% it was non patent. Sense of smell was absent/partially present in 78% of subjects. Halitosis was present in 44% of subjects. 64% having pittakapha dehaprakriti.

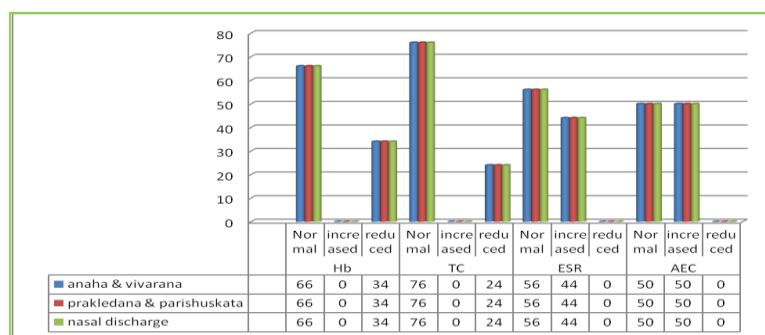
## RESULTS

### TABLES & GRAPHS ON RESULTS

Table no 1 : Table showing association between major complaints &Hb, TC, ESR & AEC

Parameter		Anaha & Vivarana	Prakledana & Parishuskata	nasal discharge	Total
Hb	Normal	33(66.0)	33(66.0)	33(66.0)	
	Increased	0	0	0	50(100)
	Reduced	17(34.0)	17(34.0)	17(34.0)	
TC	Normal	38(76.0)	38(76.0)	38(76.0)	
	Increased	0	0	0	50(100)
	Reduced	12(24.0)	12(24.0)	12(24.0)	
ESR	Normal	28(56.0)	28(56.0)	28(56.0)	
	Increased	22(44.0)	22(44.0)	22(44.0)	50(100)
	Reduced	0	0	0	
AEC	Normal	25(50.0)	25(50.0)	25(50.0)	
	Increased	25(50.0)	25(50.0)	25(50.0)	50(100)
	Reduced	0	0(0.0)	0(0.0)	

Graph no 1 : Graph showing association between major complaints &Hb, TC, ESR & AEC



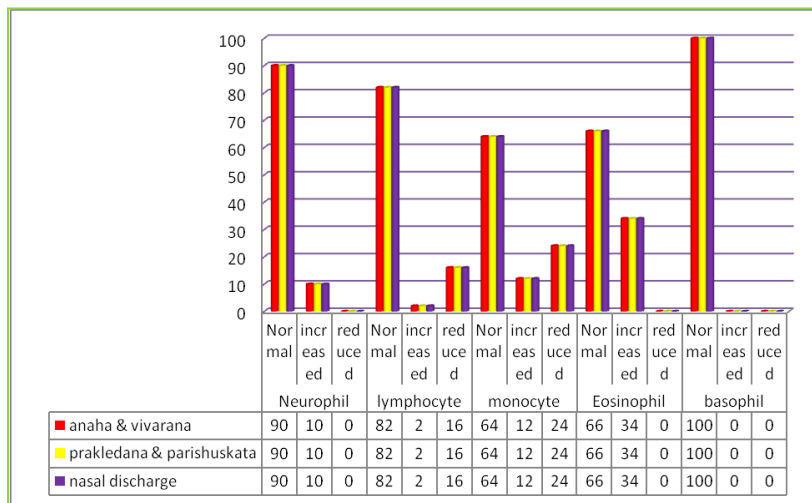
Among 50 subjects, with Anaha & Vivarana, Prakledana & Parishuskata & Nasa Srava in which

34% had reduced Hb,  
 24% had reduced TC.  
 44% had increased ESR.  
 50% had increased AEC.

Table no 2 : Table showing association between major complaints & Differential count

Parameter		Anaha & Vivarana	Prakledana & Parishuskata	nasal discharge	total
Neurophil	Normal	45(90)	45(90)	45(90)	
	Increased	5(10)	5(10)	5(10)	50(100)
	Reduced	0(0.0)	0(0.0)	0(0.0)	
lymphocyte	Normal	41(82.0)	41(82.0)	41(82.0)	
	Increased	1(2.0)	1(2.0)	1(2.0)	50(100)
	Reduced	8(16.0)	8(16.0)	8(16.0)	
monocyte	Normal	32(64.0)	32(64.0)	32(64.0)	
	Increased	6(12.0)	6(12.0)	6(12.0)	50(100)
	Reduced	12(24.0)	12(24.0)	12(24.0)	
Eosinophil	Normal	33(66.0)	33(66.0)	33(66.0)	
	Increased	17(34.0)	17(34.0)	17(34.0)	50(100)
	Reduced	0(0.0)	0(0.0)	0(0.0)	
basophil	Normal	50(100.0)	50(100.0)	50(100.0)	
	Increased	0	0	0	50(100)
	Reduced	0	0	0	

Graph no 2 : Graph showing association between major complaints & Differential count



Among all the 50 subjects with Anaha & Vivarana, Prakledana & Parishuskata & NasaSrava

34% had reduced Hb& 66% had normal Hb.

