

## CLINICAL RESEARCH

### Clinical evaluation of homoeopathic medicines in sinusitis

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#### Abstract

**Objectives:** This study aimed to evolve a group of most effective homoeopathic medicines in the management of sinusitis, to identify their reliable indications, most useful potencies, frequency of administration, and their relationship with other medicines.

**Methods:** An open, multi-centric, prospective, observational study was carried out during the period 1985 -2003. A total of 950 patients (424 males, 526 females), of both acute and chronic type, were registered on the basis of subjective and/or objective symptoms of sinusitis. Patients presenting with the complications of sinusitis or requiring hospitalization were excluded from the study. Homoeopathic medicines in different potencies (Q, 6, 30, 200 & 1M) were administered according to their prescribing indications. All the enrolled patients were treated for the period ranging from 1 month to 6 years depending upon acute or chronic nature of the disease condition. Besides homoeopathic intervention, patients were advised to follow general measures like steam inhalation and to avoid cold exposure.

**Results:** Different clinical patterns were observed, viz. acute/chronic, frontal, fronto-maxillary (mixed), sphenoidal, ethmoidal and maxillary sinusitis. Three hundred and ninety four patients were followed up, out of which 138 patients were cured with no relapse after a follow up period of one year; varying degrees of improvement were seen, viz. marked improvement in 80 patients, moderate improvement in 91 patients, mild improvement in 66 patients. While 04 patients showed aggravation of their condition, 15 patients did not improve. In 141 patients of fronto-maxillary sinusitis, objective symptoms were relieved. *Belladonna* (n=16), *Kali bichromicum* (n=21), *Nux vomica* (n=14), *Rhus toxicodendron* (n=15), and *Silicea* (n=21) were found to be useful medicines in comparison to other medicines.

**Conclusion:** This long term observational study indicated a positive role of homoeopathic medicines in the management of sinusitis. A group of medicines have been identified which have benefited the patients, when used on the basis of prescribing indications.

**Keywords:** observational study; sinusitis; belladonna; kali bichromicum; nux vomica; rhus toxicodendron; silicea; homoeopathy.

#### INTRODUCTION

Of all the respiratory infections, sinusitis is one of the most common illnesses that affect a high proportion of the population. According to the National Ambulatory Medical Care Survey data, sinusitis is the fifth most common diagnosis for which an antibiotic is prescribed.<sup>1</sup>

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Sinusitis refers to an inflammatory condition involving the four-paired structures surrounding the nasal cavities. Although most cases of sinusitis involve more than one sinus, the maxillary sinus is most commonly observed. Normally, mucus does not accumulate or remain sterile in the sinuses. When the sinus ostia are obstructed or when ciliary clearance is impaired or absent, the secretions can be retained producing the typical signs and symptoms of sinusitis. The retained secretions may become infected with a variety of pathogens, including viruses, bacteria and fungi.<sup>2</sup>

The diagnosis of acute purulent sinusitis is usually made when constitutional manifestations are present, such as fever, chills, pain and tenderness of the involved sinuses, nasal obstruction and recurrent headaches that change in intensity with position and disappear shortly after getting out of bed. Isolation of a pathogenic organism from the nasal secretions or from material draining into the meatuses of the nasal turbinates may help to strengthen the diagnosis. When there is marked swelling of the turbinates, they can be shrunk by local application of cocaine or other potent vasoconstrictors. This exposes the meatuses and permits the collection of exudates draining directly from the involved sinus. Transillumination of the sinuses is also helpful, while radiologic study is of value in identifying the specific sinus involved. The commonest predisposing factor of acute purulent sinusitis is viral infection of the upper respiratory tract, which may lead to obstruction of drainage of the paranasal sinuses and the development of localized pain, tenderness and low grade fever.<sup>3</sup>

The symptoms of chronic sinusitis are variable and characterized by symptoms of sinus inflammation lasting nasal and nasopharyngeal symptoms, nasal obstruction, nasal discharge, post nasal drip, epistaxis, abnormalities of smell, pharyngeal symptoms, symptoms related to ear, headache, ocular symptoms leading to conjunctivitis, respiratory tract symptoms and digestive tract symptoms such as gastritis with nausea.<sup>4</sup>

From the Cochrane review<sup>5</sup> it is concluded that antibiotics provide a minor improvement in simple (uncomplicated) sinus infections, however, the small benefit gained may be overridden by the negative effects of antibiotics, both on the patient and on the population in general. So the use of antibiotics in the treatment of sinusitis is no doubt helpful but with adverse effects.