24% had increased TC & 76% had normal TC.

10% had increased Neutrophils & 90% had normal Neutrophils.

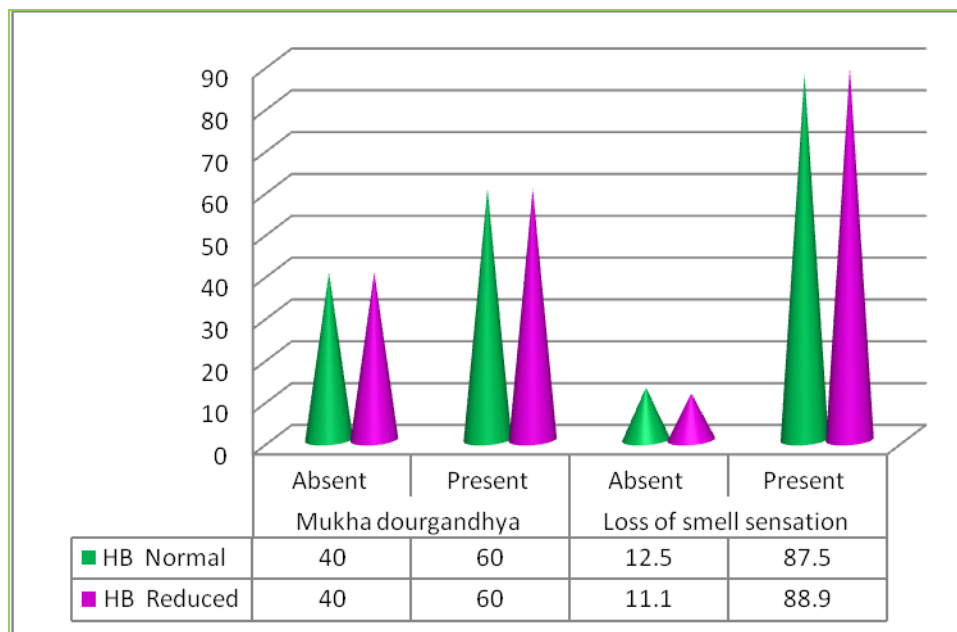
16% had reduced Lymphocyte count, 2% had increased count & 82% had normal count

24% had reduced Monocyte count, 12% had increased count & 64% had normal count.  
 17% had increased Eosinophil count & 66% had normal count.  
 100% had normal Basophil count.  
 44% had increased ESR & 56% had normal ESR.  
 50% had increased AEC & 50% had normal AEC.

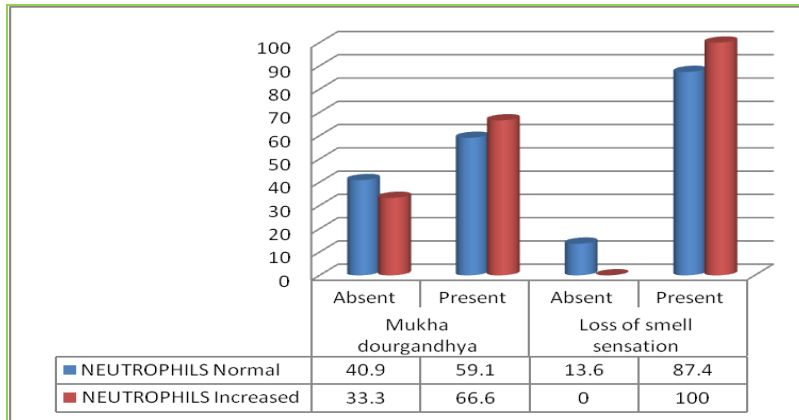
Table no 3 : Table showing association between *Mukhadourgandhya* & loss of smell sensation with Hb

Parameter		HB		Total	Chi-Square	P
		Normal	Reduced			
<i>Mukha Dourgandhya</i>	Absent	14(40.0)	6 (40.0)	20(40.0)	.897 <sup>a</sup>	0.344
	Present	21 (60%)	9 (60%)	30(60.0)		
Loss of smell sensation	Absent	4(12.5)	2 (11.1)	6 (12.0)	.107 <sup>a</sup>	0.554
	Present	28 (87.5)	16(88.9)	44 (88.0)		

Graph no 3 : Graph showing association between *Mukhadourgandhya* & loss of smell sensation with Hb



The association between *Mukhadourgandhya* & loss of smell sensation with Hb is not statistically significant.

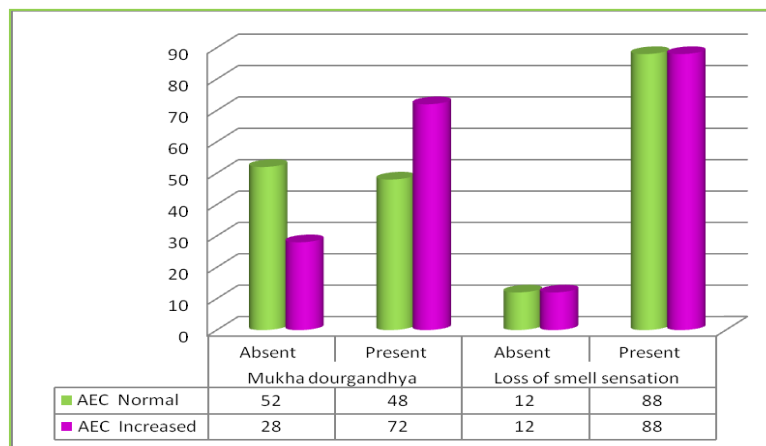


The association between *Mukhadourgandhya* & loss of smell sensation with neutrophils is not statistically significant.

Table no 4 : Table showing association between *Mukhadourgandhya* & loss of smell sensation with AEC

Parameter		AEC		Total	Chi-Square	P
		Normal	Increased			
<i>MukhaDourgandhya</i>	Absent	13 (52.0)	7 (28.0)	20(40.0)	2.122 <sup>a</sup>	0.244
	Present	12 (48.0)	18(72.0)	30(60.0)		
Loss of smell sensation	Absent	3 (12.0)	3 (12.0)	6 (12.0)	.166 <sup>a</sup>	0.684
	Present	22 (88.0)	22 (88.0)	44 (88.0)		

Graph no 4 : Graph showing association between *Mukhadourgandhya* & loss of smell sensation with AEC

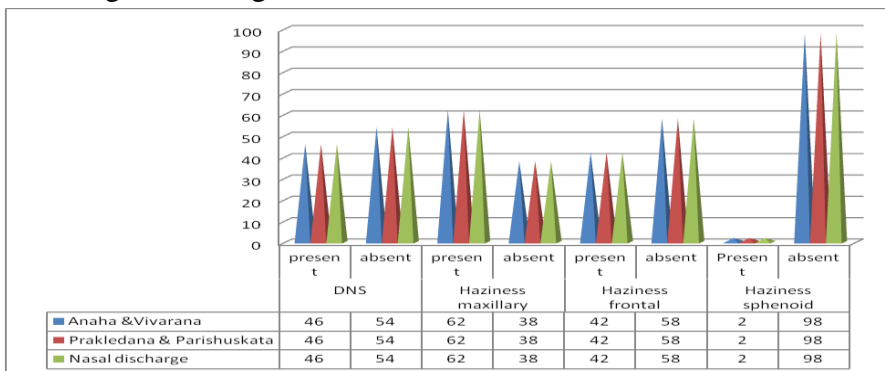


The association between *Mukhadourgandhya* & loss of smell sensation with AEC is not statistically significant.

**Table no 5: Table showing association between major complaints of Dushtapratishyaya & Radiological findings**

Parameter	DNS			Haziness maxillary			Haziness frontal			Haziness sphenoid		
	Present	Absent	total	present	Absent	total	Present	Absent	Total	Present	absent	total
Anaha & Vivarana	23 (46.0)	27 (54.0)	50 (100.0)	31 (62.0)	19 (38.0)	50 (100.0)	21 (42.0)	29 (58.0)	50 (100.0)	1 (2.0)	49 (98.0)	50 (100.0)
Prakledana & Parishuskata	23 (46.0)	27 (54.0)	50 (100.0)	31 (62.0)	19 (38.0)	50 (100.0)	21 (42.0)	29 (58.0)	50 (100.0)	1 (2.0)	49 (98.0)	50 (100.0)
Nasal discharge	23 (46.0)	27 (54.0)	50 (100.0)	31 (62.0)	19 (38.0)	50 (100.0)	21 (42.0)	29 (58.0)	50 (100.0)	1 (2.0)	49 (98.0)	50 (100.0)