Earlier case records<sup>6-10</sup> and research studies of complex homoeopathic medicine(s) on sinusitis<sup>11-16</sup>, proved to be safe and gentle. In repertories, a long list of medicines is given for coryza, headache, nasal obstruction, etc. From a review of the literature, it appeared that so far no significant work had been done on the basis of the similia principle of homeopathy in the treatment of sinusitis in a scientific manner. So there was need to explore the efficacy of homoeopathic medicines otherwise indicated for various diagnostic symptoms of sinusitis. With this backdrop, the CCRH undertook this study with the aim to evolve a group of effective homoeopathic medicines in the management of sinusitis.

### Aims and Objectives

The study aimed to evolve a group of most effective homoeopathic medicines in the management of sinusitis, to identify their reliable indications, most useful potencies, frequency of administration, and their relationship with other medicines.

### Material and Method

An open, multi-centric, prospective, observational study was carried out during the period 1985 -2003 (unpublished data), at Clinical Research Unit (H), Shimla (1985-1999) and Clinical Research Unit (H), Chennai (1988-2003). A total of 950 patients ranging between the age group ranging 1 year to less than 74 years were enrolled for the study on the basis of subjective and/or objective symptoms listed below. Patients presenting with the complications or requiring hospitalization during

**Table 1:** Parameters adopted for outcome assessment after treatment

Assessment	Parameter
Cured	Complete removal of subjective & objective symptoms with no subsequent recurrence for a period of 1 year
Marked improvement	Complete removal of subjective and objective symptoms except occasional recurrence of attacks
Moderate improvement	Subsidence of subjective and objective symptoms with decrease in duration, intensity and frequency of attacks
Mild improvement	Partial relief of subjective and objective symptoms
No improvement	No response after considerable period of treatment
Worse	Despite treatment disease worsened and complications came up
Dropped out	Poor compliance by the patient as to treatment and management

treatment were excluded from the study. Boericke's Materia Medica<sup>17</sup> and Kent's repertory<sup>18</sup> were referred to reach at a similimum / similia for prescription after thorough case taking. Medicines were administered in various potencies, viz., Q, 6, 30, 200 or 1M. Since the institutes/units were not equipped with facility for radiological investigations, the patients got these investigations done outside. In acute exacerbations, patients were treated on the basis of presenting symptoms; thereafter, constitutional treatment was followed based on totality of symptoms to bring complete resolution. All the enrolled patients were treated for the period ranging from 1 month to 6 years depending upon acute or chronic nature of the disease condition. Specific parameters were adopted for outcome assessment after treatment (Table 1). Along with indicated homoeopathic medicines, patients were advised to take measures like steam inhalation and to avoid cold exposure.

**Subjective symptoms**

1. Pain over paranasal sinus region, i.e., frontal, supra-orbital, inner canthi of eyes, root of nose, maxillary region.
2. Pain preceded by or accompanied with symptoms like coryza, sneezing, nasal obstruction, pharyngeal irritation.