**Graph no 5 : Graph showing association between major complaints of Dushtapratishyaya & Radiological findings**



Among all the 50 subjects with Anaha & Vivarana, Prakledana & Parishuskata & Nasa Srava 46% had DNS,

62% had maxillary haziness

42% had frontal haziness

2% had sphenoid haziness

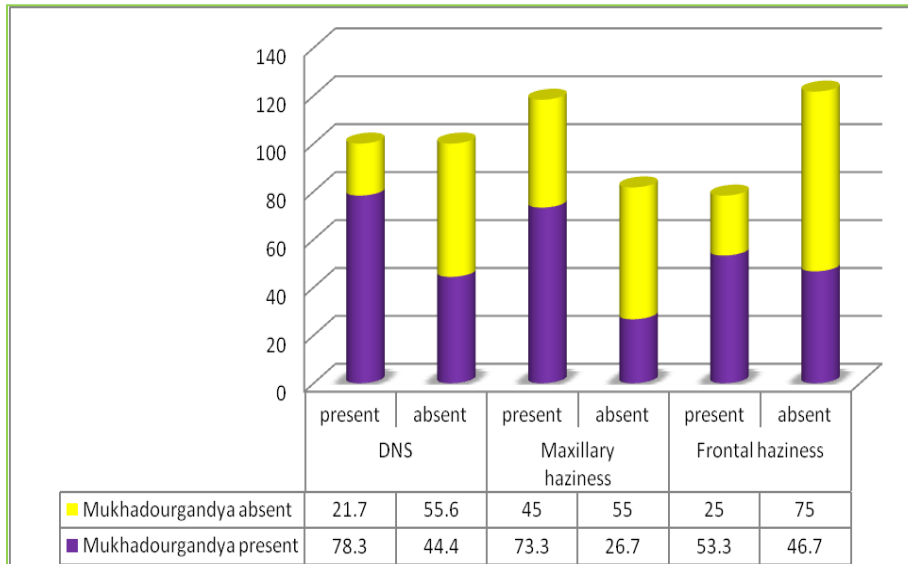
**Table no 6 : Table showing association between Mukhadourgandhya & Radiological findings**

Parameter		Mukhadourgandhya		Total	chisquare	P value
		Present	Absent			
DNS	Present	18(78.3%)	5(21.7)	50(100.0)	5.918	0.015
	Absent	12(44.4)	15(55.6)			
Maxillary haziness	Present	22(73.3)	9(45.0)	50(100.0)	4.089	0.043



	Absent	8(26.7)	11(55.0)			
Frontal haziness	Present	16(53.3)	5(25.0)	50(100.0)		
	Absent	14(46.7)	15(75.0)		3.955	0.047

Graph no 6 : Graph showing association between *Mukhadourgandhya*& Radiological findings



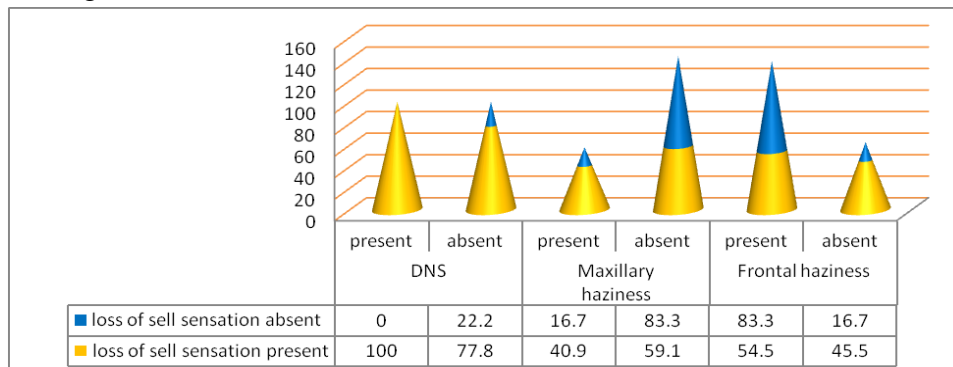
Among 50 subjects 30 subjects had *Mukhadourgandhya* in which 78.3% had Deviated nasal septum, Which is statistically significant with the P value of 0.015. 73.3% had maxillary haziness, Which is statistically significant with the P value of 0.043. 53.3% had frontal haziness, Which is statistically significant with the P value of 0.047.