**Objective symptoms (signs)**

1. Tenderness over the affected sinus
2. Nasal congestion

3. Hypertrophied nasal turbinates
4. Purulent discharge per nose
5. Congestion of throat

**Results**

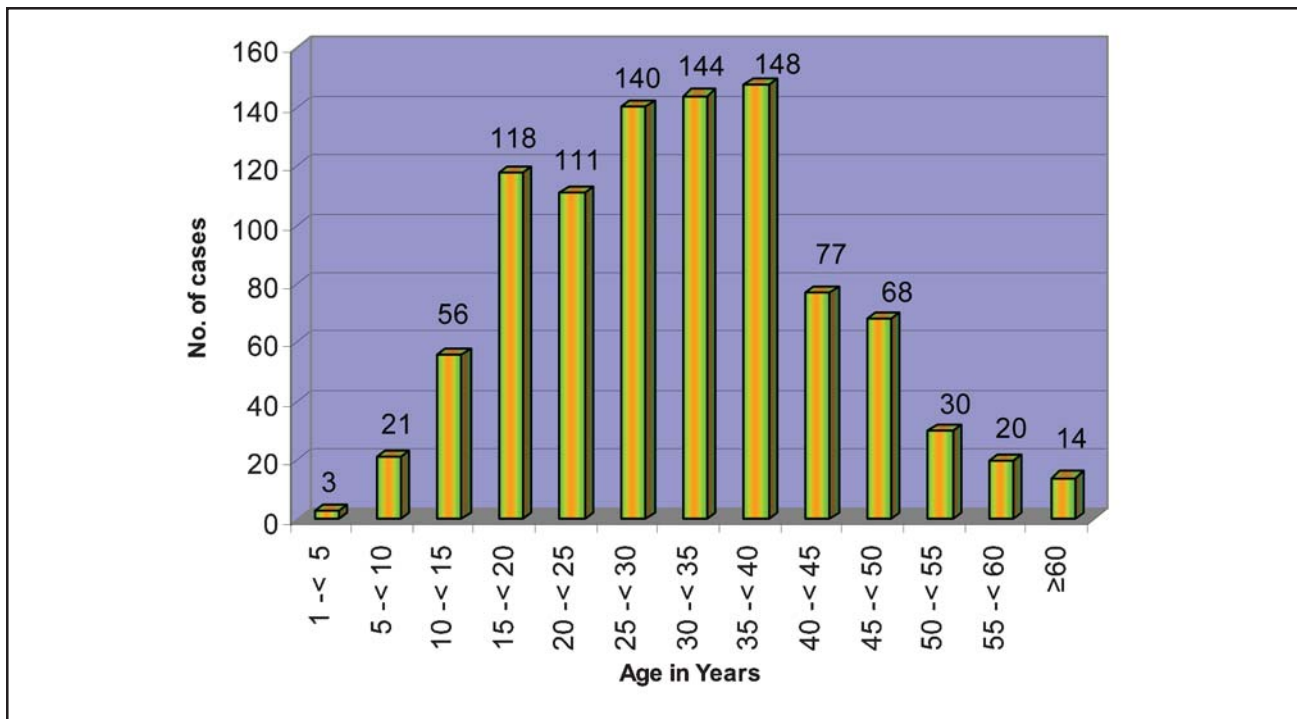
Out of 950 patients enrolled, 394 (41.47%) patients were followed up regularly and 556 (58.5%) patients were dropped out due to loss to follow up. Figure 1 shows that maximum number of patients belonged to the adults of age group of 35-40 years (148 patients). In this long term study various types of sinusitis were treated including acute and chronic conditions, out of which the common was chronic maxillary sinusitis (475 patients) and least common was ethmoidal/ sphenoidal sinusitis (26 patients) which is listed in Table 2.

Various etiological factors which were associated with progression of sinusitis were also studied. 227 patients suffered from sinusitis from obstruction to paranasal sinuses, 143 suffered from sinusitis due to nasal infection. The various other causes are listed in Table 3.

293 patients (78.1%) responded well within one year of treatment while 82 (21.9%) responded after treatment for a period of 1 year to 4 years and above (Table 5).

Result of response in relation to basis of prescription was analyzed. Prescription based on miasmatic analysis found to be more helpful to patients in comparison to other types (Table 4)

**Figure 1:** Age profile



Overall response to treatment is summed up in Table 6. An analysis of response to treatment of subjective symptoms, objective symptoms and pathological findings was also carried out and the data are listed in Tables 7, 8 and 9 while data on medicines prescribed

and found useful with their prescribing indications are listed in Table 10. This study also focused on few of the relationships of remedies viz. followed well, complementary and intercurrent (Table 11).

**Table 2:** Clinical types

Clinical types	No. of patients*
Acute sinusitis	121
Chronic sinusitis	1010
– Frontal sinusitis	127
– Maxillary sinusitis	465
– Multiple (Fronto - maxillary )	392
– Ethmoidal/ Sphenoidal	26

\* One case might have got more than one type of sinusitis.

**Table 3:** Etiological factors ascertained at Clinical Research Unit, Shimla

Etiological factors	No. of patients*		
	Male	Female	Total
<i>Predisposing</i>			
– Hereditary	57	86	143
– Nasal infection	61	66	127
– DNS	49	27	76
– Hypertrophied turbinates	82	69	151
– Throat infection	17	19	36
– Allergic rhinitis	67	75	142
– Obstruction to paranasal sinus	131	96	227
<i>Precipitating factors</i>			
– Cold damp climate	39	35	74

\* One case might have more than one etiological factor

**Table 4:** Response on the basis of prescription

	No. of patients*	
	Prescribed to	Responded in
Predisposing factors	25	12
Precipitating factors	04	3
Miasmatic	98	95
Generalities	177	140
Modalities	32	32
Presenting complaints	70	48
Constitutional features	4	2
Repertorial totality	20	20
Key notes	99	94

\* One case might have got medicines selected on the basis of more than one factor

**Table 5:** Response according duration of treatment

Groups	No. of patients	
	Treatment given	Responded in
0 -<1 month	125	113
1 month -<3 months	76	73
3 months -< 6 months	58	56
6 months - <1 year	53	51
1 year - <2 years	28	28
2 years -< 3 years	27	27
3 years -< 4 years	18	18
≥ 4 years	9	09

**Table 6:** Over all response to treatment

	No. of patients			Percentage
	Male	Female	Total	
Cured	56	82	138	36.8%
Marked improvement	37	43	80	21.3%
Moderate improvement	43	48	91	24.3%
Mild improvement	29	37	66	17.6%
Not improved	11	4	15	3.8%
Worse	4	0	4	1.01%
Total	180	214	394	

**Table 7:** Response to treatment (subjective symptoms)

Subjective symptoms	No. of patients		
	Observed in	S/S disappeared	S/S reduced in intensity
Fever	97	63 (64.9%)	16 (16.5%)
Chilliness	69	32 (46.4%)	22 (31.8%)
Malaise	164	81 (49.4%)	48 (29.3%)
Pain over the affected sinus	424	155 (36.6%)	131 (30.9%)
Headache	255	103 (40.4%)	73 (28.6%)
Congestion/swelling inside nose leading to nasal obstruction	119	29 (24.4%)	60 (50.4%)
<b>Secondary effects</b>			
• Irritation in throat	109	30 (27.5%)	56 (51.4%)
• Mouth breathing	97	18 (18.6%)	53 (54.4%)
• Post nasal dropping	184	42 (23%)	82 (44.6%)

**Table 8:** Response to treatment (objective symptoms/ signs)

Objective symptoms	No. of patients		
	Observed in	S/S disappeared in	S/S reduced in
Frontal sinusitis	127	31 (24.4%)	60 (47.2%)
Maxillary sinusitis	110	24 (21.8%)	51 (46.4%)
Fronto-maxillary (mixed) sinusitis	140	94 (67.1%)	81(57.9%)
Tenderness over sinus	466	138 (29.6%)	192 (41.2%)
Nasal mucosa red / turgescient	103	36 (35%)	35 (34%)
Nasal turbinates hypertrophied	79	00	41 (52%)
Nasal discharge mucoid /purulent	173	51 (29.5%)	78 (45.1%)

**Table 9:** Response to treatment (pathological findings)

Pathological findings	No. of patients		
	Undergone investigations	Within normal range after treatment	Altered findings improved
<b>Blood examination</b>			
• Leucocytosis	60	07	12
• ESR more than 15 mm	22	02	10
+ ve X-ray findings of paranasal sinusitis	196	00	25