**Table no 7: Table showing association between Loss of smell sensation & Radiological findings**

Parameter		loss of sell sensation		Total	Chisquare	P value
		present	Absent			
DNS	Present	23(100.0)	0(0.0)	50(100.0)	5.808	0.016
	Absent	21(77.8)	6(22.2)			
Maxillary haziness	Present	18(40.9)	1(16.7)	50(100.0)	1.317	0.251
	Absent	26(59.1)	5(83.3)			
Frontal haziness	Present	24(54.5)	5(83.3)	50(100.0)	1.796	0.186
	Absent	20(45.5)	1(16.7)			



Graph no 7 : Graph showing association between Loss of smell sensation & Radiological findings



Among 50 subjects 44 subjects had loss of smell sensation in which 100% had Deviated nasal septum, Which is statistically significant with the P value of 0.016. 40.9% had maxillary haziness, which is statistically not significant. 54.5% had frontal haziness, which is statistically not significant.

### DISCUSSION

In this study the disease is more prevalent in early mid age population ie.25to 36yrs(32%) It is an age where people are more prone to stress & tensions because of their busy life style, responsibilities. *Nidanas* like *Ratrijagarana* , *Ahita ahara sevana* etc.

76% of subjects were hypersensitivity to allergens, which is the triggering factor. (90%)ie 45 subjects had taken oral medication , 1subject(2%) had undergone surgery and continuous usage of decongestive sprays may be considered as one of the reason to hyposmia.

Among 50 subjects, 66% subjects had addicted to tea & coffee, 24% were addicted to smoking & 8% had addiction to alcohol. Tea & coffee are *Kashaya Rasapradhana* which aggravates *Vata*, whereas smoking causes *Rookshatva* which also aggravates *Vata* further leads to nasal congestion. In this study 70% subjects had exposure to Fan/AC & 90% had exposure to allergens (Dust, Pollens, Pets etc) in their working area as well as surroundings. *Pratishyaya*

being a *Nidanarthakara Roga* for *Dushta pratishyaya*.

-Inflammation of nasal mucosa was observed in all 50 subjects. Inflammation triggers mucus production and this causes sneezing. This is body response to bacterial invasion into nasal cavity.

-Among 50 subjects, septal deviation was present in 23% subjects, 98% subjects had inferior turbinate hypertrophy out of which 58% were bilateral & 40% were unilateral. 76% subjects had middle turbinate hypertrophy out of which 52% were unilateral & 24% were bilateral.

Deviation of Nasal septum results in the blockage of the side to which the septum deviates but also causes compensatory hypertrophy of the turbinate on the opposite side & may results in bilateral nasal obstruction. This bilateral nasal obstruction may block the fronto nasal duct (frontal sinus ostium). Hypertrophy of turbinates plays a major role in the blockage of sinus ostium which hampers the natural drainage of sinuses. The swelling & tenderness is due

to interference with the sinus contents drainage which results in mucus build up.

-Patency of nose & sense of smell. 78% of subjects felt blockage of nose i.e. Sense of smell was poor. It can be considered as partial smell sensation (parosmia) or temporary loss of sensation.

This is due to hypertrophied turbinates, DNS & sometimes due to thick secretion (mucoid/mucopurulent). It can be understood as *Kaphavrita Vata*. That is *Karmas* of *Vata* like *Sarvendriyanamudyojakah* & *Sarvendriyarthanaabhivoda* gets hampered due to *Kapha*.

-Halitosis was present in 44% subjects out of which 28% had grade 1 halitosis, 12% had grade 2, 2% had grade 3 & 2% had grade 4 halitosis. The paralysis of cilia and occlusion of ostia will cause the retention of pus in sinuses. The long standing retention will make the pus foul smelling and results in Halitosis.

-Generally, WBC plays an important role in defence mechanism. These cells protect the body from invading organisms or foreign bodies, either by destroying or inactivating them. Increase in total count may indicate that the immune system is working to destroy an infection. It may also be a sign of physical or emotional stress. These cells act by secreting substances like Myeloperoxidase, NADPH oxidase, interleukin - 4, 5 & 1 which results in destruction of microorganisms, bactericidal action & acceleration of inflammatory response respectively. In Dushta pratishyaya there is a reference of *pooyanasarava* & *Mukha dourgandhyata* which can be correlated to bacterial action.