**Table 10:** Medicines prescribed and found useful along with their prescribing indications.

Sl. No.	Name of the medicine and potency	No. of patients		Indications
		Prescribed to	Found useful in	
1.	Belladonna 30,200,1M	17	16	<ul style="list-style-type: none"> <li>• Throbbing frontal headache, congestion of face.</li> <li>• Headache on right side, worse by least movement, lying down, better touch, jar, noise, draught, afternoon, lying down in semi-erect position.</li> <li>• Photophobia.</li> <li>• Coryza with mucus and blood.</li> </ul>
2.	Calcarea carbonica 6,30,200,1M	13	11	<ul style="list-style-type: none"> <li>• Frequent attacks of cold, swelling at the root of the nose, nausea.</li> <li>• Headache with vertigo, better in dry climate, lying on painful side</li> </ul>
3.	Calcarea sulphuricum 6x, 30, 200	5	5	<ul style="list-style-type: none"> <li>• Chronic sinusitis with thick yellow discharge.</li> <li>• Burning pain in palms and soles.</li> <li>• Worse from heat; better by washing with cold water.</li> <li>• Desires cold.</li> </ul>
4.	Cassia sophera Q	10	06	<ul style="list-style-type: none"> <li>• Blocked nose, causing great difficulty in breathing</li> <li>• Sneezing in bouts.</li> <li>• Rhinitis, rhinorrhoea (Allergic rhinitis and sinusitis)</li> <li>• Fronto-maxillary sinusitis.</li> </ul>
5.	Hepar sulph. 6,30,200,1M	08	05	<ul style="list-style-type: none"> <li>• Sinusitis of allergic origin with patient being very sensitive to cold.</li> <li>• Chilly patient yet burning heat and flushes.</li> <li>• Allergic rhinitis, sneezing culminating into sinusitis.</li> <li>• Acute sinusitis (frontal / frontomaxillary) becoming chronic with the passage of time.</li> </ul>
6.	Kali bichromicum 30,200	26	21	<ul style="list-style-type: none"> <li>• Frontal sinusitis with pain in supraorbital region or inner canthi of both the eyes and at the root of the nose.</li> <li>• Postnasal catarrh exciting cough, discharge from nose relatively scanty but sticky, purulent, yellow.</li> </ul>
7.	Lachesis 30,200,1M	11	10	<ul style="list-style-type: none"> <li>• Left sided chronic maxillary sinusitis.</li> <li>• Nasal obstruction causing choking at night.</li> <li>• Highly offensive mucopurulent nasal discharge from left nostril.</li> <li>• Sometimes discharge is blood stained.</li> <li>• Dryness of mouth during sleep</li> </ul>

Sl. No.	Name of the medicine and potency	No. of patients		Indications
		Prescribed to	Found useful in	
8.	Malaria officinalis 200	9	9	<ul style="list-style-type: none"> <li>Acute frontal or fronto-maxillary sinusitis associated with constitutional symptoms like malaise, chilliness, fever and thirst for cold water.</li> <li>Damp climatic conditions, getting or exposure to damp smell causing acute sinusitis.</li> </ul>
9.	Mercurius solubilis 30, 200, 1M	5	5	<ul style="list-style-type: none"> <li>Frontal sinusitis, pain worse at night with nasal obstruction.</li> <li>Fever associated with sweat, chilliness, worse at night.</li> <li>Moist, thickly coated indented tongue, foul breath.</li> <li>Loose offensive stool.</li> <li>Reddish eruptions all over the body with itching, worse from heat of bed.</li> </ul>
10.	Natrum muriaticum 30, 200	41	21	<ul style="list-style-type: none"> <li>Headache increases with sun.</li> <li>Bouts of sneezing and lachrymation.</li> <li>Pain worse from reading, laughing and mental exertion.</li> <li>Chronic fronto-maxillary sinusitis with supraorbital headache, commencing in the morning around 9-10 a.m.</li> </ul>
11.	Natrum arsenicum 6X	8	6	<ul style="list-style-type: none"> <li>Catches cold frequently</li> <li>Often used as specific medicine in case of sinusitis.</li> <li>Prescribed in chronic sinusitis with nasal obstruction, resulting in post nasal catarrh, the discharge being yellowish, muco-purulent with involvement of pharynx i.e. pharyngeal congestion.</li> <li>Worse in damp cold weather.</li> </ul>
12.	Natrum sulphuricum 30, 200, 1M	23	11	<ul style="list-style-type: none"> <li>Chronic frontal or fronto-maxillary sinusitis with typical pain.</li> <li>Profuse thick, green, purulent discharge</li> <li>Worse during damp cold or monsoons</li> </ul>
13.	Nux vomica 30, 200, 1M	16	14	<ul style="list-style-type: none"> <li>Irritability ; chilliness</li> <li>Headache, worse from least sound, morning.</li> <li>Rhinitis, sneezing, running nose, mucoid discharge with sinusitis, nasal obstruction.</li> <li>Stuffy cold, worse in morning.</li> </ul>
14.	Psorinum 200, 1M	8	6	<ul style="list-style-type: none"> <li>Extremely chilly patient.</li> <li>Though chilly, yet sweats on least exertion and slightly walking uphill.</li> <li>Purulent discharge with offensive odour from nose and mouth.</li> </ul>

Sl. No.	Name of the medicine and potency	No. of patients		Indications
		Prescribed to	Found useful in	
15.	Pulsatilla 30, 200, 1M	71	47	<ul style="list-style-type: none"> <li>• Muddy, whitish, smooth coating on tongue with thirstlessness.</li> <li>• Headache, shifting type.</li> <li>• Thick, purulent, greenish yellow catarrh.</li> <li>• Low grade fever with chilliness and thirstlessness.</li> <li>• Nasal obstruction, worse indoors and better in open air.</li> <li>• Found useful in maxillary, frontal and fronto-maxillary sinusitis.</li> </ul>
16.	Rhus tox. 30, 200, 1M	20	15	<ul style="list-style-type: none"> <li>• Coryza culminating to sinusitis which dates back to working in cold water or getting wet in rain.</li> <li>• Pain in supraorbital or paranasal region, associated with malaise, bodyache and chilliness.</li> <li>• Worse in warmth, covering up or remaining in bed.</li> </ul>
17.	Sabadilla 30, 200	12	9	<ul style="list-style-type: none"> <li>• Mainly left sided sinusitis, affects left side of throat.</li> <li>• Hot fomentation greatly desires which ameliorates.</li> <li>• Itching and irritation in nasal passage.</li> <li>• Warmth in general, hot food, hot drinks gives relief.</li> <li>• Acute rhinitis, sneezing associated with acute frontal or maxillary sinusitis.</li> </ul>
18.	Silicea 6X, 30, 200, 1 M	26	21	<ul style="list-style-type: none"> <li>• Chilly patient.</li> <li>• Cannot do without covering the head. Uncovering the head aggravates catarrhal symptoms and those pertaining to head.</li> <li>• Icy coldness of hands and feet.</li> </ul>
19.	Sulphur 30, 200, 1M	7	6	<ul style="list-style-type: none"> <li>• Acute sinusitis with pain and dryness in throat, thirst for cold water, feverish, heat in body, burning pain in eyes, palms and soles; flushes of heat from face.</li> <li>• Chronic sinusitis without any discharge from nose, burning heat in palms &amp; soles.</li> <li>• Pain in forehead worse blowing nose.</li> </ul>
20.	Tuberculinum 200, 1M	9	8	<ul style="list-style-type: none"> <li>• Sensitive to cold yet desires cold open air. Least exposure to cold, even walking bare foot on cold surface precipitates sinusitis.</li> <li>• Sinusitis associated with easy fatigue.</li> <li>• Sinusitis associated with irritation in throat, dry cough, rhinitis and sneezing, worse from change of weather</li> </ul>



**Table 11:** Relationship of medicines (followed well)

Name of the medicine	Name of the related medicine	No. of patients	
		Prescribed to	Found useful in
<b>Followed well</b>			
Belladonna	Ars. alb.	2	2
Belladonna	Rhus tox.	4	4
Silicea	Pulsatilla	4	4
Bryonia	Belladonna	2	2
Bryonia	Nux vom.	2	2
Calcarea carb.	Pulsatilla	2	2
Lycopodium	Belladonna	2	2
Lycopodium	Bryonia	2	2
Nat. mur.	Bryonia	5	5
Nat. mur.	Calcarea carb.	2	2
Nat. mur.	Hep. sulph.	2	2
Nat. mur.	Pulsatilla	3	3
Nat. mur.	Rhus tox	6	5
Pulsatilla	Belladonna	4	4
Pulsatilla	Rhus tox.	5	5
<b>Complementary</b>			
Dulcamara	Nat. sulph.	4	4
<b>Intercurrent</b>			
Belladonna	Tuberculinum	2	2
Calcarea Carb.	Tuberculinum	3	3
Nat. mur.	Bacillinum	4	4
Nat. mur.	Tuberculinum	11	11
Nat. sulph.	Tuberculinum	02	02
Pulsatilla	Tuberculinum	06	06

Bold- indicates the relationship

## Discussion

This observational study adds scientific evidence to the earlier case reports<sup>6-10</sup> not only in showing the usefulness of homeopathic medicines when prescribed on totality of symptoms but also confirms the positive outcome of homeopathic medicines when assessed through the objective findings in the treatment of a common condition like 'sinusitis'.