-The deficiency Hb brings about low oxygen carrying capacity of the blood. The resultant effect is on the tissue (muscle, brain, etc) which switch from oxygen rich energy production to oxygen depleted energy production. Thus low Hb will ultimately lead to poor immunity. *Dushtapratishyaya* being a chronic disorder affects on general health of an individual.

-Among 50 subjects, DNS was present in 40% & remaining it was absent. DNS is one of the major cause for nasal congestion and hyposmia. Which was evident in this study.

-In this study haziness of maxillary sinus was seen in majority of subjects i.e. 62%, followed by 42% of frontal haziness & 2% of sphenoid haziness. It is because the maxillary ostia for drainage are located high on the medial wall & open into the semi lunar hiatus of the lateral nasal cavity. Because of the position of the ostia, gravity can't drain the maxillary sinus contents when the head is erect. So maxillary sinus becomes more prone for the infection.

*Mukhadourgandya* & Loss of smell sensation with respect to DNS were having the P value of 0.015 & 0.016 respectively which is statistically significant. Deviation of Nasal septum results in the blockage of the side to which the septum deviates but also causes compensatory hypertrophy of the turbinate on the opposite side, which results in blockage of sinus ostia, which leads to obstruction for the natural drainage of Sinus. Which further leads to stagnant of sinus contents results in *Mukhadourgandya* & Loss of smell sensation.

*Mukhadourgandya* & Loss of smell sensation with respect to Haziness of Maxillary sinus, Frontal Sinus were having the P value of

0.04, 0.25 & 0.047, 0.018 respectively which suggests that association with *Mukhadourgandhya* is statistically significant.

Collection of muco purulent secretion in the maxillary sinus will result in the increased Pressure over the walls of sinus resulting in the correlated pressure over the olfactory branch areas this is also associated with the nasopharangeal mucosal congestion with the presence of Strepto coccus bacteria. Hence it is evident in this study that *Mukhadourgandyata* and loss of smell sensation simultaneously present with respect to sinus haziness.

#### **DNS & Haziness of sinuses with respect to *Anaha & Vivarana, Prakledana & Parishushkata & Srava.***

Among 50 subjects, all had presented with *Anaha & Vivarana, Prakledana & Parishuskata & Nasa Srava* in which DNS was present in 46% of subjects.

Maxillary haziness was present in 62% of subjects.

Frontal haziness was present in 42% of subjects,,

Sphenoid haziness was present in 2% of subjects,

*Anaha* is due to deviated septum which will result in the turbinatal oedema with nasopharangeal mucosal congestion.

Haziness denotes involvement of the sinus i.e, inflammation of sinus. It's due to inflammatory condition in the meatus. Improper drainage may result due to the closure of ostium.

Hence *Anaha* and *Parishushkata* can be found. At the same time due to physiological variation physical activities and *Upashayatmaka Pathya Sevana* may result

in the drainage of *Kledata* and temporarily *Vivaranata* can be seen. Hence *Anaha-Parishushkata* and *Vivarana-Prakledana* with *Srava* may persist in inflammation of sinus (Haziness of sinus)

#### **Discussion on Haematological Findings**

As there is no statistical significance found in haematological findings with respect to individual clinical features, whereas AEC found to be present in 50% of the subjects.

In this study it can be said that there is no significant association between *Dushtapratishyaya* and Haematology investigation. It may be due to less sample size.

#### **CONCLUSION**

-Clinically *Dushta Pratishyaya* can be diagnosed on anterior & posterior rhinoscopy.

-*Mukhadourgandyata* & corresponding loss of smell sensation can be found in DNS subjects.

-The clinical feature *Mukhadourgandyata* can be seen in most of the cases with Haziness of the maxillary & frontal sinus.

-*Anaha & Vivarana, Prakledana & Parishuskata & Nasasrava* can be assessed with the radiological investigations as evidence based.

-By this we can conclude that in this study Radiological investigation helps in diagnosing the disease *Dushta Pratishyaya*

-Haematological investigation like overall increase in AEC & reduced Hb level helps in assessing the prognosis & phase of the disease.

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Source of support: Nil,

Conflict of interest: None Declared

### **Cite this article as**

Subash Chandra Bose M.: An Observational Study on The Diagnosis of Dushtapratishyaya W.S.R. to Radiological & Hematological Investigations; ayurpub; IV(5): 1340-1351