This study shows that women are more prone to sinusitis than their male counterparts which is in consonance with the findings of National Health interview survey 2001<sup>19</sup>. Adults of different age group from 25 years to 50 years (60%) were more prone to suffer from sinusitis which corroborates with the study of Clemet<sup>20</sup> and Chen *et al*<sup>21</sup> who are of view that chronic sinusitis

is one of the frequent chronic diseases in adults. Prevalence of sinusitis in children between the ages 1 year- 15 years consisted 8.42% which cannot be substantiated by the study of other researchers. This may be due to reasons given by researcher Clemet and Gordt<sup>20</sup>, "Especially in children rhinitis and sinusitis are often a continuum of disease in which it is often impossible to differentiate rhinitis from sinusitis on clinical background. Further more debates on the routine use of radiographic imaging in children for surveying paediatric populations make it difficult to determine the precise incidence in children".

206 patients registered were based on clinical symptoms (subjective and objective) of sinusitis, 10 patients were based on pathological findings, while 734 patients were registered based on both clinical and

pathological findings. However radiological investigations could be done only in 196 patients due to reasons mentioned in material and method.

Patients of sinusitis presented in different clinical patterns; the most common presentation was chronic maxillary sinusitis<sup>22,23</sup> and least common was chronic ethmoidal/ sphenoidal sinusitis (Table 2).

The importance of sinus ostial patency was eloquently stated by Senior and Kennedy<sup>24</sup>, "Sinus health in any patient depends on mucous secretion of normal viscosity, volume, and composition; normal mucociliary flow to prevent mucous stasis and subsequent infection; and open sinus ostia to allow adequate drainage and aeration. While defect of any of these elements can result in acute, recurrent acute or chronic sinusitis, ostial blockage is key in the cycle for the vast majority of sinusitis in asthmatic and non-asthmatic patients alike."

In one of the study center, it was observed that obstruction to nasal sinuses (227 patients), was the most common cause leading to inflammation of sinuses which corroborates with the study of Hamilos Daniel<sup>25</sup>. The other predisposing factors are hereditary (143 patients), nasal infection<sup>26</sup> (127 patients), DNS<sup>26</sup> (76 patients), hypertrophied turbinates<sup>26</sup> (151 patients), throat infection (36 patients), allergic rhinitis<sup>27, 28</sup> (142 patients), and environmental factors like damp cold climate<sup>29</sup> also played a vital role in exacerbating sinusitis (74 patients) (Table 3).

Homoeopathic medicines were prescribed from different aspects; out of 70 patients prescribed according to presenting complaints, 48 showed improvement; out of 177 patients prescribed on generalities (physical and mental), 140 patients improved; when prescriptions were based on keynote, 55 patients got relieved of their complaints out of 60 (Table 4).

196 patients, which were found positive on radiological investigation, were also followed up. Out of these, 25 patients showed reduction in relation to radio opacity, mucosal thickening, hypertrophied turbinates and hazy sinus (Table 9). Investigations of a few patients were done for WBC count, ESR and x-ray and some of these pathological findings were diminished after treatment.

Maximum number of patients presented with pain over the affected sinuses (424 patients) which disappeared in 155 (36.6%) patients and reduced in 131 (30.9%) patients. Other subjective symptoms *viz.* fever, malaise, pain over the affected sinus, headache, chilliness, congestion/ swelling inside nose leading to

nasal obstruction, irritation in throat, mouth breathing and dribbling of nasal discharge into throat similarly improved (Table 7). These subjective findings in this study substantiate with the study of Tarabichi<sup>31</sup>, Reuler *et al.*<sup>32</sup>.

While observing the data of objective symptoms, it was found that maximum number of patients presented with tenderness over sinus<sup>30</sup> (466 patients), which disappeared in 94 patients and reduced in 192 patients. Other objective symptoms, *viz.* hypertrophied nasal turbinates, and mucoid or purulent nasal discharge improved similarly (Table 8). These objective findings in this study corroborate with the findings of the studies of Reuler *et al.*<sup>32</sup> and Steinberg *et al.*<sup>33</sup>

Positive response was observed in 375 (95.1%) patients and the improvement was found in varying degrees; 138 (36.8%) patients were cured, 80 (21.3%) showed marked improvement, 91 (24.3%) showed moderate improvement, 66 (17.6%) patients showed mild improvement, while negative response included no improvement in 15 (3.8%) patients and worse in 4 (1.06%) male patients (Table 6).

Data in Table 10 shows more useful medicines *viz.* *Pulsatilla*<sup>34</sup>, *Natrum mur.*, *Kali bichromicum*<sup>34</sup>, *Silicea*<sup>34</sup>, *Belladonna*, *Rhus toxicodendron*, *Natrum sulphuricum*, and *Lachesis*. It is also observed that different medicines have affinity towards particular type of sinus affected. *Pulsatilla* was frequently indicated medicine in this study. It had particular affinity for *maxillary, frontal and fronto-maxillary sinusitis*; it emerged as useful medicine when the prescribing symptoms consisted of thirstlessness, thick, purulent, greenish yellow catarrh.

*Kali bichromicum* was the next most frequently indicated medicine in frontal sinusitis<sup>17</sup> with pain in supraorbital region, root of nose and scanty, sticky and purulent nasal discharge.

*Natrum mur.* was another medicine which was in parallel to *kali bichromicum*, indicated in *chronic fronto-maxillary sinusitis* with supraorbital headache and aggravated around 9-10 am. *Natrum sulph like Natrum mur.* also acted well in *chronic fronto maxillary sinusitis* but was worse during damp cold or monsoons.

*Lachesis* was useful in *left sided chronic maxillary sinusitis*, with dryness of mouth during sleep, nasal obstruction causing choking at night.

*Malaria officinalis* had favourable action on *acute frontal-maxillary sinusitis* in patients with constitutional symptoms like malaise, fever and thirst for cold water.

*Natrum ars* was used as specific medicine for sinusitis of chronic origin when there was obstruction, post nasal catarrh and pharyngeal congestion, aggravated in damp cold weather.

*Hepar sulph.* is another medicine which was indicated for acute sinusitis (frontal/ fronto-maxillary) becoming chronic with passage of time and it was associated with allergic rhinitis. These patients were much sensitive to cold.

*Mercurius solubilis* had favourable action on frontal sinusitis which was worse at night with nasal obstruction. Typically the patient had moist, thickly coated indented tongue with foul breath.

*Calc.sulph.* was indicated in chronic sinusitis with thick yellow discharge associated with burning in palms and soles. The symptoms were better from washing with cold water.

Lesser known medicines were also found efficacious and their indications are as follows:

- *Cassia sophera* Q- found to be useful when prescribed on the presenting symptoms of blocked nose causing difficult breathing, sneezing in bouts. The medicine was given to patients suffering from chronic sinusitis of fronto-maxillary origin after the acute attack was abated. This corroborates with the findings of drug proving as well as clinical verification of *Cassia sophera*<sup>35</sup>.
- *Sabadilla* 30 - indicated mainly in left sided sinusitis associated acute rhinitis with sneezing, and getting relief from hot fomentation.

Relationships of nine homoeopathic medicines could be achieved viz. followed well, complementary and intercurrent (Table 11).

The draw back of this study is less sample size taken for x-ray investigation after treatment. Repetition schedule of medicines could not be determined since the frequency of medicines varied from patient to patient and relationship of all medicines could not be fully determined. So the outcome needs further validation. However a study with bigger sample size in respect to various investigatory methods viz. ultrasonography, CT scan and various immunological biomarkers (IgG3, IgG4 and IgE) can be taken into account to further validate the outcome.

## Conclusion

The results indicate a positive role of homoeopathic treatment in sinusitis. The objectives of the present study

to identify a group of useful medicines and their reliable indications were achieved. Indications of the medicines on which the prescriptions were based were re-confirmed and re-verified. *Pulsatilla*, *Kali bichromicum*, *Silicea* were found to be most useful.

A multicentric trial of the study with definitive qualitative and quantitative parameters, laboratory/radiology based diagnosis and the evaluation of the subjects, on those parameters, is proposed to further substantiate the outcome of this study.

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